EPRA International Journal of

MULTIDISCIPLINARY
RESEARCH

Monthly, Peer Reviewed (Refereed) & Indexed International Journal

I J M R

CONTENTS

PREPARATION OF RESEARCH PROPOSAL

N. Lalpianpuia[1], Prof. Loknath Mishra[2]

[1]*Assistant Professor, Institute of Advance Studies in Education, Aizawl, Mizoram*
[2]*Professor, Department of Education, Mizoram University*

ABSTRACT
Understanding the Steps and preparation of research proposal is the gateway to acquire interest in the field of research in order to find out the problem which comes in our day-to-day life. The purpose of this paper is to expose scholars, students and persons interested in research findings to the meaning of Research proposal and how to write Research synopsis. Young researcher will be able to acquaint with the knowledge of Preparing Research proposal, to spell out characteristics of Preparing Research proposal and familiar with the steps of writing of Research proposal.

KEYWORDS: *Research Proposal, Fundamental for Researcher, Systematic plan, intelligent guess for solution to any problem.*

INTRODUCTION

It is extreme modernity that the field of education had been revolutionized due to advancement of science and technology and the corresponding change methodology in the educational research in the entire world involved in the field of education face numerous problems concerning education. A scientific study and successful solution of the educational problems is the felt need of prevailing situations everywhere. Choice of a suitable problem is one of the most difficult phases of any research project. The beginner is likely to select a problem that is much too broad in scope. This may be due to his lack of understanding of the nature of research and systematic problem-solving activity. The experienced know that research is often tedious, painfully slow and rarely spectacular. They realize that the search for truth and the solution of important educational issue without in sight probably will not be successful. A great deal of patience, thinking and planning a research proposal becomes necessary even in the initial process of selection. Once the subject with a definite purpose of enquiry, its practicability with regard to the availability, efficiency and accuracy of the data and above all, with the contemporary social importance has been chosen for investigation, the next important step is to decide on the careful planning the succeeding stages- in fact, every stage of the investigation from the formulation of the working hypothesis, to the finalization of the report. In other words, for the study and solution of every problem in education different steps are needed to be followed in well regulated order. Failing in any of the steps prevents in the proper collection of facts and getting into difficulties at the later stages of analysis and inference. Careful planning of the proposal helps the researcher to go far collection of relevant facts. Before attempting any problem or before starting the work a plan of action for the work proposed is to be prepared. This plan of action for the work proposed will not be as a blueprint of the work proposed. In short, a research proposal has to be prepared in order to help the researcher to get a clear picture of the work he is going to do. For seeking approval of their proposed research project, the researchers-students or professionals are required to submit their request in the form of a well-prepared written document termed as research proposal or synopsis of the proposed research project.

A research proposal may be termed a written or online electronic document, containing details of the plan, procedure, possible outcomes and underlying rationale of a respective organizations or authorities for seeking their approval to conduct the proposed research study.

SPECIFICATIONS OF RESEARCH PROPOSAL

The problem that an individual investigation takes up is not basically different from a research project which may be defined as an investigation into a problem sufficiently homogeneous though it may have many facts, to be brought under a single administrative and technical unit with reference to its objectives. All the same research problem has the same features and the minor differences probably relate to the smaller size and perhaps fewer procedural complications

1. It gives a valuable opportunity and reality available base to the institution concerned to have a proper evaluation of the worth, value and feasibility of the proposed research study.
2. The proposal is comparable to the blueprint that an architect prepare before the bids are let and building commences. Consequently, the research proposal submitted by the research processes the required capability of serving as a systematic plan of procedure for him/her to follow, ensuring a proper steady and continuous progress aimed to help him/her in the realization of set of objectives
3. This will provide the following kind of information about the research study.

i.   What will be done?
ii. What may be found?
iii. How it is related to other knowledge in the area?

The preparation of the research proposal is a prerequisite for conduction of formal research study. Regardless of whether one is conducting descriptive, historical or experimental research, the proposal is fundamental for researcher is Ph.D degree.

The research proposal is a systematic plan, which brings together in an organized from the preliminary planning of collecting adequate and relevant data that will be needed to accomplish the purpose of the study.

WRITING A RESEARCH PROPOSAL

Regardless of purpose, the research proposal must adhere to certain specifications that are basic to good research. A research proposal should contain the following steps

1. Title of the problem and its specifications
2. Clarification and definition of terms and concepts
3. Aims and objectives
4. Hypothesis
5. Methodology
   a. Population and Sample
   b. Instrumentation
   c. Procedure for data collection
   d. Analysis and Interpretation
6. Limitation of the study
7. Outcome of the study
8. Time Schedule and Budget

Title of the Problem and Its Significance

The title of the problem is very important and should be reached very carefully. It should be such that reader from the title itself will be able to guess the contents of the study. A title should be stated either in question form or declarative statement. Enough information ought to be given in the title to identify the study. Sometimes the title is also given in a form of cause-effect relationship. Care should be taken to see that the title of the study should not be too long and should not be too broad in nature.

In this section researcher is required to organize the matter in the following themes:

a. A formal Brief discussion about the subject area or field to which the present study belongs
b. Board perspectives of the related past studies and their findings
c. Rational for doing the present research
d. Statement of the research problems

Clarification and Definition of the Terms and Concepts

The researcher studies bits of reality to understand the situation and to further knowledge by widening or deepening it or by making it more precise and exact. The purpose of formulating concept is to facilitate the study, organization or isolation of facts or the properties of objects and to attempt to relate and integrate different phenomenal studies in helping to communicate the findings. Such formulation is basis to all thought processes and scientific techniques, because it gives precision and meaning to communications. So it is necessary to clarify all unusual terms that could be misinterpreted. Clarification of such time and concepts helps the researchers as well as readers to get a clear picture in the title and their relationships signified by clarifying terms used in the title.

Objectives

Specific objective of the study should be very clearly stated without any ambiguity. This would help the researcher in deciding upon his tools sample and delimiting of the area of study. On the other hand, this will show the clear path for conducting research without obstacles. That is because; a research investigation is like a cross country race with anticipated and un-anticipated obstacles and difficulties met with successfully. These obstacles may occur, for examples, in the collection of data, slackness of response, inadequacy and inaccuracy of data and so on. There can be no general solution for overcoming the obstacles, they must be met and when they arise, but much care should be taken in coining the specific objectives of study for research.

Hypothesis

Hypothesis are the tentative gauss of the research and when a research objectives known takes up a problem for analysis, he first has to start from somewhere and this point of start is the hypothesis. A hypothesis is essentially tentative, likely to be modified during investigation if the facts discovered us the course of enquiry demands it. It is an explanation that needs to be established before it can be accepted, and the very process of investigation is directed towards testing the hypothesis. In a simply way, hypothesis is an intelligent guess for solution to any problem.

Methodology

Methodology includes aspects like instrumentation, sampling, procedure for collection of data and analysis and interpretation of data.

a) **Population and sample**: Also, the researcher has to decide on what sample he is to administer his tools, whether urban or rural, boys or girls, government or private institutions will be taken for selecting the sample and the size of the sample should be uncertain so is to make the adequate for the study. The researcher must finalize it in advance. Here the researcher is supposed to discuss and write down the type of subject chosen for the study including the method used to select participants.

b) **Instrumentation**: The researcher must decide what tool he is going to use for collecting data whether it is an instrument to be prepared by him/her or to use in instrument prepared by him/her or to use in instrument prepared by somebody else. In the field of education, different kinds of tolls are available for knowing various personality characteristics.

c) **Procedures for collecting of Data:** A complete and precise description should be given for instruments, materials, or

devices used in the selections made, there should be a detailed step by step description of the ways in which data are to be collected. This description should include detailed information on the precise data to be collected, the sources and population to be used, sampling procedures if any, and any other information necessary to further clarify the procedures.

d) **Analysis and Interpretation**: It is necessary to describe precisely and specifically the way in which data are to be organized. The steps and techniques used to analyze and interpret the data should be presented in detail and should be defended. He/she will also mentioning how in the light of outcomes of such analysis. He/she will be able to accept or reject his research hypotheses.

Limitations of the Study
The boundaries of the study should be clearly stated in terms of the areas to which conclusions will be confined. Reasons should be given for all such limitations.

Outcome of Study
In this step the investigator should mention clearly what contribution the proposal study is going to give to the field of education

Time Schedule and Budget
In this section the researcher is supposed to mention about the approximate time taken in conducting the study in respect of contacting the subject, extracting information from them, analyzing and drawing conclusion from his efforts. She mentions the type of resources he will require for conducting her study along with the estimate of expenditure incurred or budget needed for the execution of the study.

Conclusion
Writing a research report is a difficult as well as joy giving, the researcher feels happy about the "product" and so keeping this in view the researcher should have loud-thinking while preparing a research design.

Bibliography
In this section, researcher is required to write down all the references being cited at different places of the prepared research proposal, all the books journals and other literature and online resources used by the researcher for preparing her research proposal.

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A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF SUMAG DRESSING AND COLD COMPRESS ON REDUCING INTRAVENOUS INFILTRATION AMONG PATIENTS ADMITTED IN MEDICAL AND SURGICAL WARD OF NETAJI SUBHASH CHANDRA BOSE MEDICAL COLLEGE, JABALPUR

Rekha Singh[1]

[1]*Associate Professor, Medical Surgical Nursing (Cardio-Vascular and Thoracic Nursing) Govt. Nursing College GMH Rewa (MP)*

ABSTRACT

This comparative study aims to assess the effectiveness of Sumag dressing and cold compress in reducing intravenous infiltration among patients admitted to the medical and surgical wards of Netaji Subhash Chandra Bose Medical College, Jabalpur. Thrombophlebitis, characterized by inflammation and clot formation in veins, poses a risk during intravenous therapy. Peripheral intravenous devices (PIV) are commonly used in hospitalized patients, yet complications like hematoma, phlebitis, and infections may arise. The study addresses the need to explore interventions for reducing intravenous infiltration, a common issue in medical therapy.

Objectives of the study include assessing the extent of intravenous infiltration using the Infusion Nurse's Society Infiltration Scale, administering Sumag dressing to one group, applying cold compress to another, and comparing their effectiveness. Additionally, the study aims to examine the association between intravenous infiltration scores and selected socio-demographic variables.

Assumptions consider patients on intravenous therapy at risk for infiltration, with the hypothesis predicting a significant difference in the effectiveness of Sumag dressing and cold compress. Furthermore, the study anticipates a significant association between intravenous infiltration and socio-demographic variables. The findings may contribute valuable insights to enhance the management of intravenous therapy complications, ultimately improving patient outcomes.

INTRODUCTION
 "Don't let yesterday take up too much of today."-will Rogers
Introduction
Thrombophlebitis is an inflammation of the walls of the veins, often accompanied by the formation of a clot. When a clot develops initially in the veins as a result of stasis or hypercoagulability,but without inflammation, the process is referred to as phlebothrombosis.

Peripheral intravenous device (PIV)/catheters are the most commonly used intravenous device in hospitalized patientss. They are primarily used for therapeutic purposes such as administration of medications, fluids and/or blood products as well as blood sampling. PIV's are usually considered a low risk; however it can be associated with complications such as hematoma, phlebitis, pain and infections.

Need for the study
Intravenous infusion has become an indispensable component in medical therapy. It is used to correct electrolyte imbalances, to deliver medications, for blood transfusion or as fluid replacement to correct dehydration. In spite of its therapeutic effects the most frequently encountered problems are infiltration and extravasations. Unfortunately, they are so common, that they are sometimes overlooked or not addressed as soon as they should be, or else they can produce debilitating effects. **(Anumol k. V. 2010)**

Title of the study
 "A comparative study to assess the effectiveness of sumag dressing and cold compress on reducing intravenous infiltration among patients admitted in medical and surgical ward of Netaji Subhash Chandra Bose medical college, Jabalpur"

Objectives
The objectives of the study were to:
1. Assess extent of Intravenous infiltration in Group-I and group –II by Infusion nurse's society infiltration scale among patients admitted in medical and surgical ward of N.S.C.B. medical college, Jabalpur.
2. Administer sumag dressing for reducing Intravenous infiltration to group- I patients admitted in medical and surgical ward of N.S.C.B. medical college, Jabalpur.
3. Administer cold compress for reducing Intravenous infiltration to group- II admitted in medical and surgical ward of N.S.C.B. medical college, Jabalpur.
4. Assess extent of Intravenous infiltration after intervention in group –I and group –II among patients

admitted in medical and surgical ward of N.S.C.B. medical college, Jabalpur.

5. Compare the effectiveness of sumag dressing & cold compress for reducing Intravenous infiltration among patients admitted in medical and surgical ward of N.S.C.B. medical college, Jabalpur.

6. Find out the association between Intravenous infiltrations score with their selected socio demographic variables.

Assumption
1. Patients on intravenous therapy are at risk for developing infiltration.
2. Sumag dressing and cold compress respectively reduces intravenous infiltration & pain.

Research Hypothesis
H_1- There will be a significant difference between effectiveness of sumag dressing & cold compress in reducing Intravenous infiltration among patientss admitted in medical and surgical ward.

H_2-There will be significant association between Intravenous infiltration with their selected socio demographic variables.

Conceptual Framework
Aims of the present study are to assess the effectiveness of sumag dressing and cold compress for reducing intravenous infiltration. The conceptual framework of this study is based on **Imogene king's** goal attainment model. Each individual is a personal system. Interpersonal systems are formed by human being interaction and transaction.
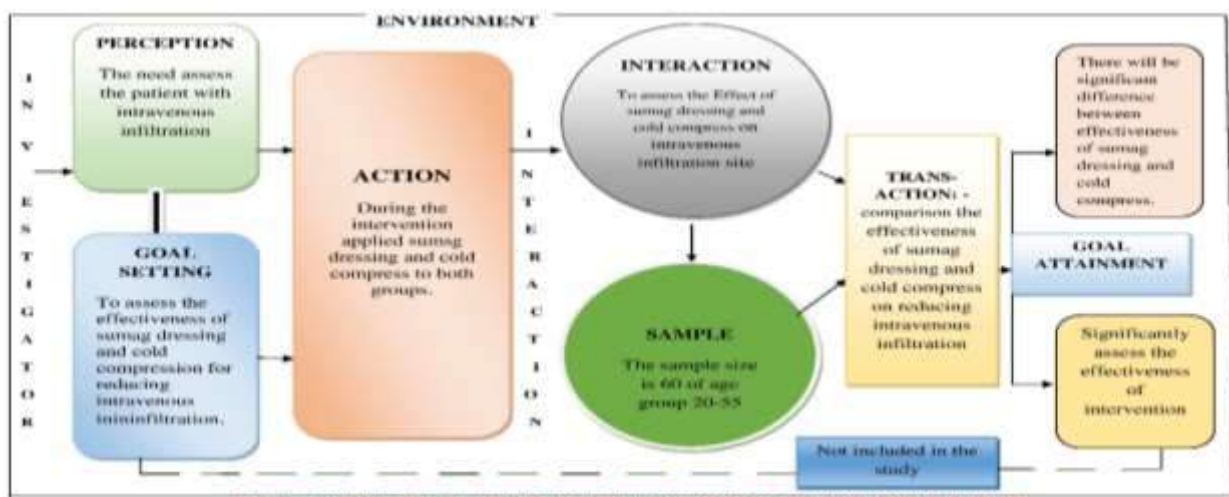
Fig no. 1 CONCEPTUAL FRAME WORK (ACCORDING TO IMOGENE M KING'S)

REVIEW OF LITERATURE
Many studies of similar area were not profound but the researcher has reviewed available studies to analyze the problem.
- Review of Literature related to intravenous infiltration.
- Review of Literature related to measures to reduce intravenous infiltration.
- Review of Literature related to effects of cold compress and sumag dressing.

RESEARCH METHODOLOGY
Kerlinger (1923)—stated that researcher usually has a choice of research design, methods of data collection and type of analysis. All these must be congruent and appropriate to research problem.

Methodology includes a research approach, research design, description of setting, population, samples and sampling techniques, pilot study and procedure for data collection and plan for data analysis.

Research Approach
A research approach tells the researcher, the way to collect the data and analyze them. It is the overall plan or blue print to collect data and how to analyze them. It is the overall plan of the study. (**Polit & hungler, 2005**)

The choice of research approach constitutes one of the major decisions, which must be made in conducting a research study. In view of the objectives of the present study quantitative comparative research approach is considered to be suitable.

Research Design
A research design is the overall plan for addressing research questions or for testing the research hypothesis, including specification for enhancing the integrity of the study.

(**Polit & hungler,2005**)
A researcher overall plan for obtaining answers to the research question or for testing the research is referred to as research design.

In the present study investigator has adopted a quasi experimental research design.

The use of experimental group in the design helps the researcher to determine whether or not the independent variable had made a change in the experimental group.

The samples were 60 patients. 30 patients in group 1 and 30 patients in group 2, effectiveness is assessed by using infusion nurses society infiltration scale for samples and results are analyzed

Table 1:
Quasi Experimental Research Design

Group	Observation	Intervention
Group 1	O_1	X_1
Group II	O_2	X_2

Setting is the physical location and condition in which the data collection takes place in study.(Polit & Hungler, 2005)
The study was conducted in Netaji Shubhas Chandra Bose Medical College and Hospital at Jabalpur.

Population includes patients with sign and symptoms of intravenous infiltration admitted in medical and surgical ward of Netaji Shubhas Chandra Bose Medical College and Hospital at Jabalpur.

In this study the sample comprises patients with sign and symptoms of intravenous infiltration admitted in medical and surgical ward of Netaji Shubhas Chandra Bose Medical College and Hospital at Jabalpur, who fulfilled the Inclusion criteria.

Sample Size
In this study the sample size comprises of 60 patients (30 patients in sumag dressing group -I and 30 patients in cold compress group- II) who are having intravenous infiltration as assessed by Infusion nurses society infiltration scale.

Sampling Technique
Sampling is a process of selecting a portion of the population to obtain data regarding a problem.
The samples for the study will be selected by convenient sampling technique.

Data was collected with the help of structured multiple questionnaire which contains
The instrument selected in a research should be as far as possible the vehicle that would best obtain data for drawing conclusion pertinent to the study. The tool acts as an instrument to assess and collect data from the respondents of the study.
The tools selected for the study were:
Infusion Nurses Society Infiltration Scale.
Description of the tool
The tools consist of three sections:
Section A: A demographic Performa (Interview Schedule) to assess the characteristics of the patients include such as Age, Gender.

Section B: A Socio-demographic variables according to clinical condition to assess the characteristics of the patients include such as Duration of Intravenous therapy, Type of disease, Site of Intravenous infusion, No. of times Intravenous cannulation done, Duration of admission in the hospital.

Section C: infusion nurses society infiltration scale – The infusion nurses society infiltration scale developed by Michelle Berreth, RN, CRNI, CPP, Nancy Delisio, RN, at Infusion Nurses Society, Norwood, MA 02062, USA.

Pilot study is a small-scale study or the trail run of the major study. It is not the same as a small- scale study. The purpose of the pilot study is not so much to test research Hypothesis but rather to test protocols, data collection instrument, sample recruitment strategies and other aspects of a study in preparation for a large study. The purpose of pilot study is two folds: it helps to find the feasibility, improvement and a modification in the research plan before the main study is attempted. Hence pilot study was carried out to test the methodology planned for the main study. The pilot study was conducted in **Seth Govind Das Hospital Jabalpur** from 13/04/18 to 15/04/18. Data for pilot study were collected from 10 patients by convenient sampling technique.

The permission was obtained from the director of hospital prior to the study. The purpose of the study was explained to the subject. The observation of sample and intravenous infiltration was taken on 13/04/18 & after that apply the application of sumag dressing group 1 patients and cold compress group 2 patients for the intervention. On fourth day 16/04/18 Data analysis was done using Karl Pearson correlation coefficient split half technique. The pilot study helped the investigator to visualize practical problems that could be encountered while conducting main study

DATA ANALYSIS AND INTERPRETATION
Organization and presentation of data:
Data was collected and entered in a master sheet for the statistical analysis. It was interpreted using descriptive and inferential statistical. The data are organized and presented under the following section.
Section I
This section deals with analysis of socio demographic variables data of group I sumag dressing, and group II cold compress.
Section I –(A): This section deals with analysis of the socio demographic variables data of 30sample group I sumag dressing.
Section I –(B): This section deals with analysis of the socio demographic variables data of 30sample group I cold compress.
Section II-: This section deal with the distribution of samples of group I sumag dressing and group II cold compress as per grading of intravenous infiltration score during 1to 3days .
Section II (A): This section deal with the distribution of samples of group I sumag dressing as per grading of intravenous infiltration score during 1to 3days.
Section II (B): This section deals with the distribution of samples of group II cold compress as per grading of intravenous infiltration score during 1to 3days.
Section III This section deal with the distribution of sample Mean and SD of group I sumag dressing and group II cold compress.
Section III (A): This section deals with the distribution of sample as per Mean and SD of infiltration score of sumag dressing group I.
Section III (B): This section deals with the distribution of sample Mean and SD of group II cold compress.
Section IV- This section deals with the comparison of Mean difference Scores of among sample between group I sumag dressing and group II cold compress.

Section-IV (A) This section deals with the comparison of Mean difference Scores of among sample between group I sumag dressing

Section-IV (B) This section deals with the comparison of Mean difference Scores of sample between group II cold compress.

Section- V This section deal with the analysis of data to associated to intravenous infiltration of patients with selected demographic variables in group I sumag dressing and group II cold compress.

Section- V (A) This section deal with the analysis of data to associated to intravenous infiltration of patients with selected demographic variables in group I sumag dressing.

Section- V (B) This section deal with the analysis of data to associated to intravenous infiltration of patients with selected demographic variables in group II cold compress.

Distribution Of Subject According To Their Age.
N=30

Variables Age	Frequency(n)	Percentage(%)
20-30	6	20%
31-40	6	20%
41-50	15	50%
51-Above	3	10%
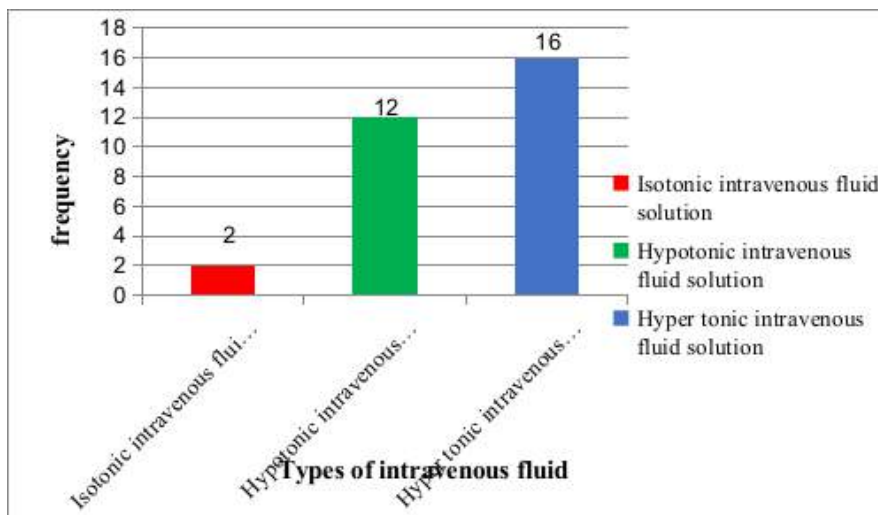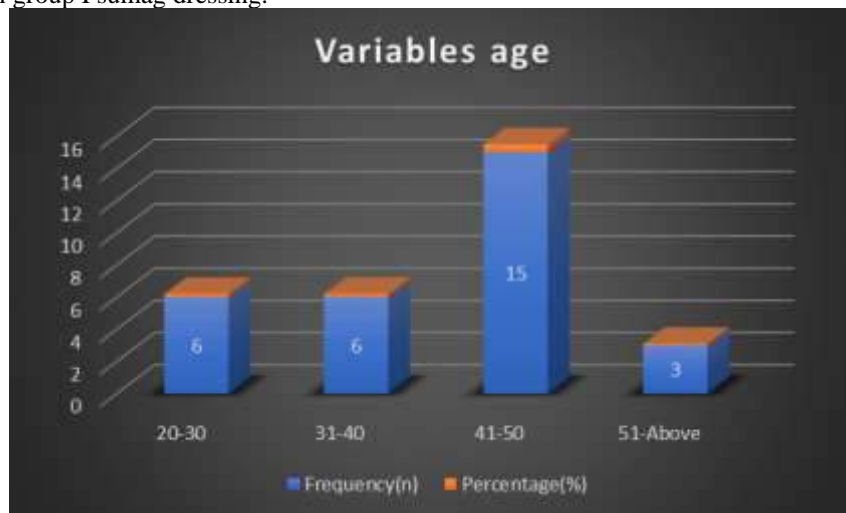
Figure no. 2 Distribution of subject according to their types of intravenous fluid
Group – I distribution of samples of group I as per intravenous infiltration score

Days	Infiltration Grading Score	Sumag dressing (N=30)	
		Frequency (n)	Percentage (%)
1st day	Grade 0	0	0
	Grade 1st	0	0
	Grade 2nd	0	0
	Grade 3rd	7	23.33
	Grade 4th	23	76.67

	Grade 0	0	0
2nd day	Grade 1st	0	0
	Grade 2nd	6	20
	Grade 3rd	17	56.67
	Grade 4th	7	23.33
3rd day	Grade 0	1	3.33
	Grade 1st	16	53.34
	Grade 2nd	12	40
	Grade 3rd	1	3.33
	Grade 4th	0	0

Table no Table.2. show that the majority of sample in 1st day was (grade 4) 23(76.67%), and minority of (grade 3) 7 (23.33%), and none of them in grade 0, 1st and 2nd intravenous infiltration score

Distribution of sample Mean and SD of group –I sumag dressing.

Days of study	Mean	SD
1st day	3.76	0.42
2nd day	3.03	0.67
3rd day	1.43	0.65

Table no.3 Depict the distribution of intravenous infiltration score of Group-I by Infusion Nurses Society Infiltration Scale. 1st day mean was of intravenous infiltration 3.76 and SD was 0.42, 2nd day mean was 3.03and SD was 0.67, 3rd day mean was 1.43, and SD was intravenous infiltration score was 0.65

Comparison of Mean and SD Of Sumag Dressing and Cold Compress
SECTION IV- This section deals with the comparison of Mean difference scores of among sample between group -I sumag dressing and group -II cold compress.

Section-IV A- This section deals with the comparison of Mean difference Scores of sample group I sumag dressing
Section-IV B – This section deals with the comparison of Mean difference Scores of sample Group-II cold compress.

Day of study	Sumag dressing Group-I		Cold compress Group-II		Mean Difference	SD Difference	t test
	Mean	SD	Mean	SD			
1st Day	3.76	0.42	3.66	0.47	0.1	0.04	0.97
2nd Day	3.03	0.67	2.9	0.74	0.13	0.08	0.78
3rd Day	1.43	0.65	1.67	0.59	0.24	0.02	1.58

Table no 4 Significance of difference between sumag dressing and cold compress by using 't' test.
This section deals with the Mean difference of day 1st was 0.1, day 2nd was 0.13 and day 3rd was 0.24 and SD difference of day 1st was 0.04 and day 2nd 0.08 and day 3rd 0.02.

The calculated t-value at the 0.05 level of significance day 1st was 0.97, day 2nd was 0.78 and day 3rd was 1.58. the calculated t-value lower than table value. Hence **H1** is non excepted. The result show that the cold compress and sumag dressing had similar effect on reducing intravenous infiltration.

Association of intravenous infiltration score of patients with selected demographic variables in group one sumag dressing. Description of Age, Duration of intravenous therapy, Types of disease, Sites of intravenous infusion, number of time intravenous cannulation done, number of intravenous cannula , types of cannula, types of intravenous fluid solution, duration of admission in the hospital is significant and gender none significant.

Summary
This chapter deals with the analysis of data and interpretation of the findings. The data obtained are summarized in the data sheet using both descriptive and inferential statistics.

The analysis has been organized and presented under 5 sections. Frequency and percentage were used to analyze the socio demographic & clinical variables. Frequency, percentage, mean and standard deviation were used to assess the effectiveness of sumag dressing & cold compress among patientss. And associated with intravenous infiltration of patients with selected demographic variables in group one sumag dressing and group two cold compress

The Major Findings Of The Study Are Summarized As Follows
Findings Related To Socio Demographic Variable In group -I sumag dressing-: Show that out of 30 sample the majority 15 (50%)ware 41-50 years age, regarding gender the majority 17(56.67%) ware male, According to duration of intra venous therapy the majority 17 (56.67%) ware >4 days, With regard to types of disease the majority 17(56.67) ware in moderate types of disease, With regard to type of intravenous cannula The majority of 23(76.67)ware winged with port cannula, According to site of intra venous infusion The majority of 15(50%)ware Cephalic vein site of intravenous infusion, With regard to types of intravenous fluid solution The majority of 14(46.67%) ware hyper tonic intravenous fluid solution, According to numbers of times intravenous cannulation done The majority of 10(33.33%) were twice times intravenous cannulation done, The majority of 16(53.33%) were 20 G

(number), numbers of intra venous cannula, According to duration of admission in the hospital The majority of sample 16(53.33%)were 8-15days duration of admission in the hospital.

In Group-II cold compress dressing-: Show that out of 30 sample the majority 14 (46.66%)ware 41-50 years age, regarding gender the majority 14 (46.66%)ware 41-50 years age, regarding gender the majority 16(53.33%) ware female, , According to duration of intra venous therapy the majority 19(63.33%%) ware >4 days, With regard to types of disease the majority 24(80%) ware in Moderate types of disease, With regard to type of intravenous cannula The majority of 22(73.33) ware winged with port cannula, According to site of intra venous infusion The majority of 16(53.33%)ware Cephalic vein site of intravenous infusion, With regard to types of intravenous fluid solution The majority of 14(46.67%) ware Hypo tonic intravenous fluid solution, According to numbers of times intravenous cannulation done The majority of 16(53.33%) were twice,9(30%) were twice times intravenous cannulation done, according to number of intravenous cannula the majority of 19(63.33%) were 20 G , According to duration of admission in the hospital The majority of sample19(63.33%)were < 7days admission in the hospital.

Group – II B Findings related to the frequency and percentage of cold compress
Intravenous infiltration score of Group-II in 1st day none of the sample was in grade 0 and grade 1 and 2 but 10 (33.33%) sample having grade 3 and 20(66.67%) sample having grade 4 intravenous infiltration score.

Intravenous infiltration score of group Group-II in 2nd day none of the sample was in grade 0 , grade 1 but 10 (33.33%) sample having grade 2nd and 13(43.33%) sample having grade 3rd and only 7(23.33%) sample having grade 4 intravenous infiltration score.
Intravenous infiltration score of group Group-II in 3rd day none of the sample was in grade 0 and grade 4th and 12(40%) sample having graded 1st and 16 (53.34%) sample having grade 2ndst and only 2(6.67%) sample was having grade 3rd intravenous infiltration score.

Findings related to the mean score and SD of Group -IA sumag dressing and Group -11B cold compress
This section deal with the Mean and SD score of intravenous infiltration in the (group one) sumag dressing during Days of 1st, 2nd, 3rd days using Infusion Nurses Society Infiltration Scale.

1st day-: Mean intravenous infiltration score of group 1 was 3.76 and SD was 0.42 in 2nd day Mean intravenous infiltration was 3.03 with SD score of 0.65, and in 3rd day Mean intravenous infiltration was 1.43 with SD 0.61.

Findings related to the mean score and SD of group –II B cold compress
This section deal with the Mean and SD score of inflammation infiltration in the Group II cold compress during Days of 1st, 2nd, 3rd days using Infusion Nurses Society Infiltration Scale.

1st day Mean intravenous infiltration score of group -II A was 3.66 and SD was 0.44. 2nd day Mean intravenous infiltration score was 2.9 with SD score 0.74 and in 3rd day Mean intravenous infiltration score was 1.67and SD 0.59.

Findings related Significance of difference between sumag dressing and cold compress by using 't' test
Comparison of Mean difference scores of inflammation infiltration of sample between sumag dressing, and cold compress during 1st, 2nd, and 3rd days using Infusion Nurses Society Infiltration Scale Shows the mean score of sumag dressing of 1st day was 3.76, 2nd day 3.03, and 3rd day 1.43. SD score of sumag dressing was 1st day 0.42, 2nd day 0.65 and 3rd day 0.615 score.

Mean score of cold compress of 1st day 3.66, 2nd day 2.9, and 3rd day 1.67. SD score of 1st day was 0.47, 2nd day 0.74, and 3rd day 0.59.

This section deals with the analysis of data to association to intravenous infiltration of patients with selected demographic variables in group - sumag dressing
It deal with the analysis of data to associated to intravenous infiltration of patients with selected demographic variables age, duration of intravenous infiltration therapy, types of disease, types of intravenous infiltration cannula, sites of intravenous infusion ,types of intravenous infiltration fluid ,numbers of time intravenous infiltration cannulation done, numbers of intravenous infiltration cannula, duration of admission in the hospital, in group one sumag dressing and group I sumag dressing compress was found significant and gender was non-significant. Hence it fulfill objective no 6 and hypothesis H_2 is accepted.

Conclusion
In the study after the detailed analysis this study leads to the following conclusion:-
In the study show the effectiveness of sumag dressing and cold compress for reducing intravenous infiltration in the apply sumag dressing and cold compress on 3 conductive days.
The present study also proved that there was a significant difference between sumag dressing and cold compress. So it may be stated that the application of sumag dressing is effective in reducing inflammation infiltration

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ENVIRONMENTAL SUSTAINABILITY AND ITS EFFECT ON THE SCENARIO OF SOCIO-ECONOMIC AND POLLUTION ASPECTS OF WATER BODIES IN UJJAIN, M.P.

Principal, Dr.KirtiDiddi, Professor,*Dr.Vishwas Tiwari

Dr. KirtiDiddi , Principal, Nirmala College, Vikram University, Ujjain, M.P. India.
**Dr. Vishwas Tiwari, Head, Department of Zoology, Nirmala College, Vikram University, Ujjain, M.P. India.*

ABSTRACT

The protection of Natural resources is first and foremost responsibility of human beings towards environmental sustainability. Nobody can predict the 'nature' of Nature, which changes frequently and we have to come up with the fluctuation of nature!Otherwisesuper factors of nature will destroy the vital life.Environmental sustainability is the responsible use of natural resources to ensure they will be around in the future. It is important because the Earth is a finite place, with limited land, water, and wildlife. Responsibilities towards environmental sustainability will open the door of creative approach and progress in socio-economic aspects. National Service Scheme and National Cadet Corps put forth their milestone efforts regarding socio-economic-natural development of human wellbeing. Sustainable resource use is the only way to make sure future generations will have what they need to survive. Renewable energy, such as solar, wind, hydroelectric, and biomass, are examples of sustainable practices. Sustainability in agriculture includes crop rotation, crop cover, and smart water usage, while sustainability in forestry involves selective logging and forest management. It is proven that environmental economics has many benefits in preventing environmental problems and achieving sustainability. This economic concept also correlates with the majority of the goals of sustainable development programs, assisting many countries in achieving these objectives. The environmental contamination is seeming to a major problem of the World. In the present study the water contamination were thoroughly studied on the basis of estimation of pH, Turbidity, TSS, TDS on the basis of WHO and NDWQS standards.

KEY WORDS- *Environmental Sustainability, National Service Scheme, National Cadet Corps, Socio-economic aspects, Renewable energy, Biomass, WHO, NDWQS, TSS, TDS, pH, Turbidity.*

INTRODUCTION

The depletion of natural resources and environmental deterioration are two further environmental consequences of extensive economic activities. National Service Scheme reflects socio-environmental correlation through various programmes and Camps .It is acknowledged that various economic activities, including human and industrial activities frequently result in various environmental problems, such as water and air pollution. According to the World Health Organization (WHO), water pollution is one of the most major health risks, causing about 2 million human deaths each year. Annually, nearly the same number of premature deaths are caused by air pollution all over the world Air pollution, moreover, can lead to a severe degradation of the atmosphere, as well as many other environmental issues, including climate change, and famine. In the long term, all of these issues will not only disrupt the economy but may also affect society's well-being. However, the path to achieving environmental economics and the sustainable development goals might not be so simple. Environmental problems continue to grow in severity, and the solutions provided by environmental economists have proven ineffective [2]. It is also known that the implementation of environmental economics strategies leads to several other consequences, both economically and socially. For example, the rise of the "shadow economy", which is caused by inefficient fiscal policy. The "shadow economy" has spread to 162 Western countries, accounting for an average of 34.5 percent of official GDP [2]. In Asian countries, the average percentage of the "shadow economy" has reached about 31% of the official GDP. In the long term, the increasing level of the shadow economy can disrupt the stability of the economy [8]. Another consequence is market monopolization, which is found in the implementation of the green consumerism strategy. The environmental contamination of heavy metals such as lead, cadmium, mercury or cromium among other, is a serious and continuing problem throughout the world. Developmental toxicity among the harmful effects derives from the exposures to these elements. arsenic, mercury, cadmium and lead are considered as major environmental pollutants as well as developmental toxicants (Chang, 1996).

OBJECTIVES

The main objective of this research is to elucidate the Socio-Economic-Environmental aspects and environmental contaminants with their correlation with each other and promising effect of environmental fluctuations of especially five super factors viz: Light, Temperature, water, Humidity and Pressure on Socio-Economic life of human beings. In present circumstances it seems essential for the protection of the Nature and the balance of its ecosystems for peaceful and productive life of living beings.

HYPOTHESIS

This research work is absolutely based on the 10% law of energy in an ecosystem (Odum, 2004). This law is actually the part of Universal law of energy i.e. 'Energy neither created nor destroyed, it changes from one system to another system. Secondly, the energy of Universe increasing day by day due to tremendous increase in the establishment of various systems day by day on earth. 10% law is actually the transfer of 10% of total amount of energy in each and every trophic level of an ecosystem. This continuous transfer of energy maintains the life of living beings in Socio-Economic-Environmental aspects, whereas drastic energy fluctuation due to environmental contamination causes randomness in the environmental sustainability of the Nature.

LITERATURE REVIEW

The work of Following Authors/Scientists / Economists are in support of this research work Odum (2004), Investigated the pattern of environmental factors and global ecological aspects. Drexhag and Murphy (2010), thoroughly studied the Sustainable development of nature. Dunlop *et al.* (1983) studied environmental behavioral aspects whereas, Elkington (1997) studied environmental performance index. On the other hand, Maidment (2009) observed the global economic aspects and its drastic changes. Whereas, Nilsson *et al.* 2004 thoroughly studied willingness to accept climate change stratagies. While Pannayotou (1993) studied environmental degradation at different stages of economic development. Meanwhile Plummer (1989) thoroughly studied new emphasis on self actualization with reference to economics and sustainable development. Parameters are included in the research work on the basis of guidelines of WHO. Dissmeyer (2000) investigated the drinking water quality from Forests and Grasslands ecological areas. Azrina *et al.* (2011) observed major inorganic elements in tap water samples in Penninsular Malaysia.While Fawell (1993) studied the impact of inorganic chemicals on water quality and health. Meanwhile Jia *et al.* (2010) thoroughly studied testing and analysis of drinking water quality in the rural area of high tech district in Taian city and Katsoyiannis and Zouboulis (2013) seen removal of uranium from contaminated drinking water. While Tuzen and Soylak (2006) found evaluation of metal levels of drinking water from Tokat- Black sea region of Turkey. While Heyderi and Bidgoli (2012) studied chemical analysis of drinking water of kashan district of Iran. Meanwhile Pillay *et al.*(2001) investigated drinking water quality surveilliance and safety in Malaysia. While Jahi (2002) thoroughly studied issues and challenges in environmental management in Malaysia. Meanwhile Chan (2004) studied managing water resources in the 21st century all stakeholders towards sustainable water resources management in Malaysia. On the other hand, Hasbiyana (2008) investigated the determination of heavy metals in tap water by using atomic absorption spectroscopy. Meanwhile Cui et al. (2011) thoroughly studied determination of methylitin compounds in urine of occupationally exposed and general population by in situ ethylation and head space SPME coupled with GC-FPD. Many other scientists effectively done their research work in the field of environmental sustainability and pollution mentioned in the references.

RESEARCH METHODOLOGY

The study of environmental sustainability is hampered by two factors, first the frequent changes in the environment and second the environmental pollution. The present research work is based on the survey of water bodies of different area of Kshipriver with collection of water sample for physic-chemical analysis, Turbidity, and Level of contamination with reference to environmental variables. The whole plan and methodology of the present research was based on Environmental Sustainability and its effect on the Scenario of Socio-Economic and pollution aspects of water bodies in Ujjain area of M.P. The survey parameters were taken as follows:

* Collection of sample and survey of the water bodies in every six months of the year 2019-20
* Collection of sample and survey of the water bodies in every six months of the year 2020-21
* Collection of sample and survey of the water bodies in every six months of the year 2021-22
* Collection of sample and survey of the water bodies in every six months of the year 2022-23 till 31 December 2023

EXPERIMENTAL DESIGN/ SURVEY PARAMETERS

Survey– I
1. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e. July 2019-Dec.2019.
2. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e. Dec.2019- June 2020.

Survey– II
1. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e.June 2020-Dec. 2020.
2. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e. Dec. 2020-June 2021.

Survey– III

3. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e.June 2021-Dec.2021
4. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e.Dec.2021-June 2022.

Survey– IV

5. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e. June 2022-Dec.2022.
6. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e. Dec.2022-June 2023.

Survey– V

7. Collection of water sample in collection bottles for Physico-chemical analysis in the first six month of the 2019 i. e. June 2023-Dec.2023.

During experimental survey, following parameters were recorded.

a) Time duration of survey on site.
b) Collection of water from various area of the water body to see the concentration and quality of water in that particular area.
c) Sampling and marking of collection bottle on site.
d) Estimation of acidity/alkalinity by Universal Indicator Solution on site.
e) Estimation of concentration of water pollutants of the varioussample water body in the laboratory.
f) Estimation of Turbidity and pollution level of water body by turbid meter in the laboratory.
g) Survey of surrounding people affected by water pollution on site.
h) Estimation of pH of contaminated water by pH meter in the laboratory.
i) Estimation of TSS (Total Suspended solids) and TDS (Total Dissolved Solids) byvacuum filtration process in the laboratory.

STATISTICAL ANALYSIS

For testing the significance of difference between the means of the reading of experimentalsurvey,student't' test was used and expressed in SD ± SEM (Bancroft, 1966). The different histograms were plotted for experimental survey.

RESULT ANALYSIS

The Socio-Economic-Environmental Fluctuations and environmental contamination arethe real means of disturbance in the life of living beings especially human beings. Environmental factors are most powerful factors of the Nature which influences drastically the socio-economic balance of life. Social organization like National Service Scheme (NSS) can remove this fluctuation through its remarkable way of variety of social work to maintain the ecosystem of the Earth. Whereas, National Cadet Corps protect the Country by means of Social, Economic, and Defensive aspects.In the present study, the contamination level of various area of kshipra river water body was considerably fluctuated in the span of successive three years, i.e. 2019 to 2023 respectively.In the year 2019-20 the water contamination were slightly increased in the month of July and August. Whereas in the month of September and October, contamination level was negligible. But from November to June, the contamination level were tremendously increased (Table-I). In the year 2020-21 the contamination level were gradually increased from July to June respectively (Table-II). Meanwhile in the year 2021-22, the water contamination level was fluctuating in approx. every two months from July to June respectively (Table-III). In the year 2022-23 remarkable water contamination were observed from July to June 2023(Table-IV).Thus after estimation of pH, Turbidity, TSS, TDS of contaminated water of Kshipra River water body of Ujjain, a drastic fluctuation were observed with reference to pollution level . Though, during COVID19 period, the pollution was very less may be due to decline in the unsocial activities of human beings against nature following lockdown. Although, activities of NSS volunteers and NCC cadets towards cleanliness campaign will provide a major clue for clean Ujjain campaign or pollution free city.

Table-I: Experimental Survey of water body in different months of the year 2019-20
Analysis of water contamination in Experimental Survey No. I by NDWQS.

S.No.	Jul	Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	06.90 ± 0.3	04.80 ± 0.6	02.40 ± 0.4	03.40 ± 0.2	11.76 ± 0.5	08.29 ± 0.7	14.39 ± 0.6	10.60 ± 0.6	20.70 ± 0.6	17.20 ± 0.2	22.64 ± 0.3	19.74 ± 0.9

All values are expressed in mean ± SEM.

Table-II: Experimental Survey of water body in different months of the year 2020-21
Analysis of water contamination in Experimental Survey No.II NDWQS.

S.No.	Jul	Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	06.90 ± 0.3	04.80 ± 0.6	02.40 ± 0.4	03.40 ± 0.2	11.76 ± 0.5	08.29 ± 0.7	14.39 ± 0.6	10.60 ± 0.6	20.70 ± 0.6	17.20 ± 0.2	22.64 ± 0.3	19.74 ± 0.9

All values are expressed in mean ± SEM.

Table-III: Experimental Survey of water body in different months of the year 2021-22
Analysis of water contamination in Experimental Survey No.III NDWQS.

S.No.	Jul	Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	06.90 ± 0.3	04.80 ± 0.6	02.40 ± 0.4	03.40 ± 0.2	11.76 ± 0.5	08.29 ± 0.7	14.39 ± 0.6	10.60 ± 0.6	20.70 ± 0.6	17.20 ± 0.2	22.64 ± 0.3	19.74 ± 0.9

All values are expressed in mean ± SEM.

Table-IV: Experimental Survey of water body in different months of the year 2022-23
Analysis of water contamination in Experimental Survey No.IIINDWQS.

S.No.	Jul	Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	06.90 ± 0.3	04.80 ± 0.6	02.40 ± 0.4	03.40 ± 0.2	11.76 ± 0.5	08.29 ± 0.7	14.39 ± 0.6	10.60 ± 0.6	20.70 ± 0.6	17.20 ± 0.2	22.64 ± 0.3	19.74 ± 0.9

All values are expressed in mean ± SEM.

LIMITATIONS OF THE STUDY
Nobody can predict the fluctuation of Nature! Once the Nature changes, it influences on whole scenario of Socio-Economic life of living beings. One should protect the Nature in all aspects by understanding its frequently changing circumstances. This research work is mainly based on Socio-Economic-Environmental Correlation and understanding fluctuations in the form of decline in Socio-Economic life. However for Socio-Environmental purpose, further investigations are necessary.

CONCLUSION
Sustainable use of resources necessarily includes the rational use of natural resources, to provide solutions for the local people who make their living by tapping and processing this resources. A project for multiple uses of natural resources like forest water and energy should be launched. The intense social working of NSS and Defensive working of NCC should be continuingin the new aspects.

SCOPE FOR FURTHER RESEARCH
The Scope of sustainable development includes-
1. Using the available resources judiciously and working towards maintaining the ecological balance. 2. To prevent degradation of the environment and laying emphasis on protecting the environment.3.To prevent overexploitation of resources.4. Economic Growth: For creating an economy that is sustainable and growing in the right direction. 5. Protecting the Environment: This objective focuses on contribution by humans towards protecting and enhancing the natural environment, by minimizing pollution and waste, also working towards reducing the global carbon footprint.6. Social Inclusion: This objective focuses on providing the facility of housing for future generations and assisting in creating healthy, strong and vibrant global communities.

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A REVIEW ON CONSUMER INCLINATION TOWARDS IMITATION JEWELLERY

Dr. S. S. Ramya

Assistant Professor, Department of Commerce, PSG College of Arts & Science, Coimbatore-14.
ORCID iD: https://orcid.org/0000-0002-9547-1272

ABSTRACT

This study is undertaken analyse the inclination of imitation jewellery and their satisfaction level towards price, variety, quality and convenience therefore keeping now in mind, some objective were framed and also the study was carried, supported the objectives. The data is collected through questionnaire, as it's the most accessible way for the experimenter as well as the replier. The collected date was analysis by using chance system chance was calculated by taking the number of replier for a particular parameter against the total number of repliers. The Chi-square test is used in this study to find out whether there's any significant association between the particular factors and source of mindfulness and family income per month and quantum spent on imitation jewellery per time. The average ranking analysis is used to analyses the opinion given by the repliers for important factors, the weights has been given to each factors and total scoring are calculated, The average score analysis deals with consumer position of satisfaction towards price, variety, quality and vacuity of imitation jewellery. Hence the manufacturer has to introduce imitation jewellery to satisfy the need of consumers at all level of income. The manufacturers should keep an eye on quality and see that delivery schedules are kept. The beautiful designs and the equally beautiful materials with which they are made and most importantly the economical cost make imitation jewellery the most wanted item on anybody shopping list. All this keeps the fires burning in the imitation jewellery industry and helps in bringing out new and improved beautiful works of art in imitation jewellery.

KEY WORDS: *Imitation jewellery, trends, inclination, variety, design, price and availability*

1. INTRODUCTION

Jewellery has come a necessity for numerous women and they're always in hunt of some new jewellery. It isn't possible to buy real jewellery so frequently because it's getting too expensive day by day. Still women need jewellery for themselves. Also what's the result for this problem? The ultramodern technology has given a veritably good result for this problem and that's reproduction jewellery. Reproduction jewellery sounds veritably odd that if you wear reproduction jewellery than what will be its worth. The rearmost reproduction jewellery is designed in a way that it cannot be judged as artificial or real bone. The essence that's used in their medication is veritably cheap so artificial jewellery is so affordable. People who cannot go to buy new jewellery a lot can use artificial jewellery to fulfil their solicitations. Artificial jewellery has the same designs as like the original jewellery has.

The imitation jewellery industry is growing a lot because the number of people using artificial jewellery is further than the people who use real precious jewellery. People use it because they want to look trendy and also they suppose that by having the rearmost jewellery people will have good print on them. Imitation jewellery has also come popular because the designs of jewellery that are used by the notorious musicians and actors are veritably expensive and utmost of the people cannot go

them so they use the imitation jewellery in the same designs which look veritably original. This is a main cause for which the mock jewellery has turn out to be so wide. Teenagers are using the artificial jewellery a lot because they're veritably impressed by the notorious people and they spend a lot of plutocrat on buying different styles of jewellery.

1.1. BUSINESS AND INDUSTRY

Imitation jewellery is considered a separate order of reproduction accessory, and as similar it displays numerous of the characteristics of a tone- contained assiduity. Costume jewellery manufacturers are located throughout the world, with a particular attention in corridor of China and India, where entire megacity-wide and region-wide frugality are dominated by the trade of these goods. There has been considerable contestation in the United States and away about the lack of regulations in the manufacture of similar jewellery these range from mortal rights issues girding the treatment of labour, to the use of manufacturing processes in which small, but potentially dangerous, quantities of poisonous essence are added during product. In the United States a reproach broke when it was discovered during testing that cheap costume jewellery from China contained unsafe situations of the essence cadmium. The wider issues girding significances, exports, trade laws, and globalization, also apply to the costume jewellery trade. shopper satisfaction is a crucial issue for any quite product or

service. The needs of the buyer dissent from person to person .the development of a product or service depends upon the need of the purchasers. In Asian nation the movement of imitation jewellery has compete an important role because of increase of gold worth.

Frequent hike in gold costs and concern of thieves' attacks girls carrying gold jewellery, customers area unit currently turning towards imitation jewellery. of late the stress for imitation jewelleries have up terribly apace because of the very fact that they're a cheap alternate to diamond and gold. Imitation jewellery has become a hot fashion trend with fashion trends, dynamical each day, gold and diamond little question have their own charms however largely unbroken as keep sakes. The most effective factor concerning the imitation jewellery is that the customers don't have to be compelled to arrange to get such a sort of jewellery. it's therefore cheap that the customers will truly ne'er have enough. This study is undertaken analyze the preference of imitation jewellery and their satisfaction level towards worth, variety, quality and convenience therefore keeping now in mind, some objective were framed and also the study was carried, supported the objectives.

1.3. OBJECTIVES OF THE STUDY
- ✓ To study the attentiveness among the consumer of imitation jewellery.
- ✓ To recognise the factors inducing the purchase of imitation jewellery.
- ✓ To study the consumer interpretation towards imitation jewellery.
- ✓ To analyse the consumer fulfilment towards imitation jewellery.

2. LITERATURE REVIEW
Jamal, Ahmad (2001) from a exploration study, which was conducted to determine the nature and type of evaluative criteria used by an existent while copping a piece of precious jewellery. In doing so, the study looked into the significance of product order knowledge, brand familiarity and brand knowledge in product evaluation .Demidoff, Michael (2004) in their study explains the features the Indian request for imported costume jewellery. Reproduction jewellery is bought substantially for its artificer rather than the value of the accoutrements in it. Similar jewellery includes rings, irons, chokers, earrings, chains and tie clips. To be classified as reproduction jewellery for customs purposes, these papers may not contain further than only small quantities of precious essence. Shakul (2005) in his study explains that the Significances of reproduction jewellery into Indian requests have moved up to high situations in recent times. The need for creativity and novelty in styles of similar jewellery also offers possibilities for developing countries that can acclimatize their original, traditional designs to the requirements of this fleetly changing request. Although several developing countries are formerly well established in this trade, others could also conceivably get a base handed that quality and chronicity of inventories are maintained and the applicable marketing channels are used. Bryden (2007) in his composition observed that the International Gemological Institute (IGI) has launched a jewellery design course in Mumbai, Course work includes

elucidative methodology, design fashion, fundamentals of precious essence, manufacturing ways, jewellery retailing, and a jewellery- design. It also offers information about the installations, operations, and branches of IGI.

The review is directed subsequent to evaluating huge writing on different assorted aspects for example exchanging example of adornments and women buyer conduct and the review concentrates on the relationship between the women and their exchanging design. The writing survey has been focused on audits connected with the theme on various aspects specifically buyers inclination for gold jewellery to imitation jewellery. The changing patterns in gems is additionally detailed in The Economic Times (2014) expressing that with ffthe changing style gems utilization propensities are likewise changing and they are driving the design and impersonation gems market in India. The metropolitan attitude has radically changed from adornments as a speculation to an extra for quite some time. Consumers are embracing impersonation adornments for different outfits and furthermore security issues are thought about for the reception of style gems among Indian consumers. Indian design blog (2014) additionally asserts that reception pace of impersonation adornments has definitely expanded and the exchanging pace of gold trimmings is getting higher step by step and the explanation emerges to be are excessive costs of gold , precious stone, platinum in India. In 2012, it is assessed that the imitataion jewellery market developed around 85% contrasted with that of earlier year. The investigation of D'Souza P. Vanita (April 2016) uncovers in their review that as the costs of gold and precious stone are shooting through the rooftop, the main decision remains is impersonation or design adornments. What's more this kind of adornments is broadly acknowledged as it comes in wide reach and assortment and is reasonable to wear and furthermore it has became style proclamation now a days. This concentrate likewise revealed a finding of RNCOS, that the impersonation adornments market in India is relied upon to develop at a CAGR of around 20% during 2013-17 and further added that around 65% of counterfeit gems is brought into India from china. In the review "Impersonation gems the new fury as yellow metal costs hit the rooftop" by Dhawan Nikhila Pant (June 2013) expressed that because of rising costs of unique precious stone and gold adornments in the market the buyers are tending towards imitation jewellery. With this tendency towards an impersonation, pure gems has started to lose its sparkle

3. RESEARCH METHODOLOGY
The nature of data collected for the exploration work is primary data. The data has been collected directly from the sample repliers through by questionnaire. The accessible slice system is used to find out the preference from the repliers and detailed interpretation. The sample size is taken as 100 repliers. The data is collected through questionnaire, as it's the most accessible way for the experimenter as well as the replier. The collected date was analysis by using chance system chance was calculated by taking the number of replier for a particular parameter against the total number of repliers. The Chi-square test is used in this study to find out whether there's any significant association between the particular factors and source of mindfulness and family income per month and quantum

spent on imitation jewellery per time. The average ranking analysis is used to analyses the opinion given by the repliers for important factors, the weights has been given to each factors and total scoring are calculated, The average score analysis deals with consumer position of satisfaction towards price, variety, quality and vacuity of imitation jewellery.

4. RESULT AND DISCUSSION
The personal factors have been identified for the purpose of analysing through descriptive statistics

4.1. Personal Profile of the Respondents

Variables	Group	Frequency	Percentage
Area of residence	Rural	14	14
	Urban	56	56
	Semi-Urban	30	30
Age	≤ 20 years	21	21
	21-40 years	52	52
	41-60 years	27	27
Marital status	Married	53	53
	Unmarried	47	47
Educational qualification	Up to School Level	6	6
	UG	56	56
	PG	23	23
	Professional	14	14
	Others	1	1
Occupation	Government employee	10	10
	Private employee	38	38
	Student	13	13
	Own business	25	25
	Professional	14	14
	Others	-	-
Monthly income	$\leq$ Rs.20,000	34	34
	Rs.20,001- Rs.40,000	45	45
	Rs.40,001- Rs.60,000	18	18
	$\geq$ Rs.60,000	3	3

The table reveals that majority (56%) of the respondent's area of residence is urban. Most (46%) of the respondents belonged to the age group of 21-40 years. Majority (53%) of the respondents selected for the study are married. Most (56 %) of total respondents are qualified up to under graduation level. Most (38%) of the respondents occupational status is they are private employee and most (54.5%) of the respondent's monthly family income is Rs.20,001- Rs.40,000.

The study factors have been identified for the purpose of study analysing through descriptive statistics

4.2 Awareness towards imitation jewellery

Variables	Group	Frequency	Percentage
SOURCES OF AWARENESS	Friends	36	36
	Relatives	19	19
	Advertisement	35	35
	Colleagues	10	10
ADVERTISING MEDIA	Newspaper& Magazine	6	17
	Notice &Leaflets	10	28
	Television	2	6
	Radio	4	11
	Internet . Reels/facebook page/Instagram page/You tube page	13	37
INFLUENCING FACTORS IN ADVERTISEMENT	Design	33	33
	Price	35	35
	Variety	30	30
	Brand Ambassador	2	2

REFERENCE GROUP	Cine Actress	52	52
	Friends	20	20
	Relatives	20	20
	Colleagues	8	8
BRAND NAME CONSIDERATION	Yes	26	26
	No	74	74

It is inferred from the table that out of the total respondents taken for study, 36% of the respondents are aware of imitation jewellery through friends. 35% of the respondents are aware of advertising media through internet and 46% of the respondents are influenced by the price. It is clear that 74% of the respondents have not considered the brand name of the imitation jewellery. 52% of the respondents reference group to buy imitation jewellery are their cine actress.

4.3. Usage period of Imitation Jewellery

USAGE PERIOD	Less than 1 years	26	26
	1-2 years	36	36
	2- 3 years	23	23
	Above 3years	15	15
TIME OF USAGE	Frequently	38	38
	Daily use	34	34
	Occasionally	25	25
	Not in use	3	3

It is understood from the table that out of the total respondents taken for study, 36% of the respondents usage period of imitation jewellery is 1-2years and 41% of the respondents purchase imitation jewellery for frequent use.

4.4. Purchase pattern Towards Imitation Jewellery

PLACE OF PURCHASE	Nearby shop	26	26
	Personnel selling	13	13
	Wholesale dealers	10	10
	Online	51	51
OCCASION OF PURCHASE	Changes in fashion	38	38
	Occasion	22	22
	Availability of cash	10	10
	Purchasing of goods	12	12
	Return gift	6	6
	Forceful purchase by kids	12	12
THE MODE OF PURCHASE	In Cash	27	27
	Credit	35	35
	Online payment	38	38
AMOUNT SPENT	Below ₹500	23	23
	₹500-₹1000	25	25
	₹1000-₹2000	34	34
	Above ₹2000	18	18

It is inferred from the table that out of the total respondents taken for study, 51% of the respondents prefer to purchase imitation jewellery through online. 38% of the respondents purchase imitation jewellery on changes in fashion and 84% of the respondents have purchased their imitation jewellery on cash and 34% of the respondents are spend ₹1000-₹2000 for purchase of imitation jewellery per year.

4.4. Maintenance of imitation jewellery

OPINION TOWARDS MAINTENANCE	Very easy	6	6
	Easy	56	56
	Difficult	24	24
	Very difficult	14	14
AWARENESS OF WARRANTY /GUARANTEE	Yes	69	69
	No	31	31
PERIOD OF WARRANTY OR GUARANTEE	6 months	45	45
	1 year	38	38
	Above 1 year	17	17
PROBLEMS FACED	Status	10	10
	Colour fading	36	36
	Service delay	13	13
	Damage in ornaments	26	26
	Skin allergy	15	15

It is understood from the table that out of the total respondents taken for study, 56% of the respondents opinion towards the maintenance of imitation jewellery is easy. 69% of the respondents are aware of warranty or guarantee and for the period of 6 months. 36% of the respondents are facing the problem of colour fading in imitation jewellery.

CHI- SQUARE TEST
Chi- square test is used in my study to find out whether there is any significant association between the personal factors and source of awareness and family monthly income per month and amount spent on imitation jewellery per year.

Hypothesis
Ho: There is no significant relationship between personal factors and sources of awareness.

4.5: PERSONAL FACTORES AND SOURCE OF AWARENESS

S NO.	PERSONAL FACTORES	CHI-SAUARE VALUE	TABLE VALUE	S/NS
1	Age	11.70	16.919	NS
2	Education	29.40	16.919	S
3	Gender	6.56	7.815	NS
4	Income level	9.68	12.592	NS
5	Marital status	2.16	7.815	NS
6	Occupation	25.90	16.919	S

Hence, it is concluded that occupation and education have significant (rejected) influence on source of awareness.

Ho: There is no significant association between family monthly income per month and amount spent on imitation jewellery per year.

4.6 FAMILY MONTHLY INCOME AND AMOUNT SPENT PER YEAR

S NO.	PERSONAL FACTORES	CHI-SAUARE VALUE	TABLE VALUE	S/NS
1	≤ Rs.20,000	27.659	.001	S
2	Rs.20,001- Rs.40,000	25.009	.000	S
3	Rs.40,001- Rs.60,000	27.659	.001	S
4	≥ Rs.60,000	25.009	.000	S

It is concluded that there is significant association between family monthly income per month and amount spent on imitation jewellery per year.

AVERAGE RANK ANALYSIS
The average ranking scores are calculated based on total scores and then the ranks are allotted according to the average ranking score.

4.7: FACTORS INFLUENCING THE PURCHASE OF IMITATION JEWELLERY

S No.	Factors		Rank I	Rank II	Rank III	Rank IV	Total	Mean	Rank
	VALUE		4	3	2	1			
1	Price	No.	39	38	15	8	100	30.83	I
		Score	156	114	30	8	308		
2	Brand	No.	19	19	30	32	100	22.52	III
		Score	76	57	60	32	225		
3	Availability	No.	7	19	31	43	100	19.01	IV
		Score	28	57	62	43	190		
4	Design	No.	35	24	23	18	100	27.62	II
		Score	140	72	46	18	276		

Hence it can be calculated that price of imitation jewellery has been given top priority by the majority of the respondents.

4.8: OPINION TOWARS FACILITIES OF IMITATION JEWELLERY

S NO.	BENEFITS		RANK I	RANK II	RANK III	RANK IV	TOTAL	MEAN	RANK
	VALUE		4	3	2	1			
1	Fashion updated	No.	28	35	29	8	100	28.24	I
		Score	112	105	58	8	283		
2	Economical	No.	22	26	27	25	100	24.45	III
		Score	88	78	54	25	245		
3	Safety	No.	29	24	31	16	100	26.54	II
		Score	116	72	62	16	266		
4	Easy Availability	No.	23	24	23	18	100	20.75	IV
		Score	92	72	46	18	276		

Hence it can be calculated that Fashion updated of imitation jewellery has been given top priority by the majority of the respondents.

4.9: TYPES OF IMITATION JEWELLERY PREFERRED

S NO.	TYPES		RANK I	RANK II	RANK III	RANK IV	RANK V	TOTAL	MEAN	RANK
	VALUE		5	4	3	2	1			
1	Ring	No.	37	32	6	22	3	100	26.28	I
		Score	185	128	18	44	3	378		
2	Earring	No.	22	11	19	18	17	87	18.35	III
		Score	110	44	57	36	17	264		
3	Bangles	No.	6	26	15	24	16	87	16.89	V
		Score	30	104	45	48	16	243		
4	Necklace	No.	8	7	47	17	14	87	17.87	IV
		Score	40	28	141	34	14	257		
5	Bracelet	No.	28	16	8	18	30	100	20.44	II
		Score	140	64	24	36	30	294		

Hence it can be calculated that the type of imitation jewellery ring has been given top priority by the majority of the respondents.

AVREAGE SCORE ANALYSIS

In this section, the average score are calculated to arrive the opinion and the level of satisfaction of the respondents. This section deals with consumer level of satisfaction towards price, variety, quality and availability of imitation jewellery.

4.10: AGE AND LEVEL OF SATISFACTION TOWARDS PRICE, VARIETY, QUALITY AND AVAILABILITY OF IMITATION JEWELLERY.

S.NO	LEVELOF SATISFACTION	AVERAGE SCORE			
	AGE	PRICE	VARIETY	QUALITY	AVAILABILITY
1	≤ 20 years	2.44	2.22	2	1.72
2	21-40 years	2.71	2.38	2.04	1.95
3	41-60 years	2.52	2.56	1.88	2.04

The respondents of 21-40years (2.71) are highly satisfied with price then followed by 41-60years (2.56 are highly satisfied with variety, 21-40years (2.04) are highly satisfied with quality and 41-60years (2.04) are highly satisfied with the availability of imitation jewellery.

5. RECOMMENDATIONS
• Price
By and large Indian consumer and price conscious. Manufactures have to adopt the cost cutting measures, develop low cost, economical, maintenance of the jewellery. Hence it is available at cheaper price, more consumers attractive to imitation jewellery.

• Variety
Display of varieties should he made in every outlet as the trend changes consumer desire are also changes accordingly, so they prefer only new varieties of imitation jewellery, so the manufacturers should increase their production in new variety, models and accessories too. The unique designs must be available in every outlet

• Quality
The nature of the item should be improved. Since it is needed for the consumers as the gold price is increasing the quality must also be upgraded. The manufacturer should concentrate on minimizing the major problem of color fading.

• Warranty Or Gurantee
The manufactures can provide for extended warranties or guarantee and the total maintenance plan where the

maintenance cost can be fixed for every jewelleries. The period for warrantee/guarantee should be more for imitation jewellery.as, such the life of warrantee or guarantee is increased, the life imitation jewellery has a longer life.

- **Availability**

All varieties should be made readily available at all outlets. The particular design or variety the consumer prefer should be easily available at more quantity. If the manufacturers produce any new models of imitation jewellery. It should he easily purchased by the consumer at their nearly outlets.

LIMITATION AND SCOPE OF FUTHER RESEARCH

The exploration theme covers the nonexclusive view towards exchanging of imitation jewellery. Anyway the review zeroed in on individual mind however numerous regions remain unfurled. In future the review might be reached out by thinking about different aspects. Male assessment may likewise provide guidance to the review. The review might react distinctively when huge example is thought of and determine new outcomes when the respondents from various urban areas would react. Subsequently the review would be cleverer if the review could be performed considering a few unique areas of examination like character, mental angle, and correlation of both male and female assessment and so on Likewise, this exploration is restricted to a specific area. So the specialists recommend that future scientist should fuse more respondents and more things or go to lengths to make this exploration more comprehensive. Information examination can be superior further utilizing factor analysis.

CONCLUSION

The imitation jewellery has become the rage all over the world and it looks like that this fascination for costume jewellery is here to stay. There are intricately carved designs and stones, beads and crystals worked in many imaginative ways and set in metal or plastic base or such cost effective products to give an elegant and fashionable look to everyone who tries it on. The artisans have to be credited with popularizing all the designs they have painstakingly created and bringing the industry to its peak today, because of their caliber. The study reveals that, there is a significant association between family monthly income per month and amount spent in imitation jewellery per year. Hence the manufacturer has to introduce imitation jewellery to satisfy the need of consumers at all level of income. The manufacturers should keep an eye on quality and see that delivery schedules are kept. The beautiful designs and the equally beautiful materials with which they are made and most importantly the economical cost make imitation jewellery the most wanted item on anybody shopping list. All this keeps the fires burning in the imitation jewellery industry and helps in bringing out new and improved beautiful works of art in imitation jewellery.

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MAPPING THE EVOLUTION OF CAPITAL STRUCTURE THEORIES-A BIBLIOMETRIC ANALYSIS USING SCOPUS DATABASE

Komal Bhojraj Tolani[1], Dr. Hemal B. Pandya[2]

Research Scholar[1] and Professor[2],
S.D. School of Commerce, Gujarat University, Ahmedabad, Gujarat, India

ABSTRACT

This study is a comprehensive analysis that offers holistic review of academic literature in context of evolution of capital structure theories over the period of time using Scopus database. It aims to provide new perspectives in the scholarly landscape of capital structure by employing bibliometric analysis. It attempts to assess global research trends in the capital structure theories based on keywords, co-occurrences and co-authorships between the authors and the related countries. Further, this study uncovers emerging concepts and theories related to capital structure decisions. It also identifies the influential researchers of this arena and their contribution in the academic world that has also helped corporates in taking most appropriate decisions pertaining to their choice of finance mix. This study uses Scopus database and analyses 673 publications related to capital structure theories published from 1975 to 2024.

KEYWORDS: *Capital Structure Theories, Capital Structure Choice, Bibliometric Analysis*

I. INTRODUCTION

Capital Structure is simply the combination of debt and equity. Debt-equity ratio represents the capital structure of a firm. An ideal level of capital structure is considered to be the one at which the overall cost of employing capital is minimum and firm's value is maximum. There are benefits of having debt in the capital structure like interest tax-shield. But it should be noted that employing too much debt may lead to a bankruptcy situation. Hence, capital structure decisions are very crucial as they have a long lived impact on a firm's performance. Since the seminal work of Modigliani and Miller (1958), the concept of optimal capital structure has remained a puzzle. After their study, different theories were discovered stating different frictions to be focused related to capital structure decisions. Trade-off theory focuses on the benefit of tax shield that has a trade off with bankruptcy costs. Pecking Order theory states that firms should use internal finance first i.e. retained earnings and then employ debt and at last opt for equity. The most recent theory of capital structure states that firms should opt for equity issuance when their market values are high as compared to their book values.

However, with drastic changes in the capital markets over the period of time, it is almost impossible to rigidly follow any strict or particular debt level in the firm's capital structure since different industries have different requirement of funds and their working patterns are different from one another. Also the financial system of different countries also differs. Thereby, this study sets out on a bibliometric investigation of the extensive literature relevant to capital structure theories in order to provide a panoramic view of the conceptual landscape by highlighting the pioneer studies, emerging themes, influential authors and the international reach of these discourse.

II. LITERATURE REVIEW

Modigliani and Miller (1958) instigated the modern theory of capital structure, popularly known as MM model. This theory serves as the starting point of corporate finance. The classic MM theory states that the capital structure decisions do not affect firm value. While testing the capital structure of 157 US based industrial firms during 1979-1989, it was found that these firms opt for external finance only when internal funds are in deficit thereby proving that they followed pecking order theory (Shyam-Sunder & Myers, 1999). The US firms from the period 1981-1990 were found to be adjusting towards the target debt level (Jalilvand & Harris, 1984) which aligns with the trade-off theory (Myers, 1984). Capital structure is a cumulative outcome of historical market values (Baker & Wurgler, 2002). While investigating the relationship between firms' historical values and capital structure in US, it was observed that firm's history have a strong influence on its capital structure, partially supporting Baker and Wurgler's theory of market timing. However, this influence vanishes over the period of time and firms tend to move towards their target debt which is in line with trade-off theory (Kayhan & Titman, 2007).

III. METHODOLOGY

Bibliometric analysis is a method that involves statistical analysis to provide academic literature a quantitative

understanding (Benckendorff & Zehrer, 2013). The Scopus database is utilized to evaluate data and obtain perspectives on the evolution of literature as well as knowledge transfer within a specific field over time. This data includes writers, quotes, number of articles read and the keywords. Bibliometrics consists of several distinct approaches, namely bibliographic linking quotation, co-citation analysis and co-word analysis of keywords. The selection criteria of the technique to be employed depends on the research data used.

3.1 Research Query

The articles were extracted from Scopus that were published during 1975-2024, the source retrieved 673 documents. The Scopus research string that was used is as follows:

TITLE-ABS-KEY (("Capital structure decisions") OR ("Capital Structure theories")) AND (LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (PUBSTAGE , "final"))

IV. ANALYSIS

This section outlines the methodology adopted, presents the key findings and prospects the implications of the bibliometric analysis within a broader landscape of the capital structure theories. Data analysis is performed using different tools and programs including MS Excel, VOSviewer as well as POP
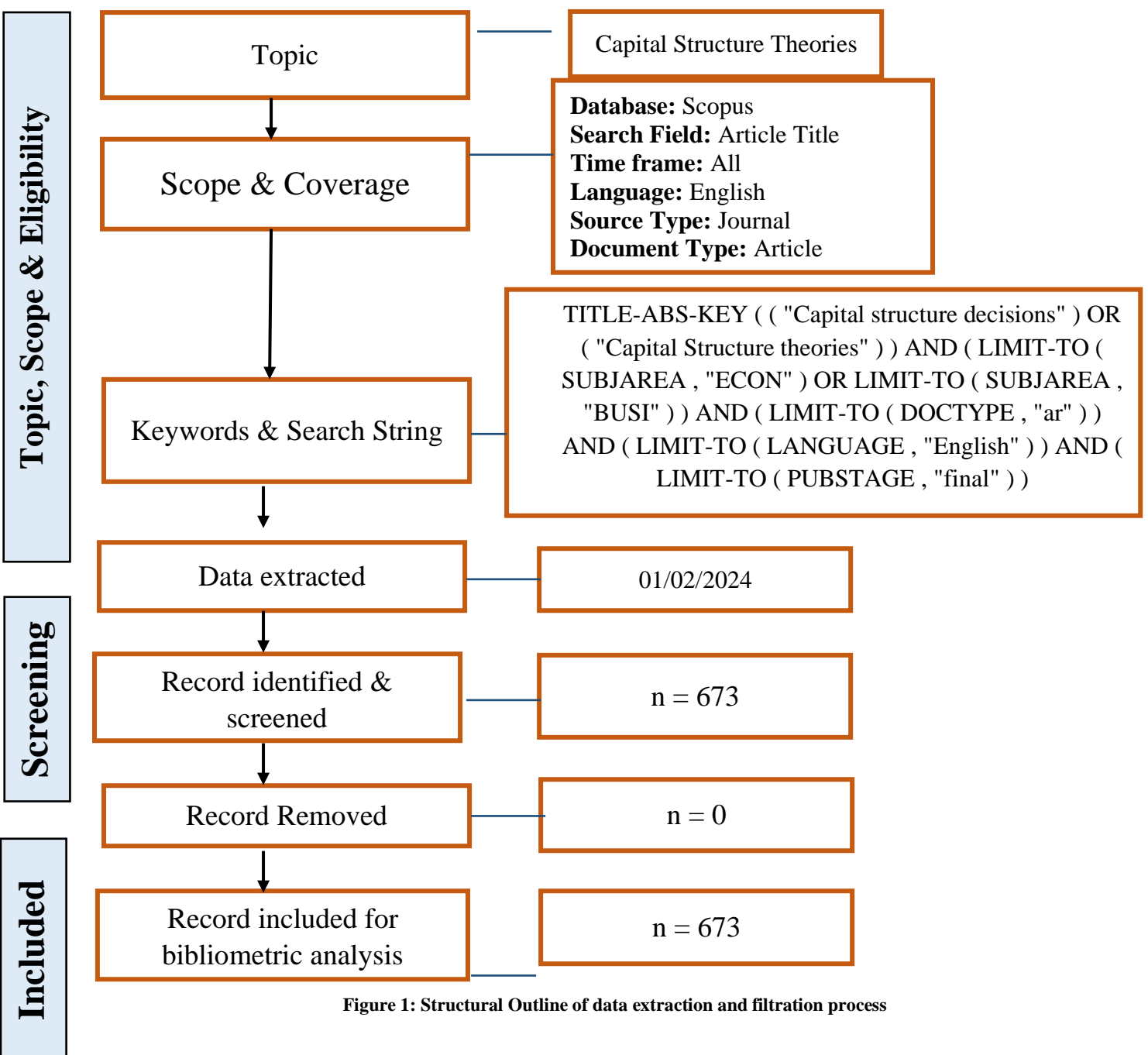
Figure 1: Structural Outline of data extraction and filtration process

4.1 Co-authorship and Country Bibliometric Mapping

Co-authorship means the collaborative effort of the researchers who create a research publication. Country bibliometric analysis is the process of examining and exhibiting a specific region or country's research results. The increased interest in multidisciplinary research in recent years has made co-authorship more significant. The researchers from different areas are required to unitedly work together so as to conduct a multifaceted research, for this co-authorship is an effective approach. Additionally, it also facilitates the researchers to exchange their expertise and resources, thereby helping them to have more comprehensive results. Subsequently, co-authorship and country bibliometric connections are vital components of the scientific research area.

The strengths and weaknesses in a country's research groups can be identified by researchers by examining the results of bibliometric mapping of a particular country. Further, not only the cross-border collaborations can be easily identified, but also the impact of specific research areas can be tracked over time. Hence, country bibliometric mapping is a significant approach to analyse as well as visualize research themes and developments in the specific area.
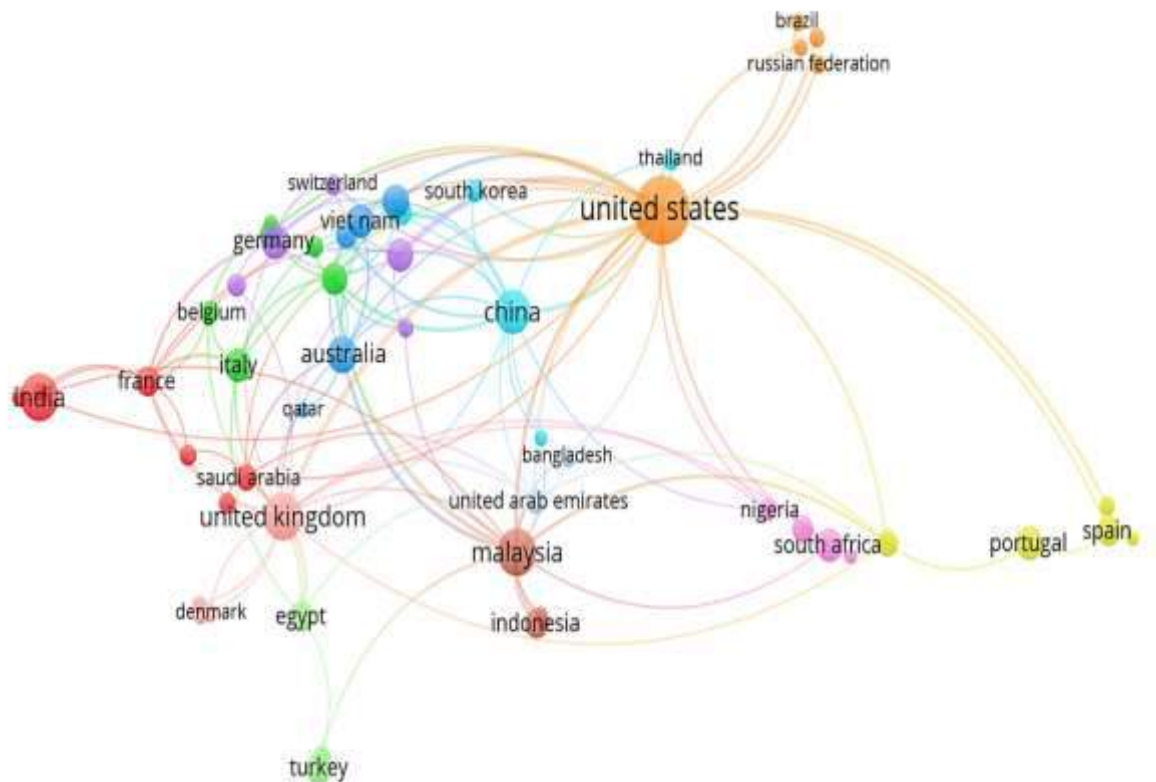
Figure 2: Co-authorship and Country Bibliometric Mapping

An extensive country bibliometric mapping and co-authorship analysis helps in gaining valuable insights into the research world, collaboration structures and authors and institutions. It also helps in observing the research trends in the area of capital structure decisions focusing on the selected countries. These insights also provide future research directions and scope of collaborations related to capital structure decisions

4.2 Co-Citation-Based Authors' Bibliometric Mapping

To examine the associations between authors and their publications, co-citation based bibliometric mapping of authors is used. This techniques quantifies how often two articles have been cited together in the literature. By looking at co-citation patterns, clusters of authors and their research areas can be identified using bibliometric mapping.

The co-citation based authors' bibliometric cartography is a multi-step approach. At first, scholarly article database is established and the papers that are relevant to the topic are selected depending upon specific criteria, like area of subject or publication date. After this, the next step is to extract the citation data for each article and then analyse it to observe co-citation patterns.

After retrieving the data and analysing it, bibliometric software VOSviewer maps the associations between authors and their publications geographically. These maps can create networks, groupings, or other visualizations that are helpful in identifying the groups of authors and their area of research. The trending research patterns can be identified using the resulting maps. These maps can also help in locating key researchers in a specific field and pinpointing the gaps in the literature. The collaborations between researchers can be identified as well as the evolution of a research topic over time can also be tracked using these maps.

To put together, co-citation based author's bibliometric mapping is an effective tool for investigating the connections between authors and their scholarly literature that they have published. It offers insightful information about organisation of academic disciplines, how scholars collaborate within them and how the research subjects evolve over period.

In order to analyse co-citation based authors, various authors are taken into consideration, minimum number of occurrences in the citations of an author is considered to be 10. Out of 20,754 citations of an author, 955 citations of an author met the threshold.
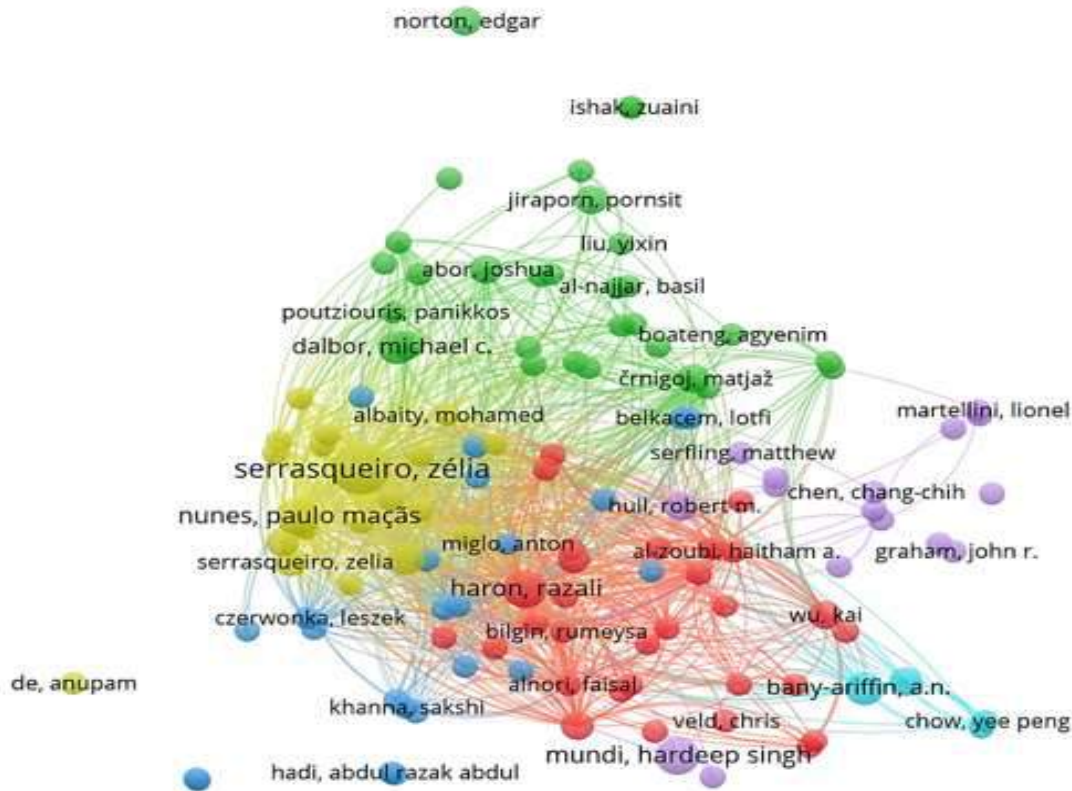
Figure 3: Co-Citation based Author's Bibliometric Mapping

4.3 Co-occurrence Analysis in terms of all keywords

Co-occurrence analysis is a category of bibliometric integration which aims to investigate the frequency as well as trends of co-occurring keywords or terms in academic literature. This approach is useful in highlighting the most crucial concepts or topics being discussed and exposing the thematic organisation of a research area. In this analysis, the frequency of every term or keyword in the dataset is compared to all other words and is displayed by a matrix. Then co-occurrence matrix is visualized by employing a network map or by doing cluster analysis so as to provide clusters of associated terms and the influence of their connections.

An advantage of co-occurrence analysis is that it maps the cognitive framework of a field in a very simple and objective manner. By examining the frequency of co-occurrences, the researchers in a particular area can identify the most relevant topics and which ones are less prominent in their respective area of research. Therefore, such information becomes useful to identify research gaps and scope for future research.

Besides, co-occurrence analysis has some drawbacks too. This analysis is sensitive to the choice of keywords, which may be a personal view or subjective in nature and may not cover whole complexity of a research field. Additionally, co-occurrence analysis lacks the accountability for the prominence or quality of individual publications or the writers and may fail to reflect the variation in viewpoints.
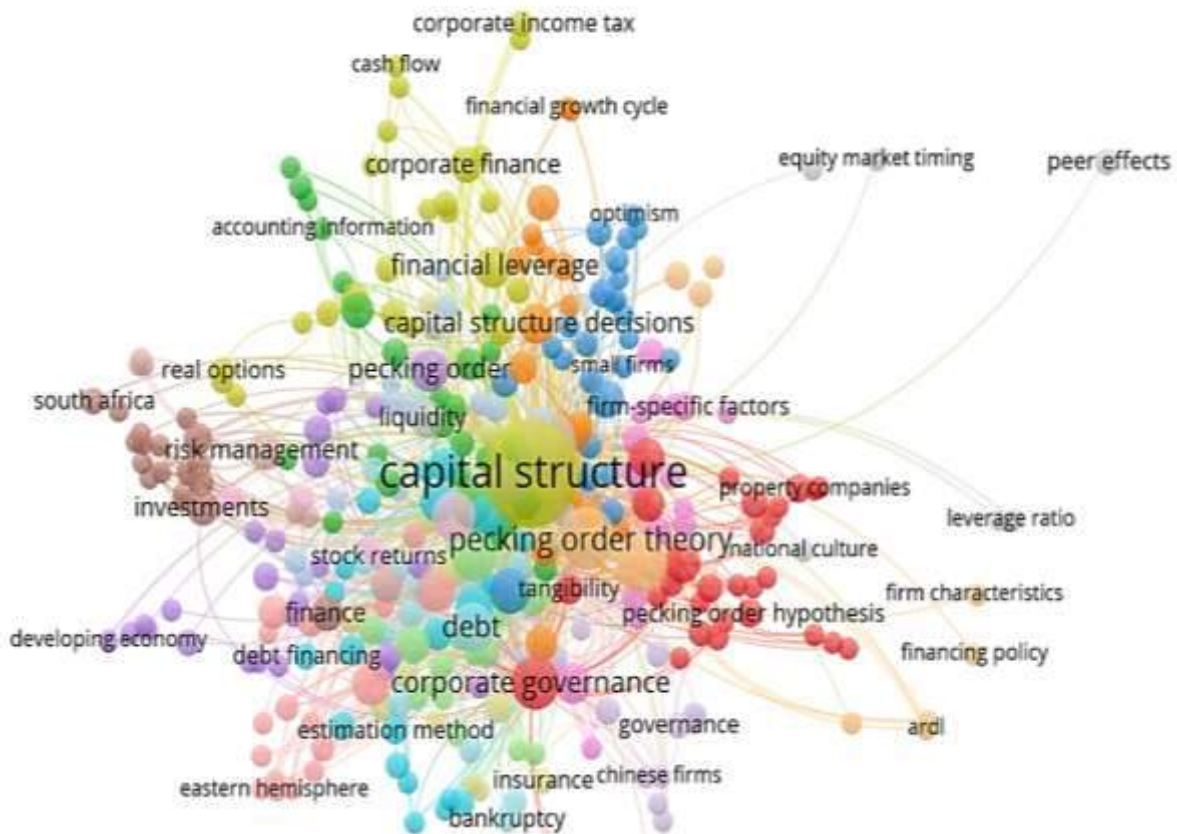
Figure 4: Co-occurrence analysis in terms of all keywords

V. CONCLUSION

The world's most widely used and largest database, Scopus, conducts a bibliometric analysis on evolution of capital structure theories. The database covers period from 1975-2024. 'AND' operator and 'OR' operator has been used along with keywords in the search engine of the Scopus database. A total of 637 documents are retrieved as the outcome of the search query. Various parameters are considered for analysing this database. All the articles are in English language. The results of the keywords search highlighted that the maximum number of research publications are with the keyword 'Capital Structure'.

This paper illustrates how bibliometric analysis is an exceptionally useful tool for the researchers for any chosen area of literature. A meticulous dataset of papers is obtained from Scopus database as it provides high quality data with a rationale. This facilitates data processing and reliable outcomes for which this database has gained recognition in the world of scholars. VOSviewer offers graphical representation of bibliometric information based on co-occurrence, co-citations, keywords, etc. The collected data was then analysed to have insights on the number of articles that were published per year, their h-index and the number of citations. To prepare the present article, bibliometric analysis – a study of author's scholarly activity has been employed.

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SHAPING THE NARRATIVE: CONTEMPORARY INDIAN AUTHORS' IMPACT ON GENDER AND SEXUALITY REPRESENTATION IN YOUNG ADULT LITERATURE

Dr. Humera Qureishi
IQAC Coordinator, Career College of Law, Bhopal, Madhya Pradesh

ABSTRACT

Through the rich tapestry of contemporary Indian young adult fiction, where visionary writers emerge as architects of societal change and use words as tools for reflection and reform, take off on a transformative journey. Through a variety of perspectives, the narrative revolution is revealed and every writer adds their own distinctive mark to the dynamic canvas of Indian literature. One such author creates a complex narrative that defies stereotypes and breaks down conventional barriers in an intricate examination of love and identity. Another creatively defies graphic novel storytelling conventions, producing a visual and narrative feast that defies accepted writing practices. This literary panorama provides detailed explorations of individual aspirations intricately interwoven with cultural limitations, with a focus on the expectations placed on women by society. Characters contribute to the ongoing conversation about the shifting roles of women in contemporary India by balancing the weight of social norms with individual agency.

Furthermore, a noteworthy contribution to the portrayal of LGBT identity serves as a beacon of understanding and inclusivity. The story invites readers to delve into the complex emotional aspects of queer experiences as it gently examines the complexities of identity crises. This work creates a more inclusive literary landscape by breaking new ground and igniting conversations about diversity and representation.

Young adult fiction is experiencing a metamorphosis that goes beyond conventional narrative techniques, crafting literary environments that function as windows reflecting the myriad of human experiences. These cultural architects have a lasting influence that reaches beyond library walls and provides readers with a profound opportunity to reflect on their own journeys. These works become more than just stories because they transform society's values about acceptance, love and identity. They also show the boundless possibilities that lie between a book's pages.

The present research paper examines delves into the intricacies of gender and sexuality while highlighting innovative works that challenge preconceptions, break down barriers and change readers' viewpoints.

KEYWORDS: *Contemporary, adult fiction, transformative, acceptance, gender and identity*

INTRODUCTION

A transformative wave of young adult fiction is currently sweeping across the ever-evolving tapestry of Indian literature, driven by visionary authors who use words as tools for social reflection and reform. This essay delves into the complex stories that modern Indian writers weave, emphasizing how important a role they have had in altering how gender and sexuality are portrayed in young adult literature.

As delve deeper into the rich and varied fabric of this literary movement, it becomes clear that these writers are architects of cultural change, using their stories to subvert stereotypes and shatter barriers. Their body of work is evidence of the ability of literature to influence readers' perspectives, start discussions and develop empathy.

Renowned Indian author Arundhati Roy explores new ground with her book "The Ministry of Utmost Happiness." She reveals the complexities of love through her elaborate story, giving readers a broad perspective on human emotions that cut beyond social borders. Roy's art defies preconceived ideas about love and identity by delving deeply into the complex aspects of relationships.

AmrutaPatil employs a fresh strategy in her graphic novel "Kari." She challenges the conventions of storytelling by addressing the complexity of sexuality within a visually captivating narrative. Patil creates a singular literary experience that defies convention when her artistic vision combines with a compelling story.

In "A Married Woman," Manju Kapur offers a story that explores the social expectations that are put on women. By navigating the complex interplay of society standards and human wants, Kapur's characters provide readers with a window through which to examine topics of societal restrictions and individual agency. Her writing serves as a spark for discussion about how women's roles are changing in modern India.

With "My Magical Palace," Kunal Mukherjee adds to this literary movement by narrating the path of gay identity. Mukherjee promotes empathy and understanding among readers by addressing the difficulties experienced by those who are struggling with their identity, which helps to create a more inclusive literary scene.

Essentially, an attempt is made to provide an overview of the fascinating world of Indian young adult writing today. We set out on a trip that goes beyond conventional narrative through the eyes of these visionary authors, upending preconceptions and clearing the path for a society that is more loving and enlightened. Welcome readers to join us to explore literature that not only changes the story but also the thoughts and perspectives of young readers, as we navigate the intricacies of these stories.

YOUNG ADULT LITERATURE'S TRANSFORMATIVE JOURNEY IN INDIA

With an emphasis on how modern writers have impacted the genre with their significant works, let's examines the transformational path of young adult literature in India. The present piece explores the contributions made by writers who have questioned conventions, increased representation and sparked important discussions around gender and sexuality.One work that demonstrates the significant influence of modern literature on the genre is "The Ministry of Utmost Happiness" by Arundhati Roy. Renowned for her elegant storytelling, Arundhati Roy presents readers with an engrossing story that breaks through traditional barriers. Roy deftly crafts a tapestry of characters in this novel, all of whom are struggling with the difficulties of gender identity and love."The Ministry of Utmost Happiness" transforms into a narrative haven where social mores are examined and questioned. The novel gives readers a deep understanding of the various ways that love can be expressed through Roy's sophisticated investigation. The world the characters travel through upends preconceived notions and celebrates the diversity of human experience.Roy's ability to craft a narrative that defies traditional storytelling methods is what makes her contribution to the transforming journey of young adult literature so significant. She carves out a place in the novel for readers to come across people who challenge and reinterpret conventional ideas about gender and romantic relationships. The story encourages readers to reevaluate their viewpoints through its examination of various manifestations of love, leading to a more compassionate and inclusive comprehension of relationships.

Arundhati Roy's "The Ministry of Utmost Happiness" is essentially a monument to the influence of modern literature on the representation of gender and sexuality in young adult fiction. The novel pushes readers to interact with difficult subjects, dispelling stereotypes and helping to change the genre in India as a whole.

AmrutaPatil's "Kari" is a groundbreaking work in the rapidly changing field of young adult literature in India, especially in the graphic novel genre. In order to convey a novel that delved into complex topics of sexuality and self-discovery, Patil

masterfully used visual storytelling. As a result, "Kari" is a key work in the transforming path of Indian young adult literature.

"Kari" defies conventional storytelling conventions and is more than just a graphic novel. It is a visual and narrative feast. Patil is successful in giving readers an immersive experience by using inventive storytelling tactics and captivating images. The graphic novel format, which is sometimes undervalued in terms of its storytelling potential, is a powerful tool for delivering meaningful stories.

The way Patil tells stories in "Kari" adds to the genre's growing depiction of a variety of identities. The novel serves as evidence that graphic novels may be effective mediums for delving into difficult subjects and pushing the limits of conventional writing.

The narrative of "Kari" gains complexity via the exploration of topics related to sexuality and self-discovery. Patil offers readers a novel and perceptive viewpoint by delving into the complex complexities of LGBT identity. The graphic novel becomes a mirror, reflecting the various events and difficulties people have in figuring out who they are. It tells a story that appeals to a wide range of readers.

In short, "Kari" by AmrutaPatil is a key work that influences the storyline of modern Indian young adult fiction. Its creative use of the graphic novel format and its examination of gender and sexuality-related issues support the genre's continuous evolution. With "Kari," Patil not only questions traditional narrative techniques but also enhances the literary landscape by giving a range of perspectives and experiences a place in the colourful fabric of Indian young adult fiction.

Manju Kapur's "A Married Woman" is a noteworthy addition to the revolutionary trajectory of young adult fiction in India, providing a sophisticated examination of the demands that society places on women.As readers navigate the complexities of cultural standards and personal aspirations, Kapur's work tackles complicated subjects in a way that goes beyond simple storytelling.The literary work "A Married Woman" explores the lives of its characters, offering a glimpse into the difficulties encountered by people who are torn between their own goals and social norms. Kapur's characters strive to balance their personal aspirations against the social conventions that surround them, which make the work a painful representation of the problems that women experience in particular.The story's relevance comes from its capacity to depict the common battles people have when attempting to exercise their unique agency and liberty while living within social norms. Readers are able to interact with and consider their own experiences through the characters created by Kapur, which helps them, feel connected and empathetic.As it challenges conventional wisdom and invites readers to consider striking a balance between one's own needs and those of society, the novel enters a larger conversation about individual agency. Through her work, Kapur contributes to the ongoing shift of young adult literature in India by elevating the conversation about women's roles, relationships and goals.

"A Married Woman" by Manju Kapur, in short, brings a unique perspective to the changing field of young adult fiction in India.

By delving into the tensions between cultural norms and individual aspirations, Kapurenhances the narrative and "help readers in understanding the subtleties involved in the path to self-realization and independence. The work has a profound influence on the ongoing discussion about gender roles and societal expectations in contemporary Indian literature that goes beyond its pages.

Given its examination of LGBT identity, Kunal Mukherjee's "My Magical Palace" stands out as a significant contribution to the revolutionary trajectory of young adult fiction in India.The story takes the reader on a moving journey while illuminating the difficulties people encounter when striving to navigate the intricacies of their identity.

"My Magical Palace" is notable for being a story that explores the complex lives of LGBT people and the social obstacles they face, going beyond the traditional bounds of storytelling. Through their interactions with the complex facets of LGBT identity, Mukherjee's characters help readers develop empathy and understanding.By tackling subjects that have traditionally been neglected or ignored in popular literature, the book breaks new ground and acts as a catalyst for the development of a more diverse literary environment.Mukherjee's narrative not only illuminates the challenges encountered by individuals battling with their identity, but it also adds to the continuous discussion about diversity and representation in young adult fiction.Readers are encouraged to delve into the intricate emotional facets of queer experiences as portrayed in the lens of 'My Magical Palace”, fostering discussions that dispel prejudices and preconceptions. The greater movement in India to broaden the narrative span of young adult fiction is made possible by Mukherjee's contribution.

To sum up, Kunal Mukherjee's "My Magical Palace" contributes a significant element to the changing field of young adult fiction in India. Through its nuanced exploration of the journey of queer identification, the novel encourages readers to be inclusive, empathetic and understanding.Mukherjee's writing serves as a testament to the ability of literature to reshape viewpoints and foster a more inclusive and caring literary community.

CONTEMPORARY AUTHORS PIONEERING GENDER AND SEXUALITY REPRESENTATION

The contemporary literary landscape in India has witnessed a remarkable transformation within the young adult literature genre. It's no longer a realm confined to mere storytelling for the youth; rather, it has evolved into a powerful platform for addressing complex issues surrounding gender and sexuality. At the forefront of this transformative journey are authors who have fearlessly delved into uncharted territories, redefining the narratives that shape the perceptions of young readers. Their works not only challenge age-old stereotypes but also spark essential dialogues, paving the way for a more inclusive and empathetic literary world.

An attempt is made to embark on a journey to explore the contributions of these contemporary authors who have wielded the pen as a tool for change. These literary trailblazers have navigated the uncharted waters of young adult literature,

leaving an indelible mark on the genre and the young minds they touch. It delves into their works and examine how they have not just entertained but also educated, empowered and encouraged self-reflection among their readers.

Multiple Narrative Approaches: Unlocking the Potential of Graphic Novels

"Kari" by AmrutaPatil is a compelling illustration of how graphic novels have developed into a vibrant storytelling format for young adult fiction. Patil deviates from conventional storytelling techniques to examine the subtleties of sexuality and self-discovery through visually stunning narratives. A unique interaction with the subjects is made possible by the graphic book format, which leaves a lasting impression on readers and adds to the growing array of various narrative styles in young adult literature.

Managing Multifaceted Social Expectations: An Overview of "A Married Woman"

Manju Kapur's "A Married Woman" is more than just a story; it's a deep examination of the complex social norms that are placed on women. Through their deft balancing of personal goals and outside forces, Kapur's characters give readers a sophisticated understanding of the complexities involved. Beyond merely being a story, this narrative serves as a springboard for in-depth conversations about personal agency, cultural constraints and the changing roles of women in modern India. With its emphasis on the inherent value of young adult literature in questioning and reshaping societal expectations, Kapur's work becomes a crucial contribution.

Inclusive Representation and Queer Narratives: Kunal Mukherjee's "My Magical Palace"

"My Magical Palace" by Kunal Mukherjee is more than just a novel; it's a pioneer in the representation of LGBT identity in young adult literature. The story gently examines identity crises, encouraging compassion and understanding. As part of the continuous effort to foster a more welcoming literary landscape, "My Magical Palace" serves as a catalyst for discussions concerning diversity and representation. By addressing and shedding light on lesser-known aspects of the human experience, this work serves as a potent testament to the transformational power of storytelling.

Gender, Identity and Love at Their Intersection: "The Ministry of Utmost Happiness"

Arundhati Roy's "The Ministry of Utmost Happiness" defies convention by examining the intersections between love and gender identity and constructing a complex web of relationships. Roy's rejection of social norms provides readers with an insightful analysis of the various ways that love can manifest itself. The novel turns into a narrative haven that elevates the genre and deepens the discussion on the metamorphosis of young adult literature in India. Roy's work invites readers to consider the complex dance of gender, identity, and love by exploring these topics and becoming a crucial force in reshaping narratives and challenging conventional wisdom.

Transformative Storytelling: Influential Pieces that Encourage a New Generation

This section honours the way in which these stories have come together to influence a new wave of readers. The writers work together to question stereotypes, promote empathy, and challenge norms through a variety of voices and creative techniques. Through empowering young people to boldly explore, challenge, and embrace their identities, their works contribute to a cultural metamorphosis that embraces inclusivity. By doing this, these writers ignite a revolutionary shift in the literary landscape of contemporary Indian young adult fiction, producing cultural artifacts as well as narratives that reinterpret gender and sexuality norms.

These modern writers have changed the face of young adult literature in India with their ground-breaking stories, making them true pioneers. Their work transcends the confines of books; it serves as a catalyst for change, igniting debates and fostering critical thinking in young people.

They are defying norms, rewriting the story and demolishing prejudices in the field of young adult fiction. They depict characters with depth and complexity, approachable and shamelessly authentic through their storytelling. Readers identify with these people, which encourage them to accept who they are and not be afraid of it.

Additionally, by providing a secure environment in their writing for young readers to examine and comprehend difficult subjects relating to gender, sexuality, relationships and societal expectations. They encourage their audience to have open discussions about subjects that may otherwise be taboo or challenging to bring up by frankly discussing these subjects.

They serve as role models by demonstrating perseverance, self-acceptance and honesty via their stories. As they confront the difficulties and victories of adolescence and young adulthood, these characters can serve as role models for young readers.

The fact that these authors' influence beyond the boundaries of literature is what makes it so amazing. A new generation is motivated by them to challenge prejudices, question social norms and promote empathy. Young readers become change agents, defenders of inclusivity and allies in the struggle against discrimination as a result of the authors' work spreading throughout society.

Let's acknowledge the transforming influence of modern literature has been honour their literary accomplishments. It has the capacity to alter attitudes, extend horizons and build a society that is more accepting and compassionate. These authors have set the stage for subsequent developments in the field, where a variety of voices will continue to be heard and young adult literature will continue to be a force for good. Their influence extends beyond the written word to include the lives they touch and the conversations they spark, ultimately guiding us toward a more compassionate and understanding world.

ANALYSING THE IMPACT

These modern writers have had a significant influence on India's young adult fiction genre. Their stories have not only broadened the genre's frontiers but also pushed back against prevalent preconceptions, empowered young readers and helped create a more diverse literary scene.

These writers have broken down barriers that once existed between young adult literature and other genres with their daring narrative and genuine character depictions. They have introduced multi-dimensional characters that go against social conventions and expectations. Young readers can see oneself and their lives reflected in literature thanks to this departure from clichéd storylines, affirming their own identity and problems.

Additionally, the stories that these writers have created give young brains a sense of empowerment. They give their readers the information and courage to participate in open discussions by unafraidly discussing complex themes including gender, sexuality, relationships and social conventions. Young readers can see their own struggles and victories in the stories and they are given role models who are resilient and authentic.

The authors' contribution to a more diverse literary scene is arguably their most significant accomplishment. They have addressed topics that were once forbidden and established a safe environment for readers to investigate and comprehend these important concerns. Young readers now embrace and empathize others more since prejudices and stigmas about gender, sexuality and identity have been destroyed.

These current writers have had a significant influence on young adult literature in India. By dispelling prejudices, elevating young minds and fostering diversity, they have changed the genre. Their stories motivate readers to challenge stereotypes, accept diversity and make contributions to a more understanding and compassionate society, which transcends the confines of the book.

CONCLUSION

The writers under consideration are virtuoso in the symphony of modern Indian literature, crafting stories that surpass the limitations of traditional storytelling.Through their enduring contributions to young adult literature, they have created cultural artifacts that subvert expectations, elevate underrepresented voices and reinterpret the fundamental principles of storytelling in addition to writing books.The well-known writers are the builders of this narrative revolution, transforming the literary scene by destroying gender and sexuality clichés. Their authentic and timely writings are vivid canvases that portray the intricacies of the human experience, offering readers mirrors to reflect the varied fabric of their own lives.

Through exploring the literary landscapes that these trailblazers have created, we see a significant shift in the conversation around gender and sexuality.The stories embrace stories that speak to readers from a variety of backgrounds and celebrate the beauty of diversity. As a result, the writers develop become

masters of empathy, building links of comprehension between readers and the numerous characters who struggle with identity issues in their works.Honouring these literary trailblazers is homage to their cultural influence rather than just recognizing their deft writing. These writers create literary places where readers of all backgrounds can discover a reflection of their own journeys; they are cultural architects as well as storytellers. The writers have opened the door for a more diverse and compassionate literary landscapes with their writings, which encourage readers to reflect, gain knowledge and eventually develop.Not only have they planted the seeds of change in literature, but they have also had an impact on how society views acceptance, love and identity. Their literary legacy goes much beyond a mere library; it is a living example of the narrative's ability to influence, uplift and transform our society's fundamental values.

As the conductors of contemporary Indian writing, these writers create harmonies that strike a chord in the minds and hearts of their readers. Their tales invite readers to recreate the world and in the process, explore the limitless possibilities that exist within a book. They are not merely narratives. Instead, they are transforming experiences.

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HERBAL TEA'S VISION TOWARDS THE INDIAN MARKET

Dr. M. Vanishree[1], Dr.GB.Karthikeyan[2], Mr. S. Ramkishore[3]

[1]*Assistant Professor at the Department of Commerce (International Business), Government Arts College (Autonomous), Cbe- 18.*
[2.] *Head, Department of Commerce (International Business), Government Arts College (Autonomous), Cbe- 18.*
[3.]*Final Year B.Com (International Business) Government Arts College (Autonomous), Cbe- 18.*

1.1 INTRODUCTION OF HERBAL TEA

Although many believe that herbal tea looks like tea and is prepared similarly to tea, it is not considered tea. This is because they are not native to the Camellia Sinensis bush, the source of all teas. More appropriately, "tisanes" are the combinations of many components that make up herbal teas. The dried leaves, seeds, grasses, nuts, barks, fruits, flowers, or other botanical components that give herbal tea flavour and health benefits are combined to make tisanes. Most herbal teas may consist of one primary herbal ingredient or a blend of herbal ingredients meant to bring about a specific objective, such as relaxation, rejuvenation, or relief from a specific condition, amongst other things.

1.2 BENEFITS OF HERBAL TEAS

Teas are prepared from plants, seeds, flowers, roots, or fruits, except Camellia sinensis, referred to as herbal teas. For thousands of years, people have utilised them as all-natural home cures. Herbs and seeds were utilised before the development of modern medicine to cure a wide range of conditions, from fevers and rashes to infections. Even if hundreds or thousands of years have passed since their discovery, some still require additional study to demonstrate their advantages. However, herbal teas are a deeply ingrained part of our lives and can go beyond simple herbal medicines. They are an excellent option for stress treatment because of their reputation for promoting a tranquil and relaxed frame of mind. They can also help with stomach and intestinal problems and are suitable for the heart. Herbal teas' purifying qualities aid in the body's detoxification, and their nutrient-rich compositions promote vitality and general well-being. Because of their rich antioxidant content, they are especially beneficial for boosting the immune system and nourishing the nervous system. Furthermore, herbal teas can increase energy levels without the caffeine in coffee and regular teas, making them an excellent option for anyone wishing to energise their body naturally. They also help prevent colds, stimulate internal organs, and encourage a good night's sleep. It's also caffeine-free and available in a range of delectable flavours.

2.TOP 5 HERBAL TEA BRANDS IN INDIA

I.   **Tata Tea** - A subsidiary of Tata Consumer Products, Tata Tea offers a wide range of black, green, and herbal teas.
II. **Red Label** - Owned by Unilever, Red Label is known for its Natural Care Tea, a blend of black tea with Ayurvedic ingredients.
III. **Wagh Bakri** - A premium brand headquartered in Ahmedabad, Wagh Bakri sells various tea products, including herbal tea.
IV. **Society Tea** - Owned by Hasmukh Rai& Co., Society Tea offers various teas, including herbal tea.
V.   **Organic India** - Specializes in organic herbal teas and is known for its commitment to sustainability and quality

2.1 Alternanthera Sessilis: Herbal tea

Ponnangannikeerai, commonly known as **Alternanthera sessilis**, is a healthy aquatic plant in tropical and subtropical Asia. It belongs to the Amaranthaceae family and is known for its health advantages. This perennial herb spreads on the ground and roots at the nodes. It has elliptical leaves and glossy white blooms.
Ponnangannikeerai is classified into **nattu** (green leaves) and **seemai** (pink leaves). Both types have similar health benefits and are often consumed as green vegetables. The plant and its leaves have several health benefits, making them an essential supplement to any balanced diet.

Nutrition Facts

Ponnangannikeerai has 73 calories, 5 grams of protein, 1 gram of fat, 12 grams of carbohydrate, 3 grams of dietary fibre, 2 grams of minerals, 510 mg of calcium, 60 mg of phosphorus, 2mg of iron, and 77% water content.

2.2Alternanthera Sessile Growth

Alternanthera sessilis, also known as Sessile Joyweed and Dwarf Copperleaf, is a perennial herb native to Asia and Africa. It grows as a weed on India's plains, particularly in damp areas like shallow rice fields, along roadsides, and in kitchen gardens1. It favours moist soils and can be found along ditches, fallow land, and in moist soils of lakes, swamps, irrigation canals, rice fields, dams, and navigation channels up to 1200

meters altitude. The following is a quick guide on growing Alternanthera sessilis:

- **Gathering Seeds:** Gather fully developed seeds from a robust plant. The seeds have a black hue and are tiny.
- **Soil Preparation:** Prepare garden soil or potting mix that drains effectively. For better soil quality, combine well-rotted manure with organic compost.
- **Planting:** Place the seeds on the top of the soil and gently press them down. They shouldn't be buried too deep since they require light to germinate.

- **Temperature and Light:** For germination, keep the temperature between 21 and 29°C (70 to 85°F). Also, provide plenty of light.
- **Watering:** Maintain a constant, somewhat damp but not saturated soil. When the soil's top layer appears dry, water it.

2.3 Benefits of Alternanthera sessilisherbal tea
Alternanthera sessilis, commonly called dwarf copperleaf or sessile joyweed, has multiple medical uses. A few advantages linked to this plant are as follows:

S.NO	Health Benefits	DESCRIPTION
1	**Eyesight Improvement**	Strengthening the muscles and nerves in the eyes is thought to help issues like night blindness and improve eyesight.
2	**Digestive Health**	The plant is used in traditional treatments for piles and may help with digestive problems like acidity.
3	**Hair Growth**	Extracts from the plant are used in hair oils to stimulate hair growth and reduce ocular irritation.
4	**Liver Health**	Naturopathic medicines for liver conditions like hepatitis and jaundice contain it.
5	**Nervous System**	It is believed that the plant calms the nervous system, which enhances memory and sleep.
6	**Fertility**	Regular ingestion of the leaves may aid in the treatment of infertility.
7	**Cancer Prevention**	According to some, it contains qualities that aid in removing toxins from the blood, which may help prevent cancer.

Findings
- The need for herbal producers and their nutrition is significant for consuming food over supplements. Tisanes are the combinations of many components that make up herbal teas.
- It has many benefits for humankind with slight side effects only if it cresses limitations.

Suggestions
- In recent days, moving from artificial to natural products has been welcomed by people due to their benefits. 'Food is medicine' from Mother Nature to cater to the health-conscious market. Continuous findings, awareness, and suitable practice for growing and using herbal products are vital for relaxation, rejuvenation, relief, and boosting the immune system in humans.

2.4 Export of herbal tea in India
Herbal tea and HSN Code 21012090 export data of World - 972 export shipments.
◆ **TABLE 1 Comprehensive Analysis of Export Trends and Price&Quantity of HERBAL TEA (2012-2023):**

S.NO	YEAR	Quantity in Thousands	%	Growth Rate	PRICE(val. In lac)	%	Growth Rate
1	2012-2013	1,636.65	6.66	_	2,871.16	3.09	_
2	2013-2014	2,019.90	8.22	18.97	2,989.10	3.21	3.73
3	2014-2015	940.25	3.83	-114.62	2,983.48	3.21	0
4	2015-2016	1,046.35	4.26	10.1	4,593.25	4.93	34.96
5	2016-2017	1,263.51	5.14	17.18	5,455.99	5.86	15.81
6	2017-2018	1,782.86	7.25	29.13	6,693.90	7.19	18.49
7	2018-2019	2,068.82	8.42	13.82	8,357.90	8.98	19.90
8	2019-2020	2,254.28	9.17	8.22	8,651.52	9.29	3.39
9	2020-2021	1,875.58	7.63	-20.19	9,318.21	10.01	7.15
10	2021-2022	2,517.06	10.24	25.48	12,143.69	13.04	23.26
11	2022-2023	3,701.55	15.07	31.99	16,676.97	17.92	27.18
	TOTAL	21,106.81	100.00		80,735.17	100.00	

QUANTITY GROWTH RATE

PRICE GROWTH RATE

SOURCE: https://tradestat.commerce.gov.in/eidb/ecomq.asp
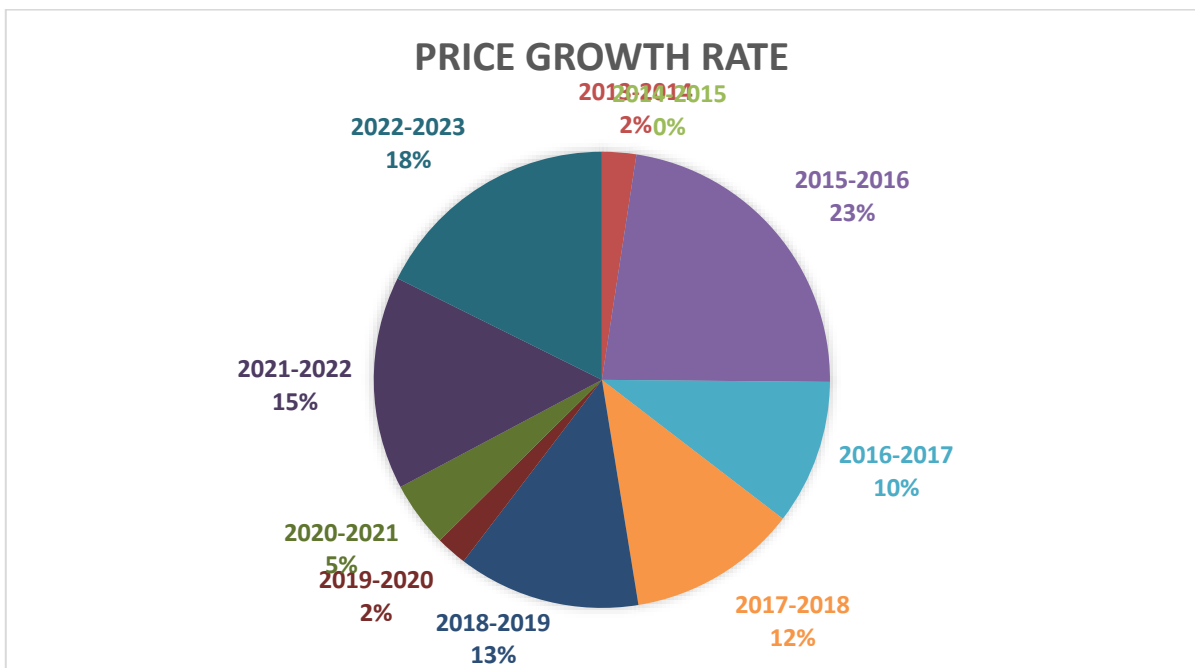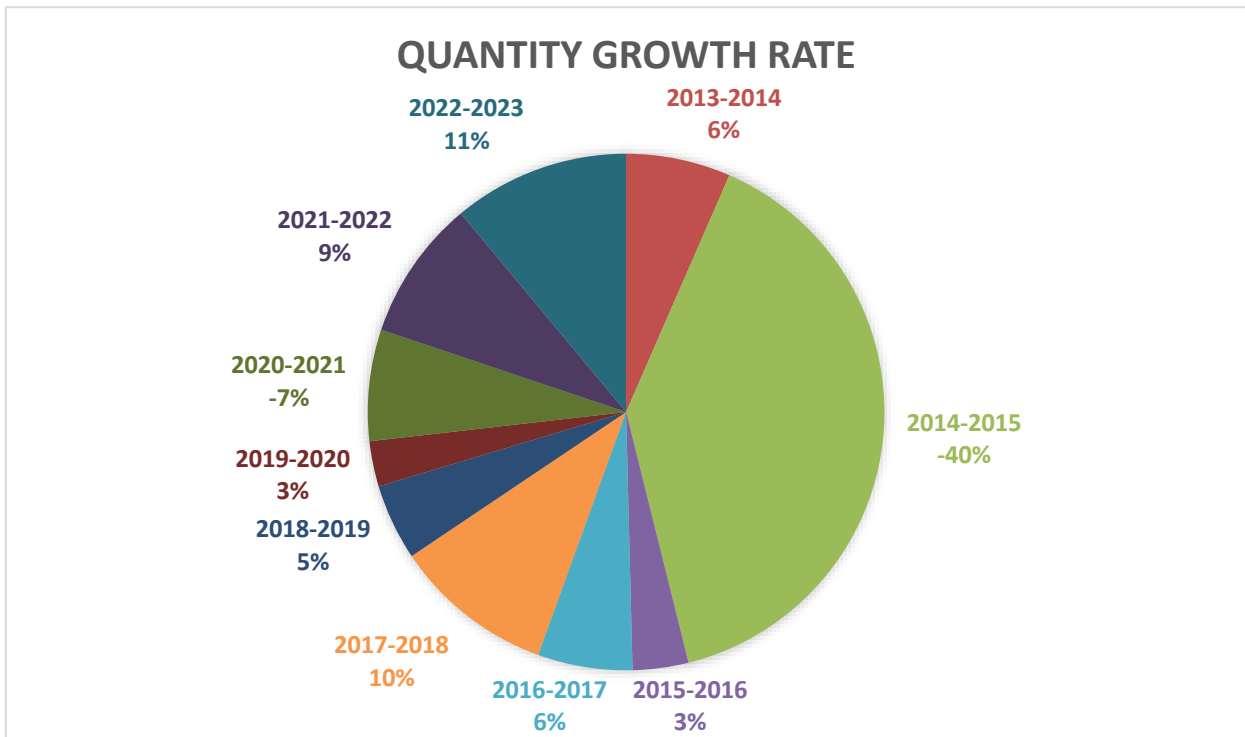
◆ **TABLE 2 Trend projection of Export Trends and Price and quantity of HERBAL TEA (2023-2030):**

Year	Quantity (Growth Rate)	Price (Growth Rate)
2023-2024	-41.44	6.69
2024-2025	36.71	6.27
2025-2026	4.98	5.90
2026-2027	4.75	5.57
2027-2028	4.53	5.28
2028-2029	4.34	5.02
2029-2030	4.16	4.78

Exhibit for Trend projection of HERBAL TEA (2023-2030)
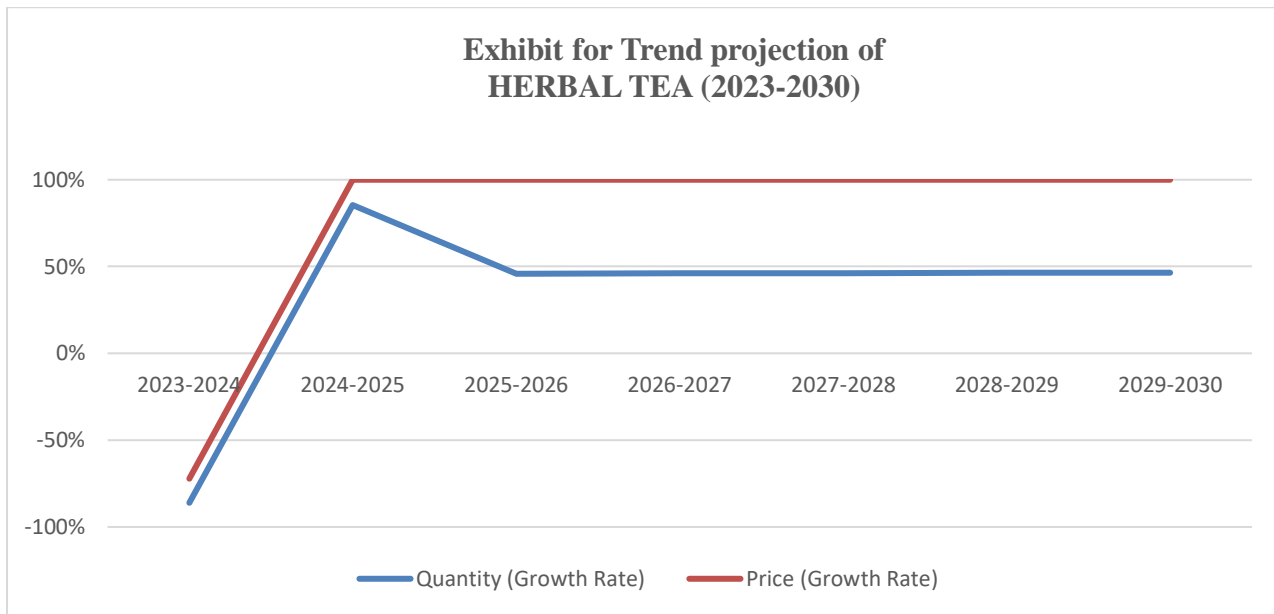
The Indian herbal tea market was valued at approximately **USD 3.3 billion** in 2021. It is projected to grow from **USD 3.47 billion** in 2022 to **USD 4.88 billion** by 2030, exhibiting a compound annual growth rate (CAGR) of **5.0%** during the forecast period (2022 - 2030).

CONCLUSION
Herbal teas are famous worldwide as a beverage and have been utilised as therapeutic vehicles in traditional medicine. Herbal teas may have therapeutic benefits in areas like diabetes, high blood pressure, weight management, and the health of women and mothers, according to clinical and observational studies. Despite the encouraging results, few studies examine herbal teas' safety and clinical usefulness. More research is therefore required to properly comprehend the effects of frequent herbal tea consumption on general health.

Herbal tea consumption can be a lovely way to take advantage of their possible health benefits. Still, it's advisable to speak with a healthcare professional before making any dietary changes, especially if you have any medical concerns or are taking medication.

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AN ANALYSIS OF THE CAPITAL ASSET AND INVENTORY OF ZUANGTUI HANDLOOM ENTERPRISES IN AIZAWL, MIZORAM

[1]PC Remlalhruaii, [2] Prof. Lalhriatpuii

[1] Research Scholar, Department of Economics, Mizoram University, Aizawl, Mizoram
[2] Professor, Department of Economics, Mizoram University, Aizawl, Mizoram

ABSTRACT

Handloom as defined by the Merriam-Webster dictionary is "any weaving device operated wholly or partially by hand or foot power." Handloom has always occupied an important position both in the economy of the country and in the hearts of the people. Handloom is the second largest provider of employment, providing employment to 31.45 lakh households through weaving and allied activities. In Mizoram, handloom provides employment to 27402 households (NCAER, 2020). The Zuangtui handloom cluster, located in the heart of Zuangtui Industrial Estate has provided great impetus to the economic development of the state. The paper aims to study the capital asset and inventory of the handloom enterprises of Zuangtui cluster such as ownership of work shed, means of transportation, types of products, loom type and quantity, etc. The study ventures into establishing the existence of correlation between the number of looms and average monthly income of the entrepreneurs.

KEYWORDS: *capital, entrepreneurs, handloom, loom, puan, work shed.*

INTRODUCTION

Handloom as defined by the Merriam-Webster dictionary is "any weaving device operated wholly or partially by hand or foot power." Handloom has always occupied an important position both in the economy of the country and in the hearts of the people. The lives of many tribes and casts are closely intertwined with handloom since time inception. It has been heralded as an artistic profession that commands a certain degree of awe and respect through the ages and hopes are still intact for the continuity of its grand status. What had provided protection and comfort from the physical elements in ancient times still provided people with employment opportunities in the modern world.

Handloom has always occupied a prestigious place in Mizo culture and is a way to showcase one's talent and ingenuity through sophisticated designs and motifs of the garment called "puan." Mizoram, by virtue of its location, is not endowed with the resources and potential for industrial advancement. Because of this, agriculture and handloom continue to be one of the key employment providers in the state. Handloom was traditionally a domestic work for women, but now it has evolved into a valuable commercial activity that provides employment to 27402 households (NCAER, 2020). Under weaving and allied activities, handloom employs 5634 men, 22083 women and 3 transgenders in Mizoram (NCAER, 2020). Handloom products has now broken the traditional confinement of *puan* and has branched out to various apparels such as vests, waistcoats, shawls, handbags, sling bags, pillow covers, footwear, wall hangings and others of the sort. However, the major product continues to be *puan* that is modernized with trending designs, color combinations and motifs.

LITERATURE REVIEW

Handloom is India's cultural heritage that shows cultural diversity through creativity and traditional precision (Hmangaihzuali, 2013). The versatile nature of handloom with its unparalleled flexibility permits experimentation and encourage innovation. A skillful blend of myth, faith, symbols and imagery gives the hand-woven fabrics their appealing dynamism (Mitra, et al., 2009). In India, among the adult handloom workers, majority, i.e., 77.9% are female. This dominance is unique to the North Eastern States at 99% female workforce, while male dominate the workforce in other states (NCAER, 2020). Traditionally, handloom is women's trade and plays an integral part in marriage institution where girls with proficient weaving skills are preferred (Gailangam, 1997; Devi, 2013). Through handloom, women entrepreneurs have contributed significantly to local economic development, gender equality and socio-economic upliftment of women (Hazarika and Goswami, 2018). Women handloom entrepreneurship tend to have a positive impact on their decision making authority within the household and freedom of movement outside the house while at the same time reducing male preference and domestic violence against them. However, the lack of ability to exercise power over family income and asset is still evident (Hazarika and Goswami, 2016). Generally, in developing countries, women participate more actively in micro-entrepreneurship in the informal sector than men. However, their micro-entrepreneurial participation in the handloom sector is lower than males (Goswami, et. al., 2017). Gender wage gap also exist in the handloom sector where productive characteristics such as credit

access, handloom training, adopting modern technology and maintaining bookkeeping adds to the wage generating capacity of both genders, but favours males better (Hazarika, 2017).

Handloom and the art of cultivating and processing cotton have been known to the Mizos since time immemorial, however, the first clear account of their handloom works dates back to around 1450 ~ 1400 when they settled in Thantlang and Run River (Boichhingpuii, 2016 & Lalzarzoa, 2014). Among handloom entrepreneurs of Thenzawl, low profit margin was the main problem faced where they earned a profit margin of about 25% while that of the trader's is 22%. However, these profit margins are quite high as compared to other clusters in India (one of the highest being 14% in Burdwan, West Bengal) (Ramswamy, 2013). Handloom entrepreneurs also faced problems pertaining to limited supply of yarn and fixing employee turnover due to loom owners betting up wages (Pachuau, et al., 2018). In Zuangtui cluster, majority of the weavers were women and faced no problem in both finance and marketing. However, problems regarding supply of yarn and lack of skills resonate well with the inadequate Government assistance (Renthlei, 2019).

RESULTS AND DISCUSSION

A. Work shed
A work shed refers to the place in which the looms are housed and where the weavers get to work. Some of the entrepreneurs were given a plot of land by the government within the industrial estate in Zuangtui. Here, they built their work shed and pays an annual rent to the government, although this rent is quite minimal. The other entrepreneurs who could not get a plot within the industrial estate either built work shed in their own premise or rent places for the same.

It was found that a large majority (86.66%) of the entrepreneurs were owners of their work shed. These entrepreneurs were mainly those who had a plot of industrial estate issued under their name. The rest of the entrepreneurs (13.33%) had to rent places elsewhere under a landlord to have a place of work.

B. Ownership of Means of Transport
A means of transportation such as two-wheeler or four-wheeler vehicle of any kind may serve as a valuable mode for shipping of finished products to the market and procuring raw materials from their sources.

It was found from the field survey that a large portion (76.66%) of the respondents had at least one means of transport, which is either a two-wheeler vehicle or a four-wheeler or both. The remaining of the respondents, (23.33%) had no means of transport and thus rely on public mode of transportation or walking on foot as a means of transport.

C. Source of Yarn
The place where the respondents bought their yarns was asked and it was evident from the field survey data that 82% procure their yarns from Aizawl market, 14% from Guwahati market and only 2% procure their yarns from a cooperative market. As can be seen, few entrepreneurs had not just a single market as a source for procuring their yarns and did business in the Aizawl market and Guwahati market or the Aizawl market and Cooperative market.

D. Start-up Capital
A start-up capital is essentially the money invested to start a new business. It was found out that a large majority (80%) of the respondents raised the start-up capital for their enterprise by themselves. The rest 20% of the entrepreneurs borrowed their start-up capital form the banks as loans.

E. Type of Products
An enquiry was made into the type of products produced by the handloom entrepreneurs of Zuangtui cluster. Senior puan and plain Thilchhah puan were the most popular products as these puans were the contemporary ones worn on most occasions. This was followed by Pangpar puan, Ngotekherh and Tawlhloh puan. The least produced items were Puanropui, Hmaram, Thangchhuah, Pawndum and Puanchei. There were entrepreneurs who produced Ipte (a bag) of different kind such as Khiangkawi ipte, Ipte chei and a Mizo puan-patterned sling bag which is quite popular with the consumers. Other items such as Shawl, Kawrchei (a blouse paired with Puanchei) and Naupuakpuan (a cloth used as a baby carrier) were also produced. One very interesting finding was that there was one entrepreneur who produces only Naga garments and ships their entire products outside Mizoram.

F. Ancillary Repair Services
Capital asset such as looms, warps and drums require maintenance and repair occasionally. It can be seen from the above field survey data that while a large 80% of the respondents lack any ancillary repair services, a handful 20% of them could provide such service. There were a few talented entrepreneurs who could and who did build their own looms using parts imported from Myanmar. Such entrepreneurs were aptly skilled to provide repairing services to their fellow entrepreneurs.

G. Loom Type and Quantity
There are different types of fly shuttle looms used in Mizoram. The most common ones are Indian loom and semi-automatic Zo loom. The semi-automatic Zo loom is a modification of Burma loom that is widely used in Myanmar. It is certainly noteworthy that all the respondents use semi-automatic Zo loom. The wide prevalence of Zo loom seems to come about in 1985 when the Zoram Industrial Development Corporation (ZIDCO), a private company jointly owned by the Government of Mizoram and the Industrial Development Bank of India (IDBI) gave refinance loans on the Semi-Automatic Zo Loom. This Zo Loom was much more efficient in production and could churn out three times the amount of output in relative to the Indian fly shuttle looms (Dr. Zohmangiha, MACHO Chairman, 2020). Thus, the economic efficiency of Zo loom and the availability of skilled mostly-Burmese workers who could operate the loom led to its popularity among the respondents.

With regards to the quantity of loom owned, about half (53.33%) of the respondents had 1-15 looms, a few (13.33%) of them had 16-30 looms, a sizeable (26.66%) of the respondents had 31-40 looms and only a couple (6.66%) of the respondents had more than 40 looms.

H. Average Monthly Income of the Entrepreneurs
The data on average monthly income of the entrepreneurs is:

Table 1: Average Monthly Income of the Respondents

Variable	< 5000	5000 - 10,000	10,001-15,000
Frequency	3	3	1
Percentage	10%	10.00%	3.33%

Variable	15,001 - 20,000	20,001 - 20,500	25,000 >
Frequency	3	2	18
Percentage	10.00%	6.66%	60.00%

Source: Field Survey

The above table shows that the lowest income group of entrepreneurs who earns less than Rs.5000 per month makes up 10% of the respondents. The highest income group of entrepreneurs who earn more than Rs.25,000 monthly makes up a majority, i.e., 60% of the respondents. This is a stark contrast to the income of weavers of Zuangtui cluster (Renthlei, 2019) where the highest income group who earn above Rs. 25,000 monthly makes up only 12.5% of the respondents. In this study, among the respondent entrepreneurs within the highest income group, there were 9 entrepreneurs who earn between Rs.80,000 - Rs.1,00,000 per month, making up 30% of the respondents. Therefore, a disparity in the income of handloom entrepreneurs of Zuangtui cluster is quite evident.

I. Correlation of Looms and Average Monthly Income
To analyze the relationship between number of looms and average monthly income of the entrepreneurs, a Karl Pearson's Correlation Coefficient test was run using SPSS software.

Table 2: Correlation Between No. of Looms and Average Monthly Income

		Avg. Monthly Income	No. of Looms
Avg. monthly income	Pearson Correlation	1	.909**
	Sig. (2-tailed)		.000
	N	30	30
No. of looms	Pearson Correlation	.909**	1
	Sig. (2-tailed)	.000	
	N	30	30

Source: Field Survey
**. Correlation is significant at the 0.01 level (2-tailed).

It is evident from the above table that the Karl Pearson's Correlation Coefficient for number of looms and average monthly income is 0.909 which is significant at 0.01 level. This means that the two parameters have a very strong positive correlation which can be said with 99% level of confidence.

CONCLUSION AND SUGGESTIONS
The following empirical and general suggestions were made to foster a momentum of sustainable developments amongst the Zuangtui handloom entrepreneurs.

i. It was observed that 13.33% of the respondents could not get a plot of the Zuangtui Industrial Estate issued to them by the government. Because of this, cost of renting (or taxes on) work shed varies from Rs.100 per month for those who were issued an industrial plot to Rs.5000 per month for those who were denied an industrial plot. Thus, it is imperative for the government to ensure that the plots of Zuangtui Industrial Estate be distributed fairly to deserving handloom entrepreneurs, to whom the estate is intended for.

ii. Most of the handloom products of Zuangtui cluster is puan of different designs. However, the usage of puan is limited to Mizo and a few other tribes of North East India and some South East Asian countries. Also, the design and structures of such puan worn by said ethnicities other than Mizo is very different from the handloom products of Zuangtui cluster and does not cater to them. Therefore, to broaden the handloom market to the national and international level, the types of products produced must be adapted to suit the destined markets.

iii. The yarn used for almost all the handloom products is acrylic yarn. Since acrylic yarn is not appealing to touch and poorly breathable, it renders the market for said handloom products unfit for regions with warmer climate. Therefore, to target such markets, natural yarns such as cotton and silk can serve as a great alternative to acrylic yarns.

The study enables us to better understand the capital asset and inventories of the handloom enterprises of Zuangtui Cluster. It is observed that number of looms owed greatly correlated with the income of the entrepreneurs. It is also observed that entrepreneurs who were not allotted plots of Zuangtui Industrial Estate land faced a great increase in their cost of production through an increased rent for work shed. Despite vast differences in the size of Zuangtui handloom enterprises and their assets and inventories, it can be concluded that handloom has help provide employment and livelihood to a vast number of people.

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THE ATTITUDE TOWARDS EU OF YOUTH IN GEORGIA

Magda Rukhadze

Faculty of Social and Political Sciences, MA of Sociology, Tbilisi State University, Georgia

ABSTRACT

Georgia's involvement with the EU has been reflected in the signing of political agreements, the contribution to the economy, the assurance of security, and institutional development since its independence in the 1990s. As this relationship continues to evolve, it is important to identify what attitudes towards the EU exist and how high the level of awareness about the organization is in general. When considering EU integration, the role of diffuse and specific support is noteworthy, according to which Georgian youth are considered Euro pragmatists. Economic factors are primarily responsible for attitudes towards the EU, which are cited by almost 60% in both cases, which illustrates the importance of a utilitarian model, consequently the EU is seen as a "cost-benefit" model.

KEYWORDS: EU, *European integration, youth, Euro pragmatism, Euroscepticism, utilitarian model.*

INTRODUCTION

Since achieving independence in the 1990s, the EU has been involved in Georgia through political agreements, economic contributions, security assurances, and institutional development. As this relationship continues evolving, it is important to identify attitudes towards the EU and assess the public's knowledge and commitment. It should be noted that Georgia has moved towards closer EU cooperation by signing agreements like the PCA. In 2006, it joined the EU's European Neighborhood Policy. Bilateral relations increased in the 2010s with the DCFTA and visa-free travel (MFA, 2022).

On the economic front, the EU is a key contributor to Georgia's economy. Over the past three decades, the organization's financial aid has exceeded two billion euros. As of 2021, the EU countries are Georgia's main trading partners, better than traditional trading partners such as Turkey and Russia. Since 2010, the EU countries have been considered the main investors in Georgia's economy. With 455 billion GEL in foreign direct investments in 2021, they contributed twice as much as to Azerbaijan, 2.5 times more with the United Kingdom, 3.5 times more than Turkey and 5 times more than the US (Geostat, 2021). In 2019, approximately 7% of tourists who came to Georgia were EU citizens, making a significant contribution to the development of the country's tourism industry (European Commission, 2022).

In addition to economic development, the EU supports Georgia's security and institutional development. Since 2008, the European Union Monitoring Mission (EUMM) has been defending peace and stability with Georgia's separatist regions along the administrative border with Abkhazia and South Ossetia. Recently, the involvement of the organization has played a significant role in mediating the political crisis and eliminating the political polarization between Georgia's main political parties (European Commission, 2017).

Based on EU support, the country's population has a cheerful outlook towards the EU, while the majority supported Georgia's EU membership. Furthermore, similar views are shared by the political elite of Georgia, including the representatives of the government and the main opposition groups (Kakhishvili, 2021).

Such enthusiasm has recently been confirmed in the form of amendments to the Constitution of Georgia. The updated document includes a transitional provision that obliges the constitutional authorities of Georgia to "take all measures to ensure Georgia's full integration into the EU and the North Atlantic Treaty Organization."

The European Fund has played a crucial role in boosting civic engagement in Georgia's path towards European integration, fostering agreement on the EU-Georgia Association. Through various initiatives, the Fund has aimed to broaden civic participation in AA/DCFTA reforms and facilitate policy discussions between civil society and public sector representatives. A significant outcome of the Fund's work has been the establishment and strengthening of Georgia's food safety system, notably enhancing standards and practices. Consequently, the Georgian government has considered policy recommendations from nearly a hundred civil society and business associations, resulting in legislative and procedural improvements in food safety and consumer protection.

LITERATURE REVIEW

Public opinion towards the EU is at the center of almost every academic debate about the present and future of EU integration. Moreover, the attitude towards the EU is so extensively discussed in the literature that they are the object of study. Thus, researchers from various research fields related to media and political communication are interested in exploring public opinion towards the EU as it affects the behavior of citizens both in the EU community and nationally (Vries, 2007). Additionally, the EU is dominated by constant change and diversity in a way that follows a similar trend in relation to various EU issues. In this ever-changing context, there are two important interrelated topics to consider (Boomgarden et al., 2011):

1. Public opinion towards the EU is at the core of political and academic debate about the present and future of European integration.
2. Secondly, favorable attitudes and opinions towards the EU have increasingly transformed into negative or skeptical attitudes in recent years.

Early public opinion polls on European integration have used the concept of EU support to characterize citizens' attitudes towards the EU, but recently the concept of Euroscepticism towards the same phenomenon has been utilized (Boomgaarden, Schuck, Elenbaas, & de Vreese, 2011). The concept of Euroscepticism was originally used to characterize the process of European integration of political parties (Taggart, 1998). Moreover, it is emphasized that the process of European integration has a multifaceted nature, therefore the same complex nature should be taken into account when considering the dependence on the process. That is why the authors of Euroscepticism interpret it as "opposition to a particular policy" or it is regarded as an "integration effort".Bumgarden and colleagues propose that specific support entails backing policy outcomes, while diffuse support pertains to an assessment of the object itself rather than its functionality. Another perspective, similar to EU support, distinguishes utilitarian support, which revolves around the costs and benefits of membership, and affective support, which involves emotional responses to European unity ideals. They emphasize differences in attitudes towards both the regime and society. Regime-specific attitudes encompass principles, processes, and institutions, gauging general support and membership benefits. Approaches to regime support encompass approval of expansion, transfer of policy competencies to the EU level, trust in EU institutions, evaluation of regime functionality, and emotional response. Conversely, attitudes towards the EU relate to citizens' perception of it as either a societal driving force or a threat to national interests. Public attitudes are gauged through identification with the EU and attachment to the European community (Boomgarden et al., 2011).

From an empirical point of view, we must distinguish four dimensions of addiction that are "unique components of the common notion of EU dependence" (Thomassen, 2009). These dimensions include the following:

- Emotional responses – a feeling of the extent to which the EU is a threat to potential members.

- Feeling of European identity – gaining importance due to discussion about EU legitimacy
- Utilitarian attitudes - such as general support and benefit assessment towards the EU
- Strengthening the EU in the future – including supporting further European integration

We should also focus on an alternative vision that distinguishes diffuse and specific support for EU integration, which leads to four types of possible positions structured towards the EU (Eichenberg & Dalton, 2007):

1. Euro enthusiasts - who support both the integration process and its ideology.
2. Euro rejectors - who do not support anything related to EU integration.
3. Euro sceptics - who support the idea of a united Europe but reject further practice of EU integration and
4. Euro pragmatists – who oppose the idea of a united Europe but support the practice of further integration into the EU.

The question should be asked about what factors contribute to the development of specific attitudes towards the EU? The answer to this question is offered by Geibel and Palmer (Gabel & Palmer, 1995), who formulate an etiological model:

1. Utilitarian-authors show that the support of the European integration community varies according to the "mercantile or security benefits" of each member state, this model offers clear hints of the variability of public support in member countries - citizens who discover the real and immediate benefits of European integration are more likely to have positive attitudes towards the EU.
2. Identity-based – The source of Eurosceptic attitude is the constant need for citizens to find identity. While fear of losing national identity leads to lower levels of support for EU integration, this individual sense cannot have such a strong impact Moreover, McLaren repeats the original idea using the following formula: "Less support generally means ambiguous feelings towards the EU, not explicit resistance to it" (McLaren, 2004).
3. Policy-based - attitudes are caused by citizens' confidence or distrust of the supernational political system directed from the center – Brussels. But as Leconte (Leconte, 2010) suggests, these political-based attitudes are implemented by materialistic force – both the elite and political parties are driven by forces that use the prospect of cost-benefit of EU integration as a national resource.
4. **Cultural-based** – conveys separation from the entire EU project, as EU integration plays an important role in changing the national cultural values of citizens of member states.

METHODOLOGY

This study uses the secondary data of the „Knowledge of Attitudes and Attitudes towards the EU in Georgia 2021", conducted in collaboration with CRRC and the European Fund. In total, 2,335 full interviews were collected, of which 587 were

young. The survey design is a stratified multi-stage cluster selection and ensures the representation of data for the population of Tbilisi, other cities, rural settlements, mainly ethnic Armenians, and Azerbaijani-populated areas.

Within the scope of the study, data was processed through SPSS 22 using the following statistical methods: frequency analysis and cross-tabulations, t test, Anova, indexing, Will Coxon statistics, correlation. Measurements of central trend and variation were also used to determine the results.

Purpose: The aim of the study is to determine the attitudes of Georgian youth towards the EU.

Objectives
1. Identify the causes of attitudes towards the EU.

2. Determine how informed young people are about the EU.
3. Examine the advantages and disadvantages of the European integration process.
4. Identify the main contributing and hindering factors of European integration.

DISCUSSION
Attitude towards EU and European integration
Most young people have a positive view of the EU. In total, 51% of Georgians have an incredibly positive (21%) or quite positive (30%) attitude towards the EU. 44% of young people are neutral, and 5% are described as negative or extremely negative (see diagram 1). However, there is a statistically significant connection between these variables ($x2=14.8$, $df=8$, $p<.05$).
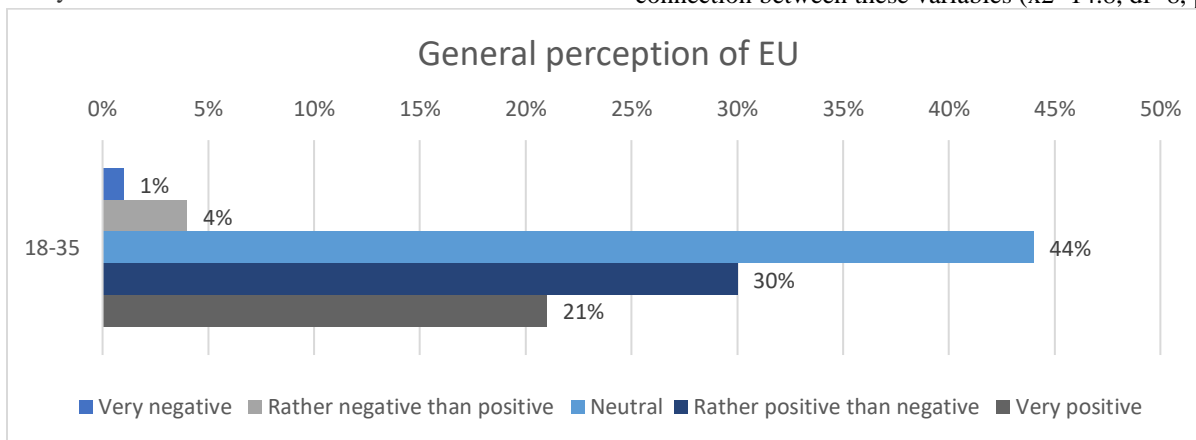
Diagram 1. General perception of EU

It is important to understand this issue in the demographic context, depending on the type of settlement, the positive or very cheerful outlook is mainly expressed by young people living in the capital (54%), and the least ethnic Armenian youth (38%). Moreover, statistically significant link between the EU and NATO attitudes was established, Sig (2-tailed) <.05. There is a strong positive correlation between those variables R=.69, and the determination coefficient $r^2=.476$ means that 47.6% of the variation of one variable is due to the variation of the second

variable, indicating that young people have a Euro-Atlantic aspiration.

More than half of young people fully (11%) or partially (43%) trust the EU (see Diagram 2). About 35% have a neutral attitude; Only 12% do not fully or partially trust the EU. Trust in the EU correlates with the general perception of the organization (r=.52, p<.05).
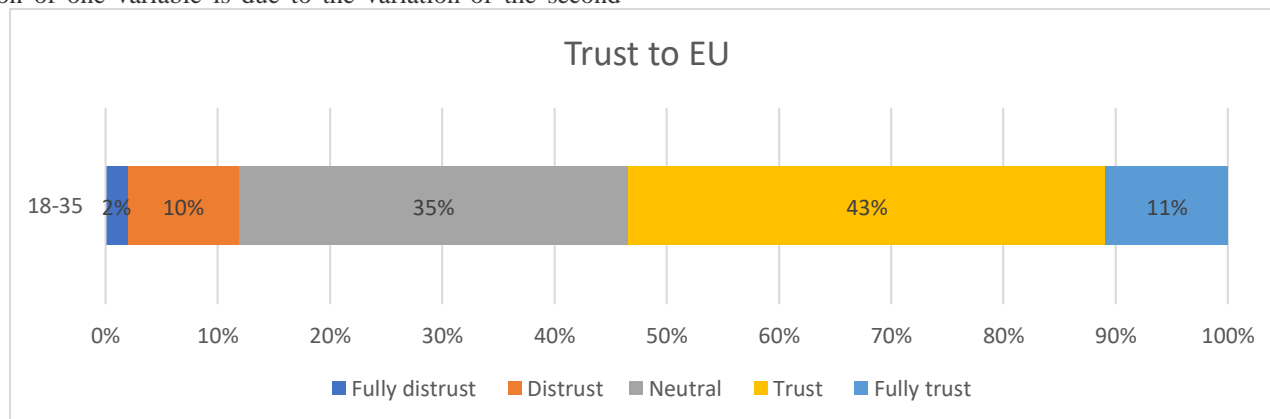
Diagram 2. Trust to European Union

Based on the indexing, local social and political instances were separated, although the trust of the EU was compared to political institutions such as the Prime Minister, Parliament, and political parties. In the case of political institutions, the central trend measures are as follows (Min=4.0, Max=20.0, MD=12.0, Mean=11.8), and in case of confidence in the EU (Min=1.0, Max=5.0, MD=4.0, Mean=4.4)

To determine the difference, the Will Coxon criterion was also used, we compared the respondents with respect to the EU and political institutions, so the null hypothesis was that they had the same confidence, although Sig. < at 0.05, so we can reject the null hypothesis. Trust in the EU is highly correlated with trust in political institutions ($r=.79$, $p<.05$).

Respondents were asked to express their opinion on what the EU represents. About 42% of young people say that the EU is an international organization. 25% consider the EU as a political union and 26% as an economic union, only 4% are military, 2% cultural and 1% non-governmental organization (see diagram 3).
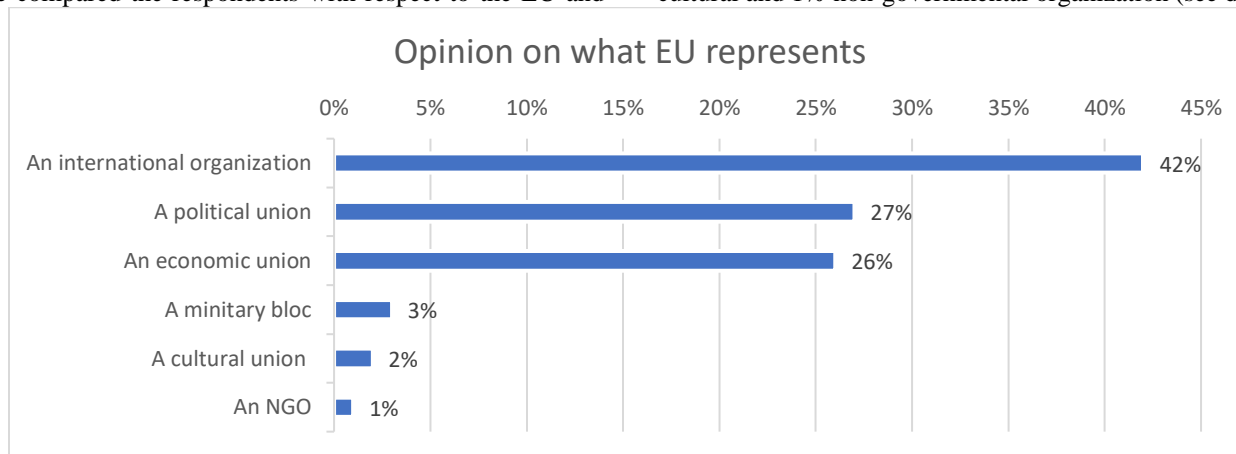
Diagram 3. Opinion on what the EU represents.

If they participated in hypothetical elections, the vast majority, namely 88%, would support Georgia's EU membership, 7% would not support it, 5% would not participate in the elections at all (see table 1).

N	Hypothetical referendum about EU membership	%
1	I would vote for EU membership	88.0
2	I would vote against EU membership	7.0
3	Would not vote at all	5.0

Table 1. Hypothetical referendum about EU membership

36% of Georgian youth believe that Georgia has the prospect of becoming a member of the EU within 5 years, 33% are 6-10 years old, 21% name more than 10 years, only 10% think that Georgia will never become an EU member state (see diagram 4).
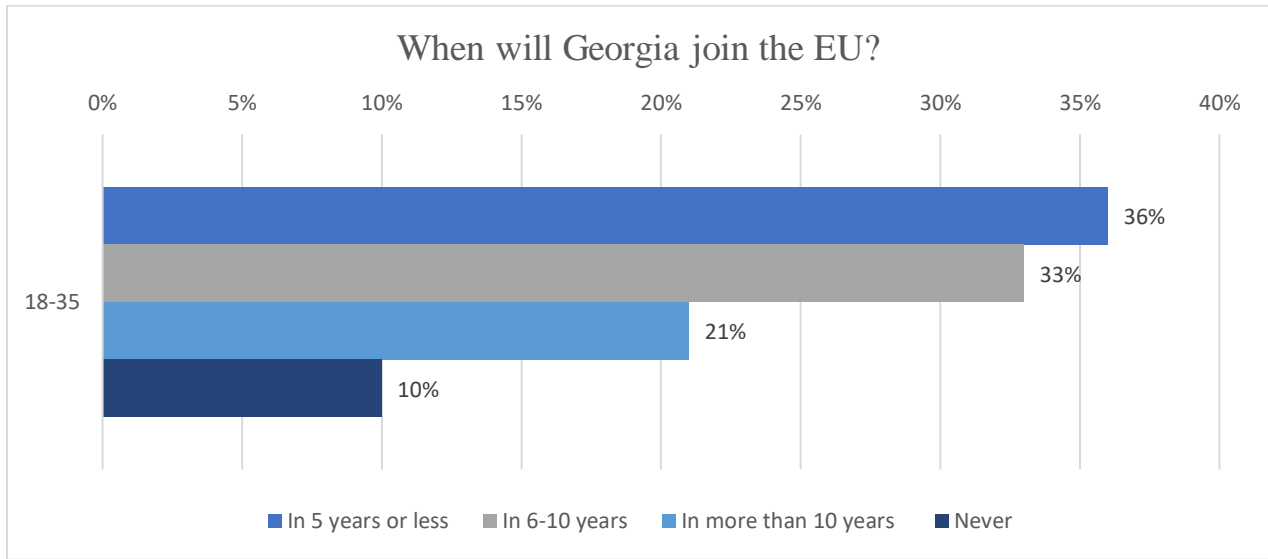
Diagram 4. When will Georgia join the EU?

Reasons for the EU's attitude towards European integration: It is noteworthy that only 9.7% of young people completely agreed with the provision "EU threatens Georgian traditions" while 68.6% disagreed (see diagram 5).
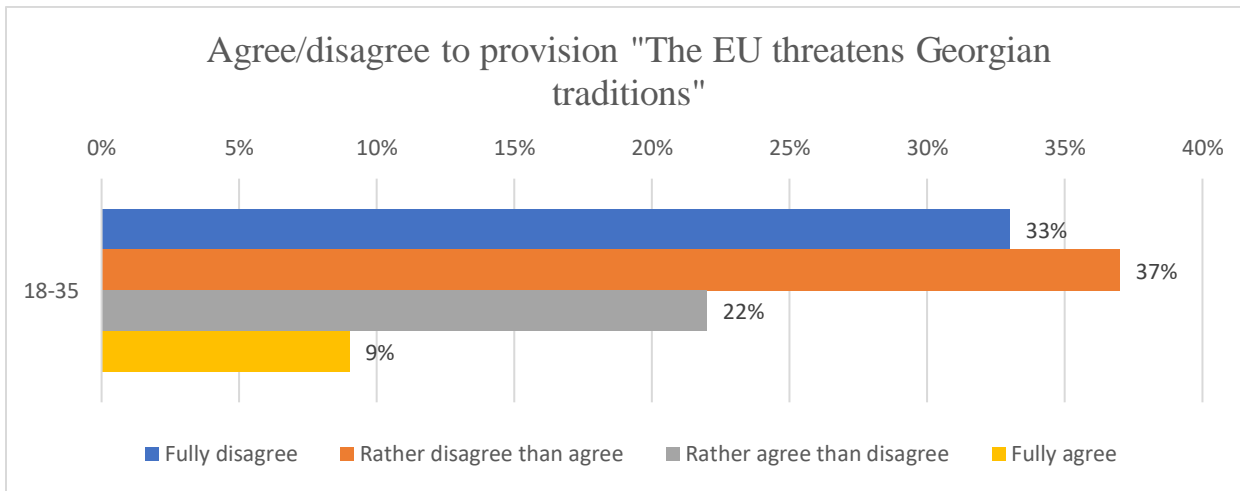
Diagram 5. Agree/Disagree to provision "The EU threatens Georgian traditions."

When they were asked which countries or unions Georgia should have the closest political cooperation with 59.9% of young people supported EU, 57.5% - United States, and 32.6% - Russia (see diagram 6).
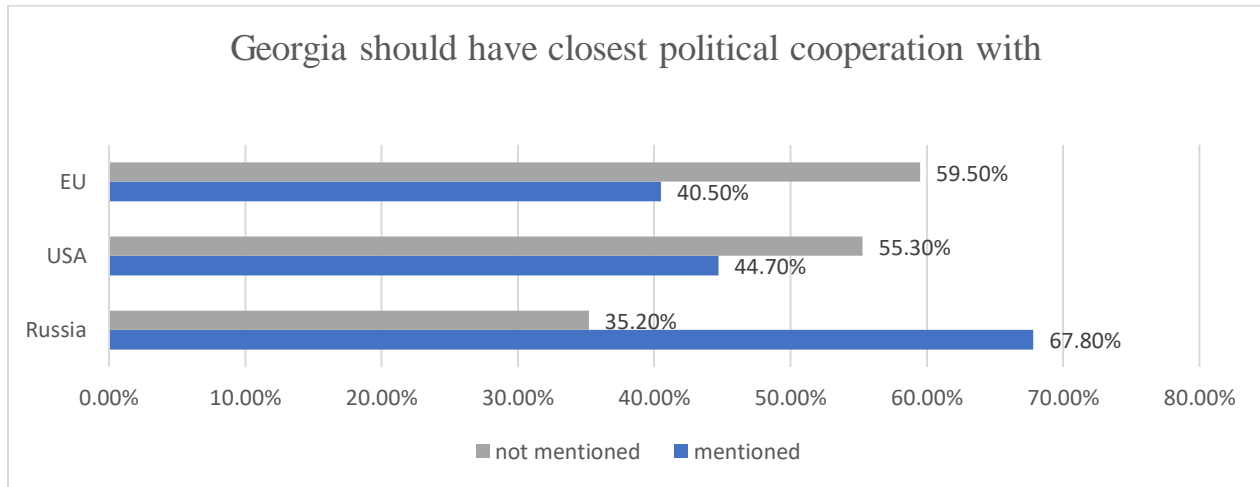
Diagram 6. Which countries or unions Georgia should have the closest political cooperation with?

When we asked which countries or unions Georgia should have the closest economic cooperation with 59.5% of young people, 57.3% supported the United States, and 35.2% supported Russia (see diagram 7).
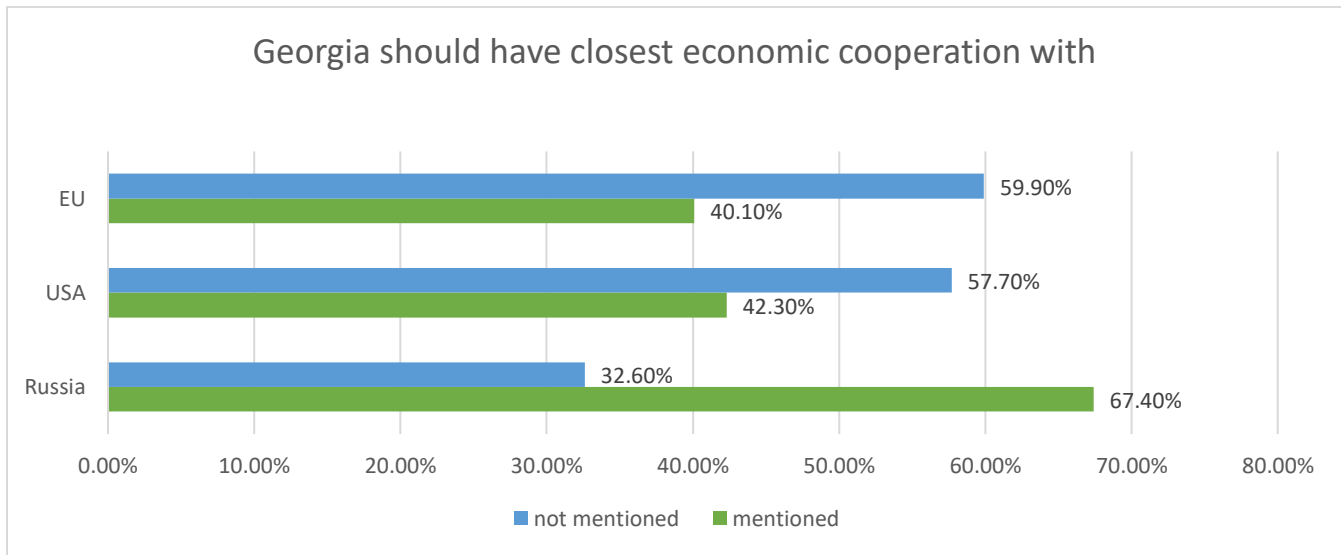
Diagram 7. Which countries or unions Georgia should have the closest economic cooperation with.

The survey highlighted 5 reasons for supporting EU membership, namely:

1. My economic situation will improve.
2. I will be able to travel to Europe without a visa.
3. Many countries will get to know Georgian culture and traditions.
4. Georgia would be better protected from foreign threats.
5. Georgia would have a better chance to restore its territorial integrity.

These reasons were recoded into the following categories: socio-economic, cultural, political. The socio-economic factor is considered significant by 52% of young people, 20.7% -cultural and 27.3%- political.

Level of awareness and sources of information
To determine the level of awareness, an index was created on issues related to knowledge about the purpose of EU member states and the EU in general, the number of its members (Min=1, Max=9, Mean=5.27, MD=5, SD=1.65).

The difference between knowledge scores was checked by gender using t test, t (141) =.148, p<.05, and when checking according to settlements we used Anova, F (4,138) =2.44, P<.05.

As for the sources of information, in this case three main sources of information have been identified: Social networks (56.6%), TV (50.3%) and interpersonal contacts (40.3%) (see table 2).

N	Sources of information about EU	%
1	Social networks	56.6
2	TV	50.3
3	Friends, relatives, colleagues	40.3

Table 2. Sources of information about EU

CONCLUSION

In order to measure public attitudes in this study, we rely on Bumgarden's and his colleagues (Boomgarden et al., 2011), which says we need to focus on the feeling of identification with the EU and the European community. Youth have an overall positive EU attitude shown through their support for membership, trust in the EU, and belief Georgia will join within 10 years. Euro pragmatism dominates over Euroscepticism. Diffuse/specific support shows the importance of utilitarian benefits versus limited cultural identity impacts. The utilitarian model drives both EU and integration attitudes, viewing the EU as a "cost-benefit" model. The cultural model has little influence. While knowledgeable about the EU, youth lack some key information. Top information sources are social networks, TV, and interpersonal contacts.

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A REVIEW ARTICLE ON ARMA AND ITS MANAGEMENT IN ATYURVEDA

Drakshayani Shanawad[1], Ashwini M J[2]

[1]*Final year PG scholar, department of Shalakya tantra, SDM college of Ayurveda and Hospital, Hassan Karnataka, India.*

[2]*Professor and HOD of Department of Shalakya Tantra, SDM College of Ayurveda and Hospital, Hassan Karnataka, India.*

ABSTRACT

Arma is one of the Suklagata Netra Rogas, characterized by triangular growth of Dushita mamsa dhatu i.e., growth of fibrovascular tissue sub-conjunctivally and spread on to the cornea It is one of the Chedana Sadhya Vyadhi. It can be correlated with Pterygium in contemporary science. It is one of the most common eye problems requiring prompt attention. It has a major incidence worldwide and is very common in both developed and developing countries. It is affecting all age groups and both sexes. It is the common cause of ocular morbidity.

KEY WORD: *Arma, Shukla Mandal, Krishna Mandal.*

INTRODUCTION

Netra is one of the most important gynanendriyas explained in classics. The most significant and attractive of the five sense organs are the eyes. Acharya Sushruta and Vaghbhatta has discussed Arma is a Mamsal vruddhi originating from Shukla mandal. It is can eventually reach the Krishna Mandal. In initial stage of Arma where the growth is thin and confined to a small area limited to Shukla Mandala, use of Lekhana Anjana is indicated.

ARMA

Sushruta describes eleven different forms of diseases of Shukla mandala which are peculiar to the sclerotic coat of the eye such as Prastaryarma, Shuklarma, Kshatjarma, Adhimamsarma, Snaywarma, Sirajal, Sirapidika, Balasagrathita, Shuktika, Arjuna, and Pistaka[13]

Acharya Vagbhata supplements Sirotpata and Sirapraharsha also to the Suklagatha group.
Thus, Vagbhata describes thirteen Rogas in Suklamandala.
Among these the first five can be grouped in to a main heading called "Arma" due to it similarity in features[14].

Nirukti

The term "Arma" derived from the dhatu "Ru" which means "Gati Prapanayo"that is a layer gradually growing forward.

Another description about Arma is that 'Ruchyati Vinasham Prapayati Ityarthe Armam" that means a substance which can ruin or destroy the transparency of the cornea or Krishna Mandala

This is a disease in which a wing like layer which gradually develop from the Kaneenaka Sandhi (Inner canthus) or Apangasandhi (outer canthus) towards the Krishnamandala.
If this layer progress to the Krishnamandala which is transparent will damage, there by disturbance in Vision May leads to. The Nirukthi of the word Arma is merely similar to the description of Arma. Hence both these are one and same.

NIDANA

- Nidana are the factors which causes initiation and progress of the disease. The exact goal of the treatment is archived by avoiding the causative factor of the diseases is very important. A person though takes complete treatment without avoiding the Nidanas it's merely unless.

- Various etiological factors can be studied under differently as listed in the following table

Table No. 1 Showing Netra roga Samanya Nidana
A. Ahara Sambandhi Nidana

SL.NO	NIDANA	SU[23]	MN[24]	BP[25]	YR[26]	VS[27]	GN[28]	C.M[2]
1	Vidahi	+						+
2	Amla	+						+
3	Kshara	+						+
4	Teekshna	+						+
5	Ushna	+						+
6	Atisheeta	+						+
7	Guru	+						+
8	AtiAmbu/ Dravapan	+		+	+		+	+
9	Atimadhy Apana	+	+		+		+	
10	Virudha anna	+						
11	Asatmya							
12	Atividagdha							+
13	Shukta	+		+				+
14	Aaranala	+		+				+
15	Kulatha	+		+				+
16	Masha	+		+				+

Table No. 2 Showing Netra roga Vihara Sambandhi Nidana

1	Avakshira							+
2	Ucchita Shirashayina							+
3	Ushnabhithaot hasyajala praveshath	+	+	+	+	+	+	+
4	Doorekshanath	+	+	+	+	+	+	+
5	Sookshmanireksana	+	+	+	+	+	+	+
6	Pratatekshana							+
7	Swapnaviparyaya	+	+	+	+	+	+	+
8	Prasaktha samrodhana	+	+	+	+	+	+	
9	Kopa/Shoka/Klesha	+	+	+	+	+	+	+
10	Abhihatha	+		+		+	+	
11	Athimaithuna	+	+	+	+	+	+	+

Description
Ahitannapana
Excess intake of Amla, Kshara, Teekshna, Ushna dravyas are Achakshushya. Apathya intake of Shukta, Aranala, Vidahi, Asatmya Ahara, Atimatra, Virrudha, Atisheeta, Guru Dravya, Kulatha Masha, Pinyaka, Virudaka etc. are Achakshushya, because they cause Agnimandya which have direct impact on the Pachaka Pitta as it is the remote of all the Pitta and it is governed by Agni[31]. So Agnimandhya will hamper the functions of Alochaka pitta. Hence in the *samprapti Prayah Piitanusarina* is told to show the importance of Pittain the manifestation of eye diseases.

Ahita Vihara
Improper functions of Kaya, Vak and Manas are considered as Ahitavihara. It includes Doorekshanat, Sookshma Nireekshana, Ratrijagarana etc causes vata prakopa leads to Vataja Netra Roga (causes improper blinking of eyes, reduced tear flow leading to dry conjunctiva. Thus, conjunctival defence mechanism is altered leading to infections)

Especially Bashpa nigraha has major role in producing eye disease. Tear has bacteriostatic activity. Tear flow also cleans the eye, discards the accumulations and protects eye from pathogens. Withholding the tear during emotional outbreaks will affect the normal functioning of lacrimal apparatus. Inadequate tear secretion leads to dry conjunctiva, by which pathogens can easily affect the eye.

Hence Ahita Ahara and Vihara act as Viprakrista nidana for producing eye diseases.

Agantuja nidana
Agantuja nidana are the exogenic factors leading to origination of Arma. These include expose to raja, Dhooma, Atapa etc.

Air pollution and water pollution
Polluted air by Smoke, dust etc and water which is with abundant in infective organisms are highly irritant to the eyes and make them prone to many infections in eye. These act as both Sannikrista and Viprakrista Nidana for Netra roga.

Aupasargika or Sankramika nidana:
Acharya Sushrutha has cautioned Abhishyanda, can be manifested as a result of contagious aetiology and disease spread from one person to other person through air close contacts, exposure, fomites such as clothes, cosmetics etc. Chronic Abhishyanda causes the cause for the production of Arma hence

It acts as either Pradhanika Nidana or as Sannikrista Nidana for Arma.

Direct action of Krimi on Netra
Acharya Vagbhata explained that Krimi is the source for causing the eye diseases directly.

Kha-vaigunya karaka nidanas
Acharya Sushruta explained that the vitiated Doshas during Sthanasamshraya Avasta settles at the site of Kha-Vaigunya and produces Vyadhi. [32] Kha-vaigunya in Netra may occur due to many factors which cause vitiation of doshas. Kha-vaigunya in Netra occur directly due to Agantu Karanas like Raja, Dhooma, Dooshitavata Sevana etc. Ahitakara Ahara will cause formation of Guna Heena Dhatus which make eyes prone for diseases. Kha-vaigunya may be compared to stagnation of Rasa Paribhramana due to the reduction in defence mechanism of conjunctiva leading to conjunctival disorders. Thus Kha-vaigunyakaraka Nidanas have vital role in the origanetion of Arma

The pathogenesis of all eye diseases is attributed mainly to vitiated Pitta Supplemented by Vayu and Kapha. The general causative factor for the vitiation of Pittadosha are same in the case of eye diseases and the other bodily diseases.

No specific Nidanas, Poorva Roopa, Samprapti are mentioned anywhere regarding arma in the classic text books. We can find out some major etiological factors and premonitory symptoms other than the common nidanas mentioned earlier from our day-to-day experiences. The incidence of Arma is predominant in persons who reside at industrial, area, dusty area, polluted area and also people who perform more near work as a profession, like careful watching such as handicraft, micromachinary work, manipulation of minute objects causes eye strain, worm air, vigorous type of irritating fumes, fine practical of other materials, smoke, dust exposure to sunlight, heat, ultra violet rays etc. also effect the eye.

Another important factor relation to its Nidana is that the disease is often seen along with malnutrition. In whom the resistant power to external injury, infections etc. are comparatively less in these patients.

In addition to the above abnormal seasonal variations, inhalation of poisons fumes, Allergic manifestation Amalpitt Ajeerna etc. causes the Dosha Vaishyamya which ultimately deranges the equilibrium of Dosha, Dhatu and Mala and causes diseases like Arma.

SAMPRAPTI
From the onset of Dosha Dushya Dushti till the advancement of the Vyadhi there happens diffrent Vikriti. Samprapti clarifies such arrangement of obsessive stages included. It tells us almost the overall pathogenesis of a disease.
Samprapti of Arma can be understood by the following two headings,
1. Samanya Samprapti of Arma (Netra roga)
2. Vishista Samprapti of Arma.

Samanya Samprapti of Arma (Netra roga)
The Samanya Samprapti of Netra roga that is explained in classics can be considered as the Samanya Samprapti of Arma. As per Susruta, the vitiated Doshas, spreads to Jatru Urdhva Bhaga through the Siras and localized in the Netraand causes the eye diseases[33].

Acharya Vagbhata in Astanga Hridaya[34] and Ashtanga Sangraha[35] has explained specific nidanas for Netra rogas, in sarva roga adhyaya of Nidana sthana as vitiated doshas spread to Urdhva Jatru bhaga through Pittavaha Siras and localized in Netra and manifests akshi roga.

Madavakara[36], Yogaratnakara[37], and Gadanigraha[38] followed the Susruta's method

Vishista Samprapti of Arma
No author describes the pathogenesis of Arma in specific. Thus, the common pathogenesis of the common eye illnesses as it were diseases only considered here.

According the Ayurvedic hypothesis of pathology the sign of any illnesses takes after a specific design of chain. follows a particular pattern of chain. The first stage of this chain is 'Sanchya' the stage of accumulation of Dosha where there is derangement within the homeostasis of the tridosha. Typically taken after by 'Prakopa' the stage of provocation of Dosha. During this phase any vitated dosha travels from its sthana to the vicinities of other Doshas. Prakopa is followed by prasarana the stage of propogation in which the vitiated doshas circulate all over the body and in the next phase that is Sthanasanshraya the stage of manifestation the doshas get settled in particular organs or sites. Here they cause morbid changes and thus manifest as disease. This description is for nija rogas where a prior vitiation of doshas to the manifestation of the disease occurs. If the disease is not handled properly becomes complicated it is known as stage of Bheda.

In the case of Arma, based on its etiological factors, the vitiated doshas dominantly pitta and rakta reaches the eyeball through the Sira supplying the eye.

The doshas thus reached the eyeball, get vitiates again along with Vata. This provokes the doshas to move from its original seat.

The provoked vata, pitta and rakta due to intensity of vitiation, goes to various parts of the eye and vitiates kapha situated in the eyes and its surrounding structures. At this stage, redness and slight pain are seen as premonitory symptoms.

For every disease, the particular location is important for the manifestation of symptoms. In this disease, the vitiated doshas and dushyas locates on sandhies of netras mainly on kaninaka and apanga. After that a slowly growing thin layer of kaninaka or apanga sandhican be seen. In some cases, it is seen that the layer is growing from both the sandhies. Sometimes it is manifested only in one eye. The incident of both eyes is also not uncommon.

This layer gradually grows covers the Shukla Mandala, the Krishna Mandala, finally enters the Drushti Mandala. when Shukla Mandala begains, pateints complain Irritation, lacrimation, redness is complained by the patient at the onset of Arma in Shukla Mandala. This layer gradually destroys the outer layer and transparent of the eye- cojunctiva-and its transparencies. When this layer extends into the papillary region, it will cause serious impairment of vision by preventing entrance of the light rays in the eyeball.

The dosha predominance of each case can be determined only due to its difference in colour and symptoms. White colour denotes the predominance of kapha, while red colour denotes for rakta and pitta. Bluish red is usually seen in predominance of all doshas.

The nature of flesh and thickness of the layer helps to distingguish one type of arma from others.

- Progressive Arma is Prastari Arma.
- Thin white slowly progressive is Shleshma.
- Red coloured Arma is Kshataja.
- Thick Arma with more flesh is Adhimamsarma.
- Yellow Arma like Snayu is Snanyuarma

Both Sushruta and Vagbhata described five varieties of Arma and a lot of resemblance is seen in all aspects such as names, etiology and description except in the name of Shonitarma. Sushruta named this disease as Kshatajarma or Lohitarma.

SAMPRAPTI GHATAKA

Dosha	:	Tridosha
Dushya	:	Rasa, Rakta and Mansa
Adhistana	:	Kaninika ,Apang
Vyakta sthana	:	Shukla mandala
Rogamarga	:	Madyama

POORVA ROOPA[39]
Poorva Roopa denotes the symptoms that manifest in completely. No reference is available regarding the Poorva Roopa of Arma in any texts but the samanya Poorva roopa mentioned for Netra roga can be considered here.

Samanya Poorva Roopa of Netra Roga
- Avilatha (dirty eyes
- Samrambha (mild oedema)
- Ashru(lacrimation)
- Kandu(itching)
- Upadeha(stickiness)
- Gurutha(heaviness)
- Osha (burninng sensation)
- Toda (pricking pain)
- Raga(redness)
- Shoola in varthma kosha(Pain)
- Shooka poornata (foreign body sensation)
- Vihanyamana roopa visual disturbance

ROOPA
- The symptom of a disease or it's characteristic manifestations those appear during the course of a disease is known as Roopa.

Prastharyarma[40]
Prastharyarma is a thin and progressive growth. It is seen in reddish blue colour in the whole of the Shuklamandala i . e . , in the sclerotic coat underneath the conjunctiva.

According to Vagbhata the pathological lesion happened due to the vitiation of all the doshas in combination with raktha. The onset and development of this disease is   rapid, pain is not mentioned anywhere by any authors. He says that the colour of the membrane is shyavalohitha. This resembles to Sushruta's description of "Rudhira Prabha Neelam". But Videha describes that the colour   is either shyava or rakta. He also says that this is due to Sannipatha dosha vishesha.

Shuklarma[41]
The name itself denotes the colour of the membrane as white. It is due to the vitiation of Kapha. A crop of soft and whitish growths slowly extending over the entire length of the Shukla mandala is called Shuklarma.

Shonitharma or Lohitharma[42]
It is otherwise called kshthajarma. The additional growth of the membrane from both sandhees or can thus over the Shukla Mandala is seen in reddish colour like petals of the lotus flower. This   is a soft fleshy growth.

Adhimamsarmma[43]
This is a soft thick and dark brown membrane resemble to the colour of the liver, on the Sukla Mandala is called Adhimamsarma. This may be extended to most of the Solerotic area.   The colour may vary from Syava to dark brown.

Snayvarma[44]
An additional growth on Shuklamandala with rich in blood vessels and nerves resembles Snayu manifested in the Shukla Mandala, is known as Snayvarma. Here the name denotes the signs and symptoms of the particular disease.   Sushrutha describes   it as a rough growth of flesh in Pandura Varna on the white coat. It   is   called Snayvarma.

UPASHAYA AND ANUPASHAYA
A judicious application of Oushadhi, Ahara and Vihara, when produces relief in the symptoms is called as Upashaya and when aggravates the symptoms is called as Anupashaya. In classics such references related to Upashayanupashya of Arma are not found.
There is no reference available in the classics about the Upashaya and Anupashaya of Arma.

SADHAYASADHYATA
Sadhyasadhayata gives the clear picture of the prognosis of the disease. It depends upon many factors like, nature, severity of disease, vaya, prakruti, bala of patient etc. Arma is a Chedan Sadhya Vyadhi[45] It is explained as curable disease by the excision therapy

UPADRAVA OF ARMA
In the classics, there is no reference available regarding the upadrava of Arma but when encrotches the Krishna Mandala

then it causes disturbance in visual pathway and cause visual disturbances.

VYAVACHEDAKA NIDANA
Table no.3 Showing the Vyavacchedaka Nidana of Arma

No	A.H[46]	Sushrutha[47]	Colour	Doshakopa	Other Symptoms
1	Prasthary Arma	Prasthary Arma	Shyava Lohitham (Bluish red)	Vatha, Rakta Kapha,Pitta	Thin growth Progressive spread of of Arma
2	Shuklarma	Shuklarma	Shukla Varna (White)	Kapha	Soft and whitesh growth slowly extending over the entire length of the the Shuka Mandala
3	Shonitarma	Kshatajarma (Lohitarma)	Raktha varnam (Red)	Raktha	Soft fleshy growth reddish colour like petals of the lotus flower.
4	Adhi Mamsarma	Adhi Mamsarma	Shyava varnam	Kapha and Vata	Soft, thick and dark brown membrane develops
5	Snayu varma	Snyvarma	Pandura varnam	Kapha	Rough growth with rich in blood vessels and nerves and rough growth of the membrane.

CHIKITSA VIVECHANA

The first and foremost method of treatment of Arma is Chedan, procedure of surgery described by Sushruta and Vagbhata. They explain all the pre and post operative aspects also. According to modern medicine surgery is only the treatment of the choice, but in Ayurveda prescribes certain Anjanas can be prescribed in the earlier stage to reduce the thickness and progression of Arma. Hence Ayurvedic therapy have the preventive and curative medical and surgical therapies.

Anjanas mainly have Lekhana properties which can gradually tapper the thickness of the membrane and thereby prevent the growth and also reduces the size. The important Anajanas mentioned in our texts are Lekhana Anajanas such as Thriphaladi mashi, Marichandi Churnanjana, Samudra Phena varthi, Chandrodaya varthi, etc. In addition to these Anjanas other therapies such as Sneha, Sweda, Nasya, Raktha mokshana, internal medications etc. are also used for the treatment of Arma by the Ayurvedic practitioners. If the nature of Arma is thin, fume like not well formed, curd white, blood red colored should be treated with medicines as like Shukla Roga.

An Arma which is very thick and looks like a piece of skin and covered over with fibers of flesh and nerves as well as one occurring on the cornea or Krishna mandala should be indicated for surgery till that time it can be managed by topical and oral therapy.

Patients suitable for surgery should be given appropriate Sneha and Sweda after considering the predominant dosha. When Samyak snigdhatha attained, eyes should be given mild fomentation. The patient should advise to be in supine position on the surgical table.

Before the Pradhan Shastra Chikitsa the Arma should be disintegrated (shaiithiya) by the application of Lavana + Bijapooraka Swarasa and massaged with the thumb for a while

Due to this massage the growth of the pterygium is seperated from the base, care should be taken to avoid all types of movements of the head during surgery. In detail instructions should be given to concentrate to the opposite side of the growth to expose the lesion properly. That means if pterygium extend from the medial can thus the patient should look towards the lateral canthus. Likewise, if the growth of the pterygium is from the lateral canthus the patient should concentrate their eyes to the medial side. The fold of the membrane should be separated from base by either Badisha, Muchudi or by Soochi shasthra. Then this membrane should be separated completely from the shuklamandala by the instrument Mandalagra. Afterwards this 3/4 of the membrane should be cut. Before the surgery care should be taken to avoid any damage to Kaneenaka Apanga Sandhi Lacrimal ducts its Srotas and also the various vital veins, arteries and nerves concerned.

If any damage happens to kaneenaka and apanga or to lacrimal apparatus, Ndeevrana may develop associated with severe complications.

After a successful surgery to scrape the residual ¼ Arma a paste which is prepared out of Vyosha, Saindhava and Madhu should be applied at the operated part for Prathisarana karma. Then Seka should be done with ghee which is gently warmed. Finally, a part of ghee and honey should be applied to the eyes and bandaged.

The bandage should be changed on 3rd, 5th 7th days. On these days seka must be done with appropriate medicines. After seven days the bandage is not necessary but for Seka can be prepared with karanja beeja. This can be prepared in milk also. There are so many other kwatha. Also prescribed for Seka according to

the predominance of Dosha. In all the cases honey should be mixed with' kwatha before conducting the seka. These are the main post operative measures.

If patient feels comfort and there is no incidence of pain the surgery is considered as successful an uncomplicated one. If any complications due to excessive or less cutting of the membrane may be managed with Sekas and Anjanas which has the quality of Lekhana and Brimhana

For the prevention of further development of membrane operated the patient's surgery should take Anjanas for at least one year.

Aushadhi Yogas Explained in classics
- Shankhadi Anjana[48]
- Shilanjana[49]
- Shuklari varti[50]
- Sitadi Anjana[51]
- Dakshndadi Anjana[52]
- Nayansukhavarti[53]
- Prabhavati gutika[54]
- Gutikanjana[55]
- Guduchydi Anjana[56]
- Chandanadi Choornanjana[57]
- Tamradruti Anjanam[58]
- Tuthadi Varti[59]
- Marichyadi lepa[60]
- Manjisthadi Anjana[61]

PATHYA AND APATHYA

Various dietary regimens, conducts, medicaments and the treatment modalities which are Pathya (helpful) and Apathya (hazardous) for the patient suffering with Netraroga are listed in the table No.5 Same Pathyapathya is recommended in Arma in which the drugs should possess tikta rasa, laghu and kapha Pittahara propert

Table No. 4 Showing Pathya in Netraroga / Arma

Aharaja		Viharaja	
1.	Shastika shali	1.	Atapatra dharana
2.	Purana shali	2.	Padatrana dharana
3.	Yava	3.	Manahashati
4.	Godhooma	4.	Gurupooja
5.	Mudga	**Aushadhi Varga**	
6.	Jangala mamsa	1.	Purana gritha
7.	Patola	2.	Triphala ghrita
8.	Karavella	3.	Patola
9.	Kadali	4.	Shigru
10.	Soorana	5.	Draksha
11.	Divyambu	6.	Lodra
12.	Lava mamsa	7.	Karavellaka
13.	Mayura mamsa	8.	Triphala
14.	Vanakukkuta Mamsa	9.	Punarnava
15.	Koorma mamsa	10.	Kakamachi
16.	Sthanya	11.	Kumari

	Upacharaja		Aushadhi Varga
1.	Langhana	12.	Sita
2.	Ghrita pana	13.	Vartaka
3.	Swedana	14.	Dattura
4.	Upanaha	15.	Kulattha yoosha
5.	Virechana	16.	Dadhima
6.	Nasya	17.	Chandana
7.	Dhumapana	18.	Saindhava
8.	Rakthamokshana	19.	Karpura
9.	Lepa	20.	Bhringaraja
10.	Seka	21.	Patola
11.	Aschyotana	22.	Jeevanthi
12.	Anjana	23.	Matsyaakshi
13.	Pratisarana	24.	Nava moolaka
14.	Ksheera dhara	25.	Shatavari
15.	Jala Gandhoosha	26.	Madhu
16.	Pada Abhyanga	27.	Mridhveeka
17.	Avagundana	28.	Saindhava lavana
18.	Prapoorana	29.	Chavya

19.	Pindi	30.	Karkotaka
20.	Tarpana	31.	Meghanada
21.	Putapaka	32.	Peya
22.	Vidalaka	33.	Vilepi
23.	Avachoornana	34.	Lashuna
24.	Udvarthana	35.	Kulaththa Peya

Apathya

Dietary regimens, conducts, medicaments and the treatment modalities which are hazardous for the patient suffering with netraroga are termed as apathya. These will have Amla, Lavana, Katu Rasa, Teekshna, Ushna, Guru, Vidahi, Vistambhakara guna.

Specific apathya explained in chikitsa manjari for Arma roga is Dadhi, kadali phala, Pridhuka, Pappad, Narikela, Panasa beeja[64]

Table No.5 Showing Apathya in netraroga / Arma.

	Aharaja		Viharaja		
1	Dadhi	1	Vegadharana	16	Maithuna
2	Madhookapushpa	2	Adhyashana	17	Sookshmekshana
3	Pinyaka	3	Krodha	18	Danta vigharshana
4	Viroodha	4	Shoka	19	Nisha Bhojana
5	Kalinga	5	Rodana	20	Prajalpana
6	Matsya	6	Divaswapna	21	Chardana
7	Sura	7	Ratrijagarana	22	Rajo sevana
8	Panasa	8	Atapasevana	23	Drik swedana
9	Viruddha anna	9	Ambupana	24	Jala avagaha
10	Valoora	10	Teekshna darshana	25	Bhasvala darshana
11	Ajangala mamsa	11	Sahasa	26	Tamboola sevana
12	Dadhi	12	Snana	27	Grahana darshana
13	Kantakari	13	Dhooma sevana	28	Chalavastudarshan
14	Phanita	14	Diva swapna	29	Madhyahna arkadarshana
15	Sarshapa taila	15	Rodana	30	Nisha jagarana

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THE IMPACT OF CHANGING CLIMATE ON NATURAL VEGETATION: A COMPREHENSIVE ANALYSIS

Sunita Gupta[1], Rajni Gupta[2]

[1]*Professor, Department of Botany, Veer Savarkar Govt. College, Obedullaganj,*
Dist. Raisen Madhya Pradesh, India
[2]*Assistant professor, Department of Zoology, Mata Gujri Mahila Mahavidyalaya, Jabalpur, M.P., India*

ABSTRACT

This research paper deals with the intricate relationship between changing climate patterns and their profound effects on natural vegetation. With climate change emerging as a critical global concern, it is imperative to understand the repercussions on ecosystems and biodiversity. Changing climate patterns results in change in temperature fluctuations, altered precipitation patterns and drought stress, changes in extreme weather events, snow packs, wind events, Ice storms, sea level rise, tropical cyclones etc. According to the "Assessment of climatic change over the Indian region - A report of the Ministry of Earth Sciences Government of India''_ in the period of 30 years (1986 to 2015) temperature of the warmest day and the coldest night of the year have risen by 0. 63 degrees centigrade and 0. 4 degree centigrade respectively. Such changes cause risk of soil erosion, nutrient deposition, spreading of contaminants and pathogens, flooding etc. All these have intense effect on biodiversity and ecosystem services, phonological changes in natural vegetation (forest flora) e. g. in leaf phenology (bud break, leaf maturation, leaf senescence etc), species diversity, patterns of invasive species, forest productivity and biomass production, forest health etc. This leads to an overall impact on the forest and its ecosystem. Repercussion is that plants face an uncertain future. This paper aims to contribute to a better understanding of the intricate dynamics between climate change and the world's natural vegetation.

KEY WORDS: *Natural Vegetation, precipitation patterns, Phenology, Extreme weather.*

INTRODUCTION

The Earth's climate is undergoing unprecedented changes due to human activities, primarily the emission of greenhouse gases. The report *Assessment of Climate Change over the Indian Region* prepared by the Union Ministry of Earth Sciences (MoES) warned that the India's average temperature has already increased by around 0.7 degree Celsius during the 1901–2018 period due to greenhouse gas emissions and by the end of 2100 it is expected to rise by approximately 4.4 degree Celsius (relative to 1976–2005 average, in the worst-case scenario), These changes have far-reaching consequences on ecosystems, with natural vegetation being particularly vulnerable. Globally Climate is one of the most important determining factors of vegetation patterns and has significant influence on the distribution, structure and ecology of forests (Kirschbaum et al, 1996) .

The global climate change is greatly associated with land use/land cover changes (LULCC) (Bonan, 2008; Halder et al., 2016).Climate-vegetation studies by several researchers have shown that climatic regimes determine specific plant communities or functional types in any region (Walter ,1985)**.**The purpose of this research paper is to systematically explore and document the multifaceted impact of changing climate on natural vegetation.

MATERIALS AND METHODS

The Study is based on collection of data by searching research papers of the authors, working in the same area of interest and analysing it for the purpose of study. Climate change is a very vast subject, so only some of the parameters are taken into consideration for the study.

RESEARCH FINDINGS

After the study, the points of interest are listed here. All the reviewed literature indicates an alarming situation and needs immediate attention to be taken to revive and come to a "less harmful situation " .

CLIMATE CHANGE AND TEMPERATURE FLUCTUATIONS

One of the most prominent manifestations of climate change is the rise in global temperatures. Temperature fluctuations have direct and indirect effects on natural vegetation. Elevated temperatures can lead to increased evaporation, affecting soil moisture content and nutrient availability. Additionally, temperature changes can disrupt the delicate balance between plant and animal species, leading to shifts in ecological communities.

Research indicates that certain plant species are more sensitive to temperature changes than others. Some species may thrive in warmer conditions, while others may face decline or extinction. The alteration in temperature regimes can also influence the timing of flowering, seed production, and overall plant phenology.A modelling study for India by Sharma Jagmohan et.al(2017) indicated that 30.6% and 45% of the forest areas are likely to experience shift in forest types due to the projected climate change under A1B scenario in the mid (2030s) and long (2080s) term, respectively. For the people who depend on forest resources for their livelihoods, impacts of climate change on forests have severe implications.

ALTERED PRECIPITATION PATTERNS AND DROUGHT STRESS

Climate change is associated with shifts in precipitation patterns, leading to more frequent and intense droughts in some regions.The report *Assessment of Climate Change over the Indian Region* prepared by the Union Ministry of Earth Sciences (MoES) said "Both, the frequency and spatial extent of droughts, have increased significantly during 1951–2016. In particular, areas over central India, southwest coast, southern peninsula and north-eastern India have experienced more than two droughts per decade, on an average, during this period. The area affected by drought has also increased by 1.3 percent per decade over the same period. Climate model projections indicate a high likelihood of an increase in the frequency (more than two events per decade), intensity and area under drought conditions in India by the end of the twenty-first century,".

Changes in precipitation have direct implications for natural vegetation, particularly in arid and semi-arid ecosystems. Drought stress can lead to reduced plant growth, increased susceptibility to diseases, and even mortality in extreme cases. The effects of drought on forests depend on many factors, including the duration and severity of the drought and site-level characteristics of the forest. Forests with dense tree cover are more susceptible to moisture stress because the trees must compete for water (D'Amato et al. 2011).

The impact of altered precipitation patterns is not limited to water availability alone. It also affects nutrient cycling in soils, further influencing the health and vitality of natural vegetation. The long-term consequences of drought stress can result in changes to the composition and structure of plant communities.

CHANGES IN EXTREME WEATHER EVENTS

Climate change is contributing to an increase in the frequency and intensity of extreme weather events, such as hurricanes, cyclones, floods, and wildfires. These events can have immediate and severe impacts on natural vegetation. Floods can disrupt ecosystems by altering soil structure and nutrient availability, while wildfires can lead to the destruction of entire plant communities.

There is recent evidence of climate change-attributed variability in precipitation patterns and temperature trends in India, primarily due to anthropogenic influences (Kumar G. et al., 2020; Raghavan et al., 2020). This has led to increasing incidences of various climatic extremes and meteorological disasters in the Indian region, viz., flood (Lal et al., 2020b, 2020c; Ahmad et al., 2021), tropical cyclones (Kumar S. et al., 2020; Kumar et al., 2021 A.), heat waves (Chakraborty et al., 2019; Dubey et al., 2021), drought (Lu et al., 2019), and cloud bursting (Dimri et al., 2017). Changes in wind events and snow packs have been reported to affect forests in many ways(IPCC,2007)

The increased occurrence of extreme weather events poses challenges for the resilience of natural vegetation. Certain plant species may be better adapted to withstand specific climatic conditions, but the rapid and extreme nature of climate-related events can surpass their adaptive capacities, leading to irreversible damage.

IMPACT ON BIODIVERSITY AND ECOSYSTEM SERVICES

Natural vegetation plays a crucial role in supporting biodiversity and providing essential ecosystem services. As climate change disrupts the habitats of numerous plant and animal species, the risk of extinction rises. The report *Assessment of Climate Change over the Indian Region* prepared by the Union Ministry of Earth Sciences (MoES) said that several regions in India are global biodiversity hotspots with numerous endemic species of plants and animals and with the "climate changing more rapidly than the usual pace of evolutionary adaptability of many species, they may face increasing threats on account of these changes." Changes in vegetation patterns can result in the displacement of native species, altered migration patterns, and disrupted ecological interactions.

The loss of biodiversity has cascading effects on ecosystem services such as pollination, water purification, and carbon sequestration. Understanding these interconnected relationships is vital for devising effective conservation strategies in the face of a changing climate.

Work of Pandey and Ghimire(2012), Parida, Pandey and Patel(2020) depicted that vegetation over Northeast India and Himalayas had a browning trend over the period 2000–2015 because of declined precipitation/moisture and solar radiation trends with increased warming trend, a phenomenon known as temperature-induced moisture stress or temperature-induced drought stress.

These findings are also consistent with negative trends suggested by other studies [Wang, 2017, Mishra, N.B.; Mainali, K.P.,2017] which were attributed to deforestation, shifting cultivation and human-induced land use conversion for urban expansion. In the Uttarakhand Himalayas, browning of vegetation was also reported by Mishra and Chaudhari [2015] associated with temperature-induced moisture stress which arose due to increased

temperature with declines or no changes in precipitation. This phenomenon has an adverse impact on vegetation productivity [D'Arrigo et.al., 2004, Krishnaswamy, et.al. 2014]

Whilst the ecosystem services are generally defined as "the life-support and life-enhancing services of natural ecosystems," human activities are already significantly reducing the flow of these ecosystem services from the forests on a large scale, and if current trends continue with climate change posing as an added stressor, forests provide a wide range of ecosystem services such as protecting water quality and quantity (including stream flow, drinking water supplies, and groundwater) by slowing down runoff, preserving biodiversity, sequestering carbon, and providing wood and other non-timber forest products (NTFPs) and an aesthetic element in the landscape with significant economic and spiritual values (Heal 2000).Changes in soil organic carbon reported by Gopalkrishnan et al (2011).

Initial studies on 'biome shifts' characterised climate primarily in terms of average temperature, average rainfall, and CO_2 concentrations. Using the differential manner of carbon isotope absorption in plants with different photosynthetic pathways, a study in the Nilgiri sholas of the southern Western Ghats (Sukumar, Suresh, and Ramesh 1995) suggested that under higher CO_2 and moisture conditions, an expansion of montane forest and a shift in the composition of grassland species can be expected. Subsequent studies grappled with conflicting predictions about the direction of climatic shifts, giving rise to different conclusions about whether forest productivity would increase and forests' vegetation would shift to moister types or whether drier types of forest would expand and tree mortality might increase because of decreasing rainfall and soil moisture (Ravindranath and Sukumar 1998).

More recent research employing more complex regional climate models and process-based vegetation models suggests that, in the event of increased CO2 levels and future climate, over 70% of India's forests would transition to moist forest types (Chaturvedi et al. 2011; Ravindranath, Sukumar, and Saxena 2006). This biome will continue to decline due to the wetting tendency that most climate models indicate (Rasquinha and Sankaran 2016). Prosopis's existence does, however, also serve as a sign that human activity may both mitigate and lessen the effects of climate change depending on the location. For example, in the Western Ghats, current changes owing to fire and fragmentation (Kodandapani, Cochrane, and Sukumar 2004) and the presence of another invasive plant (Lantana) may limit the expected shift from dry deciduous to moist deciduous forest (Hiremath and Sundaram 2005).

PHENOLOGICAL CHANGES IN NATURAL VEGETATION
Climate change influences the timing of key events in the life cycle of plants, known as phenological changes. These events include flowering, leaf emergence, and seed maturation. Alterations in phenological patterns can have profound implications for plant-pollinator interactions, herbivore dynamics, and overall ecosystem functioning. Phenological changes in leaves (bud break, leaf maturation, and leaf senescence), have also been observed (Wharton et al,2004). Research suggests that rising temperatures are causing earlier flowering and shifting phenological patterns in many plant species. These changes can disrupt the synchronisation between plants and their pollinators, potentially leading to declines in reproductive success and overall plant fitness.

ADAPTATION STRATEGIES FOR NATURAL VEGETATION
From the study conducted it is observed that ,as the impacts of changing climate on natural vegetation become more evident, there is a growing need for adaptive strategies to mitigate potential losses, and promote resilience. Conservation efforts must focus on identifying and protecting climate-resilient plant species, preserving critical habitats, and establishing corridors to facilitate species migration.

Additionally, there is a need for interdisciplinary research to develop innovative approaches for managing ecosystems under changing climate conditions. This includes exploring the potential role of assisted migration, genetic modification, and sustainable land management practices to enhance the adaptability of natural vegetation.

In order to lessen vulnerability to climate change, native species regeneration is encouraged (not exotic species) in degraded natural forest lands through protection and natural regeneration. Also multi-species plantation forestry should be encouraged, in place of monoculture plantations.Use of short-rotation species in commercial or industrial forestry will help it adapt to any negative effects of climate change. Using silvicultural techniques like sanitation harvesting and enhanced thinning will help it become less likely that pests and diseases will arise. Conserving water and soil is a crucial adaptation strategy for lowering vulnerability. This will lessen the negative effects of drought on forest growth. It also lowers soil carbon loss and improves soil carbon density by speeding up the biomass growth of grasslands, plantations, and forests. Increasing the amount of organic matter in the soil by adding manure will improve soil fertility and moisture retention, lessen the soil's susceptibility to drought and moisture stress, and boost the rates at which grasses and trees sequester carbon.

Implementation of fire safety protocols to lessen the susceptibility of forests to fire dangers brought on by global warming and droughts.
Implementing measures to conserve forests and biodiversity, such as stopping deforestation, growing protected areas, and implementing sustainable harvesting methods. This is an essential adaptation tactic to lessen the ecosystems of forests' susceptibility. Above all, it is crucial that the region's forest conservation initiatives be planned to minimise the deterioration and fragmentation of the region's current forests. Plant species

relocation to promote natural migration and anticipatory planting are more options.

CONCLUSION

This research paper has provided a comprehensive examination of the impact of changing climate on natural vegetation. The evidence presented underscores the urgent need for global action to mitigate climate change and protect the Earth's diverse ecosystems. While challenges lie ahead, proactive conservation measures, sustainable land management practices, and international cooperation can help safeguard the invaluable natural vegetation that sustains life on our planet. As we move forward, it is essential to prioritise scientific research, policy initiatives, and public awareness to address the multifaceted challenges posed by climate change and ensure a sustainable future for natural ecosystems.

It appears from a number of studies on how plants are adapting to climate change that most plants will be under more stress and produce less in the future. However, there remain many unanswered questions regarding how plant life in general will be impacted by the intricate relationships between plant physiology and behaviour, resource availability and use, changing plant communities, and other aspects in the face of climate change.

Implementing measures to conserve forests and biodiversity, such as stopping deforestation, growing protected areas, and implementing sustainable harvesting methods. This is an essential adaptation tactic to lessen the ecosystems of forests' susceptibility. Above all, it is crucial that the region's forest conservation initiatives be planned to minimise the deterioration and fragmentation of the region's current forests. Plant species relocation to promote natural migration and anticipatory planting are more options.

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ROLE OF SOCIAL MEDIA IN PROMOTING FOLK DANCE: A REVIEW STUDY WITH REFERENCE TO BIHU DANCE OF ASSAM

Jimpi Sonowal[1], Dr Deepjyoti Choudhury[2]

[1]*PhD Research Scholar, Department of Business Administration, Assam University Silchar*
[2]*Assistant Professor, Department of Business Administration, Assam University Silchar*

ABSTRACT

One of the fundamental characteristics of India has been its unity in diversity. People from different castes, subcastes, tribes, religions, and linguistic groups coexist throughout India. Indians are unique among all nations in the world because of their uniqueness. In terms of social and cultural diversity, our nation has different folk dances from each of the states, which make India rich in culture and diversity. Folk dance is a type of entertainment that also reflects the culture of the community in which it is performed. A folk dance form is crucial to the religion and rites of passage of its culture, and it serves as a vital instrument for maintaining intragroup cohesion. The Assamese culture and the bihu festival are both closely tied to the indigenous folk dance known as the bihu folk dance from the Indian state of Assam. As the years passed, the inventions of new technology influenced the joy of entertainment in conventional gadgets, which gave birth to social media. The increased chances for representation, payment, and creative control that go along with the new platforms and modes of production complicate the commercial usage of web-native video graphic and folk dance traditions. In this paper, an effort has been made to shed light on the aim of identifying whether social media helps in promoting the folk dance of our nation with reference to the folk dance of Assam.

KEYWORDS – *Folk dance, Bihu Dance, social media, promotion*

1. INTRODUCTION

Every person has a distinct perspective on dance as an art form. Everyone has a unique connection to the discipline of dance. It's about the sensations and emotions we portray through dance, not just certain times. There are more languages in India than in other countries due to its diversity. There are more than 100 different dance styles in India, if we talk about dancing. Every country, state, and place has its own distinct music and dance. Every human ethnic group over time has incorporated dancing. In most countries, dance is a common occurrence and an essential component of culture. From the dawn of society, this ubiquitous phenomenon has been a part of it. So, it is a topic that should pique anthropological interest, but oddly, there hasn't been as much done on it in academic circles. There are several distinct cultures and customs in India. Because of its richness in all spheres, Indian culture is quite unique. The different socioeconomic situations and enduring traditions are reflected in the folk and tribal dances of India. Dances are performed in India during the practically daily festivals and celebrations to demonstrate joy and festivity. Social Media" describes online platforms that share user-generated content and frequently post relevant experiences. These posts can be stored or shared online for quick access by other customers who may be impacted by them. The term "social media" technically refers to a broad variety of applications that enable users to "Post," "Tag," "Digg," or "Blog" online. These applications generate a variety of fresh and evolving information sources which are online that are used by consumers, shared and created, and also released, in order to provide information about issues related to products, services, and brands (Blackshow, 2006).

Folk Dance

A kind of ritual, art, or entertainment is folk dancing. It transcends the strictly utilitarian goals of the movements made in the workplace or during physical activity to convey emotions, ideas, or moods; tell a tale; satisfy social, political, or religious obligations; or just be an enjoyable, thrilling, or visually stunning experience. Dancing has psychological benefits in addition to physical ones. Sharing rhythms and motions may help a group feel more cohesive and allow for the expression and communication of feelings and ideas (Nehkholun Haokip, 2015). Folk dance is seen as a tradition that is passed down from generation to generation and is distinctive to the general populace of a nation or region. Whatever the reason, people congregate and carry out such rituals for a long time, forming relationships with one another and connecting with the area where they now or have lived their daily lives (Giannoulakis, 2018). Folk dance is a distinct third aspect of this topic since it combines literary and musical folklore to complete the principal realm of folklore. Folk dance is sometimes referred to as traditional dance, ethnic dance, or folk choreography. Since folk dance is a collaborative creativity, it highlights the shared, representative qualities of the traits and personalities of the people from the community in which it originates and develops through syncretic acts produced in the framework of dance movement. The most common type of dance in a community is folk dance, which is performed for ceremonial, ritualistic, or entertaining purposes as well as communication to spread or validate norms and convey feelings, attitudes, and beliefs (Şuşu, 2018). The author claims that folk dances are performed for every imaginable occasion, such as weddings, the start of a new season, childbirth, and other festivities. There are very few steps and maneuvers used in the ancient dances. India has a vibrant and

active folk dance tradition. Men and women may dance together in certain shows while doing separate solo dances in others. The literature also notes that India has more than 100 different types of folk dance (Manishsiq, 2023).

Bihu Dance
Among the northeastern state, Assam state comprises of rich history and vivid culture. At local level the markets in assam are seen to sell beautiful handicraft and paintings. The identification of ethnicity of the state is presented through its various handcrafts, arts and most importantly the bihu dance. (Chatterjee, 2020). In India we find different dances and festivals related to seasonal harvesting. With no difference, the agro-based seasonal festival is also allied to the bihu dance. Though Bihu dance is related to Bohag Bihu but the Bihu dance has become a cultural identity of assam. For any jouyous moent or celebration related to assamese caulture the bihu dance is performed. However, the Bihu dance that is performed during Bohag bihu is different. In this traditional dance, young people from both sexes often dance in different groups or together in open spaces, such as along a riverbank or beneath a big tree, while listening to the sounds of instruments like the Gogona , Taal, Dhul, Pepa & Toka, as well as the beat of Bihu songs (Hazarika & Rumi Das, 2022). Assamese culture is embodied in bihu dancing. An essential component of Bihu culture is Bihu dance and singing. In Assam's many areas, the bihu dance and songs take on a variety of forms that are regarded as folk media. Folk music, dancing, instruments, and tunes provide depth to the Assamese identity (Gogoi, 2010). The tribe of Deori term Bisu, which meaning "excessive joy," is the source of the name Bihu. This kind of Bihu is still celebrated by the different indegenous tribes of Assam, such as the Chutias, Sonowal Kacharis, Thengal-Kacharis, Morans, Deoris, and Motoks (in great numbers). These clans were called Sadiyal Kacharis because they lived in the Sadiya kingdom. The other Bodo-Kachari branches, such as the Bodos, Dimasas, Rabhas, Tiwas, and so on, have likewise observed Bihu since the dawn of time. It is known by the names Bushu, Pisu, and Dumsi to the Dimasas, Tiwa, and Rabha, respectively, while the Bodos call it Baisagu (Gogoi D. , 2015). Beginning with Ahom's reign, the Bihu dance spreads to families from its original setting, i.e., open fields or forests. Bihu dancing has never been acknowledged before. However, after the Ahoms bought Bihu for the family and expressed their gratitude, the community gradually came to accept the dance in public. Thus, on the first day of Bihu, the people of the community—the men only—began to conduct Husori together in each house. After performing the Bihu dance and enjoying the tunes of the Bihu Geet and other musical instruments, the homeowner acknowledges the blessings by offering a small amount of token money. Women performing bihu sometimes wear costumes such as Muga Sador Mekhela, Muga Blouse or Red Blouse, Raw Silk or Assam Silk Riha, Hasoti, etc. In addition, they wear traditional Assamese jewellery like muthi kharu, or traditional bangles, and accessories like kakoi and gogona, even though they don't wear them throughout the performance but do when hair atonement is necessary. Furthermore, in terms of accessories and cosmetics, they wear traditional Assamese bangles called muthi kharu as well as gogona and kakoi, even though they don't wear them throughout the performance but do

when hair atonement is necessary. Additionally, there is a push to use artificial orchids in place of live Kopuful (Rhynchostylis retusa) and to substitute ready-made Mehendi for organic henna or a combination of turmeric and lime for henna on hands (Hazarika & Rumi Das, 2022)

Social Media (SM)
The word "social media" first appeared in the Matisse online media ecosystem in Tokyo in 1994. The early years of the commercial Internet saw the development and public launch of the first social media platforms. The quantity of social media platforms and their active users has been increasing over time, making it one of the most significant Internet applications as the days go by. (Thomas Aichner, Matthias Gru¨nfelder, Oswin Maurer, & Deni Jegeni, 2021). Our phrase "scalable sociality" describes how social media has occupied and mixed the traditional broadcast system and private individual communication, where individuals are allowed to choose their group size and level of secrecy (Miller, et al., 2016). There are numerous online platforms for social media which may include product reviews pages, photo sharing pages, social gaming, forums, microblogs, business networks, group projects, enterprise social networks, social bookmarking, video sharing, and virtual worlds are referred to as "social media" in research (Aichner, 2015). There are many various variables that must be taken into account while evaluating students from a dance viewpoint, such as individual feedback, assessments of public performances, and ongoing creative development on stage that must be continually watched. By leveraging social media platforms as brand-new performance venues, these millennial kids' negative perceptions of social media use have been changed into a sort of creative and participatory learning for the twenty-first century. Additionally, social media is a part of the history that is dependent on the anachronistic changes that have emerged as the new benchmarks for the Malaysian dance business. (Fairul, Aimi Nabila binti Anizaim, & Aileen Sufiah binti Mahumar Gadaffi Sorilaut, 2022). Dancers' social media accounts play a crucial part in portraying them in good ways; if they are to be perceived as competitive, their number of followers on social media, such as Facebook, Instagram, and Twitter, must demonstrate a consistent increase (Laos, 2019).

Promotion
The terms "promotion" and "producing sales" both apply to increasing consumer knowledge of a good or service and developing brand loyalty. Along with the four Ps (pricing, product, promotion, and placement), this is one of the four fundamental components of the market mix (McCarthy, 1960). It is, in fact, the platform that the business uses to achieve the customer distribution of information about their goods. Thus, it is essential to the accomplishment of corporate goals. Publicity, sales promotion, personal selling, public relations, and marketing are all components of the marketing promotions mix. These components have a role in informing consumers, clients, or future users about the goods or services offered in a variety of ways (Adesoga & Van Scheers Louise, 2015). Promotion is a marketing strategy used to create a channel of communication between suppliers and customers. This is what the business owner performs in an attempt to sway and convince customers to purchase their goods or services. It helps to publicise the

company, its products, and services. The corporation uses this procedure to enhance its image. This marketing strategy has the power to pique consumers' interest and win them over as devoted clients (Kotler & Kevin Lane Keller, 2011).

2. OBJECTIVES

The study's objective is to uncover the function of social media in promoting Indian folk, with a special reference to the Assamese folk dance Bihu.

3. REVIEW OF LITERATURE

This section of the paper explains how the pertinent studies were found through a review of the literature on bihu dance, folk dance, and the usage of social media in promoting national folk dance.

Review Method

The methodology used in this study is a narrative literature review because various studies and theoretical databases are being combined in order to identify the various social media

platforms' roles in promoting the various folk dances, which is the primary goal of this paper. Also, there is a need to identify the role of social media with reference to bihu dance.

Database search

This study seeks to highlight the cultural importance of our folk dances from the 28 states of India, which have their own dance forms to express their feelings of joy and happiness. For this purpose, the most relevant literature using internet databases, which include Google Scholar, Shodhganga, Research Gate, and Mendeley, was searched. Papers were found using the keywords "folk dance," "bihu dance, social media," and "promotion". In the first step of the initial process, several conceptual elements such as the title and abstract of the articles were analysed, and, after following this approach in the second process, other articles were studied in order to include the most pertinent literature associated with different folk dances of our country, and then special reference was made to the dance form of Assam that is Bihu.
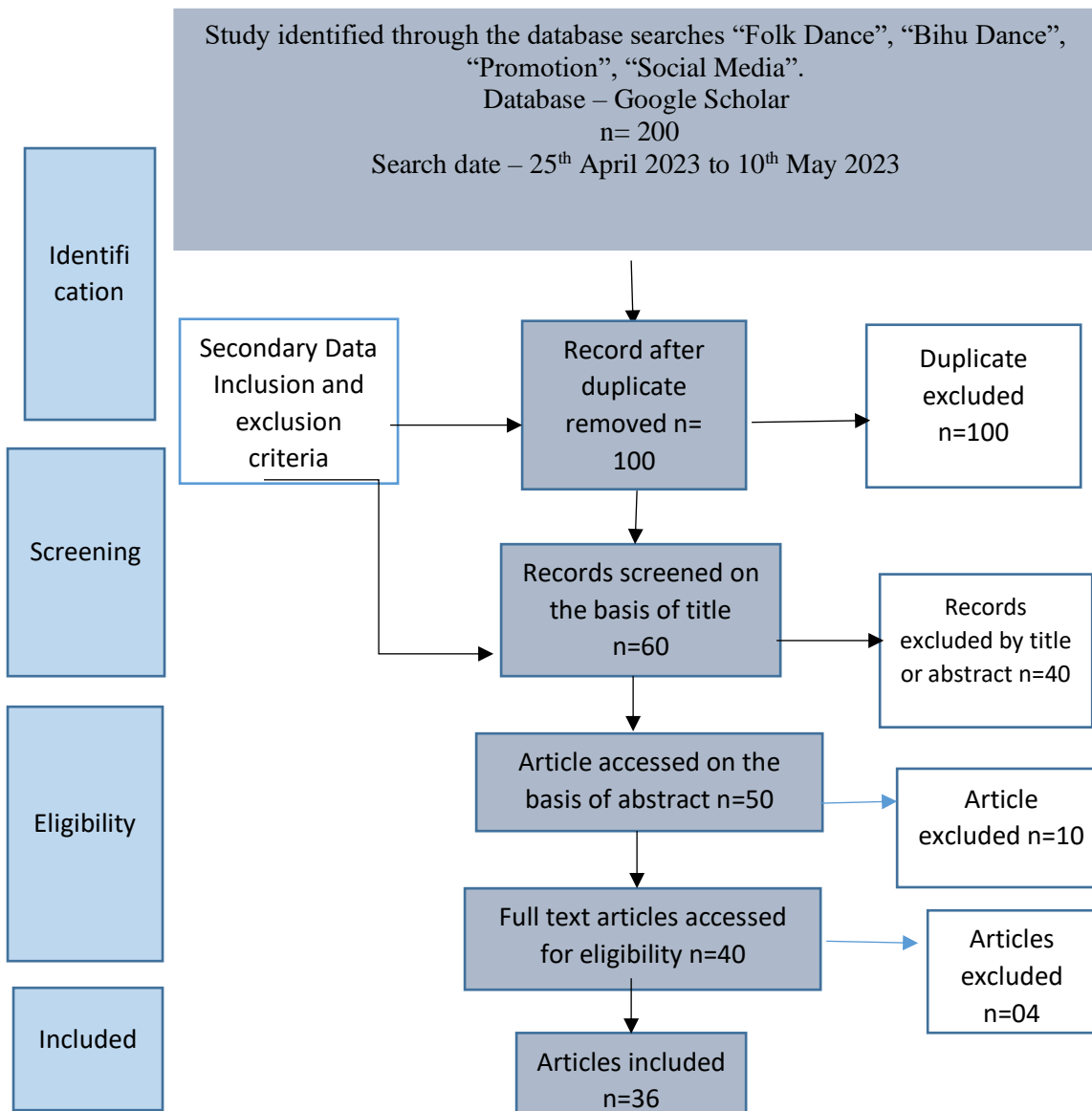
Figure 1: Prsima Model for Literature Search
Source – (Haq, Rehan Ahmed Khan, & Raheela Yasmin, 2019)

4. FINDINGS

All measures that aid in preventing the loss of all the dance steps that our ancestors developed over the years but which cannot be retained in any savable form are referred to as preservation. Folk dances have been recorded, digitalized, and recreated as part of these activities. Modern information technology has made it possible to preserve traditional dances in novel ways that might help resolve the aforementioned problems. Additionally, it can aid in the greater acceptance and spread of folk dances, the significance of which should be emphasised once again since, when performed, folk dances automatically involve communal ties (Kico, Nikos Grammalidis, & Yiannis Christidis, 2018).

The development of media has altered how we connect, communicate, teach, and learn. The number of individuals interested in dance and dance education has grown significantly as a result of the development of social media, video sharing websites, particularly YouTube, and telecommunications. Students may think about their learning, communicate their ideas, and solve problems in new ways because of technology. Increased connectedness across all facets of the industry, including art making, education, and performance, is helping dance instructors and artists recognize the impact of the digital revolution. The development of instructional technology seems to be consistent with the goals and approaches of current policy in the field of art education. These changes have given students additional opportunities to customise and guide their own learning. (Parrish, 2016). A new kind of client, the cultural participant, has emerged as a result of social media. One person may readily share their opinions regarding cultural items with the public thanks to social media technologies. As a result, customers are better able to advertise the product than cultural institutions, whether in a positive or negative way. Whether it's an image, a movie, or a blog entry, social media technology enables users to produce and share their own works of art. Due to the fact that everyone may now be an artist, this has altered how the general public views cultural hierarchy (Bonita, 2013). The creation of genuine digital narratives by artists that boost audience exposure and emotional involvement through social media is a crucial part of cultural branding. Also, as a tool and medium for their artistic expression, artists use digital technology. YouTube and other types of online video art have been made possible by digital technology as tools (SAMDANIS, 2018).

Social media's role in promoting folk dancing
The fastest-growing and most intriguing area of marketing today is internet marketing communication. For marketers aiming to reach new and more demanding, observant, and dispersed consumers as the globe gets more connected, staying up to date on changes and trends is crucial. It seems nearly difficult to stay current with the most recent trends given how quickly technology and software are evolving. All events interested in expanding their present success and bringing in new attendees are changing and adjusting to the internet environment. The "digital revolution" has fundamentally altered the way that media is produced, and traditional media is just now beginning to accept that the digital era is here to stay. Beyond everyone's expectations, it has also kept progressing

quicker. The only way to continue reaping the benefits of the web's evolution is to stay current with its moving, expanding, and changing nature. Traditional marketing techniques have been reinvented as a result of how consumers now receive news, communicate, make purchases, and make decisions. The information landscape is becoming increasingly social through the use of blogs, wikis, social networks, and news websites, to name just a few examples (Oklobdžija, 2015). The new forum for cultural interaction is YouTube. Through YouTube, the new generations may learn about the customs of people living in other locations. The literature is familiar with the customs and rituals practised by many civilizations. YouTube is helping to distribute information about festivals, folk music, and dance. Similar to this, the media and entertainment sectors have been utilising YouTube to promote other cultures through their own shows. Moreover, YouTube has contributed to the creation of new artistic forms and the distribution of existing ones (Mishra, 2020). Skilled performers (or contest winners) make money from their talents by opening teaching and training facilities in metropolitan areas. While these training facilities have proliferated in towns like Ahmedabad, Gandhinagar, and Rajkot, they are now adopting the new technology of social media, such as YouTube channels, to showcase their talents worldwide (Chavda, 2019). The artists of Bharatanatyam dance recognised a chance to showcase their work to a worldwide audience rather than simply a national one with the introduction of social media platforms like Youtube and Instagram, which enable an instantaneous audience. There is no longer the implicit but acknowledged requirement of a specific number of years of training in order to take the stage or present a work. A dancer may be created with only a good camera, appropriate lighting, and appropriate music. Another result of this burst of talent-showcasing was the sudden abundance of instructors willing to instruct in this field. Dancers who were previously unknown might take advantage of new prospects for instructing pupils thanks to simple exposure and economical promotion. Social media has made it possible to view and enjoy the performances of renowned dancers, which will aid dancers in honing their abilities. One can communicate with specialists to understand the finer details through webinars. With social media platforms like Facebook, WhatsApp, Instagram, and others, publicising is simpler, quicker, and more widespread, whether it be a straightforward post or an event invitation. This increases demand for tickets and offers a fantastic chance for up-and-coming artists to demonstrate their talents in front of a larger audience (Kulkarni, 2019).

Social media's contribution to the promotion of Assamese folk dance, specifically Bihu
Agriculture and production are connected to folk festivals in India. The main components that make up these festivals include social manners, customs, habits, etc. The most significant symbol of cultural integration in Assam that connects the numerous indigenous tribes and other ethnic members of Assamese society is the bihu. It is an assemblage of the customary dances, songs, and musical instruments from the various Assamese indigenous castes, subcastes, and tribes. Being a kind of performing arts, folk festivals have long been important parts of neighbourhood life and culture. Social media has had a big impact in that sector, even though they urge

people to express their identities through the various events they host throughout these festival periods. Due to them, some elements of mainstream culture have begun to influence how these traditional festivals are observed (Das, Umme Hani, & Shri Harsha Andukuri, 2017). The emergence of social media, which enables people to interact, watch, and share content, has changed the paradigm of communication. As a new form of technology, social media has changed artists' lives, and this has had a significant effect on the sustainable tourism sector. Social media has developed into an essential tool for businesses, allowing artists to maintain good communication with their audience. Social networking sites allow artists to produce their own content, films, images, or artistic creations, providing them with a platform to share various online media assets with a wider audience. A plethora of handicrafts, visual arts, and traditional Bihu dance, shared online, showcase the cultural diversity of the state (Chatterjee & Nigel Raylyn Dsilva, 2021) . The most characteristic aspect of the Bohag Bihu festivity is the Bihu dance. Bihu dancing is the expression of joy, love, and enjoyment. People gather to dance to the beat of the gogona, pepa, and dhol, regardless of their age. There are several styles of Bihu dance: the Husori, which is performed in the village courtyard; Mukoli Bihu, a type of dance performed in an open space with boys and girls; Jeng Bihu, which is performed in an open space by women; Rati Bihu, which is performed by women alone at night; and Gos Tolor Bihu, which is performed under a tree and is nearly identical to Mukoli Bihu. The Husori performance is still a favourite among all of these. This is the beauty of social media, where a person living in another place can enjoy the folk dance of Assam (Bora, Bihu: The Festival of Assam, 2018). People's desire to learn new things has increased with the release of COVID-19, and the artist is taking advantage of this trend by using the advantages of digital transformation to promote the dance video. Online events may be a smart approach to interact with guests and maintain human connection during uncertain times. Social media has several benefits, including accessibility, lower expenses, and the capacity to reach a larger audience (Estanyol, 2021)

5. FUTURE SCOPE AND CONCLUSIONS

From the above findings, it can be said that YouTube acts as a platform for folk dancing, which has proven itself to be interesting and attractive for the learners of the new generation. The learners have started accepting it as one of the most prominent learning sources due to the attractive presentation formats of the content. However, the users are also doubtful about the authenticity of the content on YouTube, and there are barriers such as internet connectivity and power supply. At the same time, policymakers should establish YouTube as a better learning resource. Future studies could focus further on figuring out what exactly makes social media so important for spreading our country's culture and folk dancing around the world. The future researcher can adopt other folk dance forms of our nation, as this study is only restricted to the folk dance of Assam.

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BRIDGING THE GAP: STORIES OF LIBRARIANS IN BRINGING LIBRARIES INTO USERS DOORSTEPS AMIDST COVID 19 PANDEMIC

Maria Lorena M. Abangan, Leticia A. Cansancio, Eva Carla F. Gadia, Marjori T. Jorillo, Jennifer M. Reyes, & Rea I. Pamat

ABSTRACT

The enormous impact of the COVID-19 pandemic brought immense changes to the library and information services. Hence, this phenomenological qualitative study aimed to discover the stories of academic librarians in bringing the libraries into users' doorsteps amidst the COVID-19 pandemic. The researchers employed Key Informant Interview (KII) to ten (10) academic librarians from Davao del Sur in order to capture the challenges they encountered and the strategies they employed in providing library services to the library users during the pandemic. Results revealed that academic librarians faced challenges such as difficulty in library promotion and marketing, and adjustments to the new work roles. However, they still managed to cope with these challenges through attending webinars and online trainings, implementing new services, bringing libraries into user's doorsteps, and embracing change and being resilient. Based on the findings, it is highly recommended that school administrators should provide adequate support for their academic librarians' training, mental and emotional well-being to help them in continually performing their functions as well as their new work roles during the pandemic.

KEYWORDS: *Library and Information Science, Academic Libraries, Librarians, Challenges and Strategies, COVID-19 Pandemic, Phenomenological, Philippines*

INTRODUCTION

Academic libraries established in institutions are the core sources of information for various types of library users. The information seekers belonging to any discipline of education rely so much on libraries to obtain the most appropriate and most reliable sources of information. Thus, the library acts as a bridge as it connects people and information. However, due to the COVID-19 pandemic, academic libraries, as part of the higher education institutions, faced various difficult situations ranging from minimal restrictions to full closure (De Groote & Scoulas, 2021; Fasae et al., 2020; The International Federation of Library Associations and Institutions [IFLA], 2020; Pearson, 2020; Tsekea & Josiline, 2021). Nonetheless, libraries and librarians must continue to support research, provide learning resources, and bring information to the users even amidst the pandemic (IFLA, 2020; Tsekea & Josiline, 2021). As a result, the roles of academic libraries have shifted in response to the changing needs of the library users (Devan & Tripathi, 2021; Gerbig et al., 2021; Kaba, 2021), posing varied challenges for academic librarians.

Several pieces of evidence have shown that library professionals were having difficulty in responding to the users' shifting information needs during the pandemic. In the United States, a study's findings revealed that the COVID-19 pandemic caused a dramatic decrease in library utilization, which posed a concern to academic librarians (De Groote & Scoulas, 2021). In Canada,

academic librarians struggled with the transition due to increased workload, steep learning curves, and increased need for flexible service hours (Gerbig et al., 2021). Moreover, a study conducted in Zimbabwe revealed that academic librarians were challenged in supporting e-learning during the pandemic due to the work from home arrangement and lack of internet connectivity to get in touch with patrons (Tsekea & Josiline, 2021). Furthermore, academic librarians in India faced challenges in providing online library services during the pandemic due to library users' lack of technological knowledge, unreliable internet connection and outdated systems and smart phones (Devan & Tripathi, 2021). In addition, in the Philippines as a developing country also experienced the same predicament (Angara, 2020; Delgado, 2020; Fresnido & Esposo-Betan, 2022). In Mindanao, particularly in Davao del Sur, it was observed that academic librarians struggled in providing library services during the pandemic due to work from home arrangement, increased workload (both in library and teaching tasks), and lack of technological facilities. These pieces of evidence confirmed that providing library resources and services amidst COVID-19 pandemic has been a challenge for librarians all over the world.

Despite the challenges that academic librarians experienced, they continually do their best in responding to the diverse information needs of the users during the pandemic. They invested their time and effort in updating websites to cater the new users' demands

(Awasthi et al., 2021; Chiderah & Iroeze, 2021; Fresnido & Esposo-Betan, 2022; Kaur & Mahajan, 2020; Markovic, 2020). They began offering more online library services (Awasthi et al., 2021; Guo et al., 2021; Johnson, 2020; Kaur & Mahajan, 2020; Wang & Lund, 2020). Furthermore, they have also provided book and document deliveries to their library stakeholders (Awasthi et al., 2021; Connell et al., 2021; Fresnido & Esposo-Betan, 2022; Guo et al., 2021; Wang & Lund, 2020). These are some of the strategies that academic librarians have implemented in bringing their libraries to the library users during the health crisis era.

Apparently, several researches on academic librarians' challenges and strategies in providing library services amidst COVID-19 pandemic were conducted globally. However, these researches only reported the challenges and strategies that were relevant to their country's economic situation and university's capabilities. Moreover, no research has been conducted in the locality which addresses the challenges and strategies of academic librarians during the pandemic; thus, this study came into light to document the new and unique experiences of Filipino academic librarians in Davao del Sur while providing library services at the onset of COVID-19 pandemic. Hence, the generated stories would then serve as reference when similar crises arise in the future.

Moreover, this study would be very useful as this would generate relevant information for Higher Education Institution (HEI) administrators to create programs beneficial for academic librarians, specifically in supporting their new plans and initiatives, as well as in enhancing their knowledge and skills to continually respond the evolving needs of the library users. In addition, this study would raise awareness among stakeholders on the continuous efforts of academic librarians in providing different library programs and services during the toughest time. Lastly, this study would serve as an inspiration to fellow librarians to be resilient and innovative in bridging the gap between information and users in the midst of uncertainties.

LITERATURE REVIEW
This chapter discusses related studies on the challenges and strategies of academic librarians in providing services to the library users amidst the COVID-19 pandemic. It comprises ample sources both from local and foreign literature which serve as background and basis for this research inquiry. The themes included in this discussion are the challenges of academic librarians and the strategies they employed in bringing libraries into user's doorsteps in the midst of the COVID-19 pandemic.

Challenges of Librarians in Bringing Libraries into User's Doorsteps in the Midst of the COVID-19 Pandemic
The COVID-19 pandemic wreaked havoc on all educational institutions around the globe. Many schools, colleges and universities were completely closed due to COVID-19 lockdowns (Asimah, et al., 2021; Massachusetts Department of Higher Education, 2020; Tsekea & Josiline, 2021; UNICEF, 2021). In the Philippines, the Commission on Higher Education (CHED)

announced that schools and universities will no longer compel students to attend face-to-face classes (CNN Philippines Staff, 2020). According to the World Economic Forum, the closure of schools and universities in response to the COVID-19 has impacted 70% of the world population (Adoteyi, 2020). Thus, it has adverse effects on the teaching and learning activities of schools, universities and colleges (Aamir, 2022; Asimah, et al., 2021). Due to the sudden lockdowns, educational institutions are racing to shift their teaching and learning activities online (Smalley, 2021). In turn, it negatively affected many students, lecturers, researchers and other users of libraries (Aung & Khaing, 2015). Students are resorting to the use of digital libraries resources and researchers are also drawing chiefly on electronic resources for their research work, thereby making libraries to change their mode of operations (physical to electronic) (Tannaro, 2020).

Libraries, which have always been spaces for discovery and learning, are not exempted from the effects brought by the COVID-19 pandemic. In fact, it has made a profound impact on the library community (Delgado, 2020). According to International Federation of Library Associations and Institutions (IFLA), the coronovirus outbreak has affected libraries all over the world (Aamir, 2022; Asimah, et al., 2021). Hence, it compelled libraries to close its physical premises and focus on digital services (IFLA, 2020; Tsekea & Josiline, 2021). Some libraries had to undergo complete shut down while others were operating with minimal services provided to end users in order to prevent transmission of the virus (Samanta, 2020).

Because of the changes brought by the COVID-19 pandemic, libraries are in the process of transforming its operations and repurposing certain design features to address the new normal (Markovic, 2020). Hence, all types of libraries have implemented major changes in their operations in response to the health crisis beyond anything seen in recent history (IFLA, 2021). However, because the outbreak struck swiftly, there was little time to improve technological systems in order for librarians to carry out their work under fundamentally new operational assumptions (Wang & Lund, 2020). In fact, Adoteyi (2020) explained that despite the infrastructure unreadiness of Higher Education Institutions (HEIs) in Africa, the sector was compelled to move onto online and prepare for a world where COVID-19 or other similar disasters may occur. With these in mind, libraries had to seek ways to supplement at least some services in a purely digital form despite its limitations in the midst of the COVID-19 pandemic (Asimah, et al., 2021).

The drastic changes brought by the pandemic greatly impacted academic librarians. Hence, the complete closure of libraries was an unexpected turn of event which brought various challenges to the academic librarians specifically on the provision of services to the library users. Some of these challenges include disrupted habitual working patterns, technological problems, and decreased utilization of the library. Each of these challenges is discussed below.

Disrupted habitual working patterns. The onset of the COVID-19 pandemic gave rise to the work from home set up of workers. In fact, stay and work from home were enforced all around the world (Ayittey et al., 2020). In a research conducted by Brynjolfsson et al. (2020), nearly 34% of workers in the USA, who were previously required to work at a physical location, were now working from home. Also, in Saudi Arabia, educational institutions were advised to suspend academic activities and continue education through virtual learning (Al-Kadri et al., 2020; Tanveer et al., 2020). This unforeseen situation disrupted usual working patterns and prompted the necessity to implement alternative strategies using digital platforms. As a matter of fact, Tsekea and Josiline (2021) emphasized that the sudden change in work settings also affected developing nations in a way that employees working remotely have to use technology in order to stay in touch with their customers. However, according to Rysavy and Michalak (2020), there are often drawbacks to telecommuting compared to working at the office. They further explained that in order for remote working to succeed, companies must invest in technology to communicate effectively.

Moreover, Fernandez (2019) posited that the COVID-19 pandemic has demonstrated a crisis that can disrupt people's habitual patterns such that there is a need for embedded technologies to be used in novel ways as well as illuminating new ways to use overlooked technologies. Hence, transitioning from conventional face-to-face learning to online learning can be a different experience for the learners and the educators, which they must adjust to with little or no other choices accessible (Rodrigues & Mandrekar, 2021). Hence, this situation was specifically experienced by librarians. Since library facilities were closed, librarians continued to serve library users through the provision of virtual access to e-services via work from home set-up (Yu & Mani, 2020). According to Gerbig et al. (2021), the transition caused by the pandemic challenged librarians specifically in learning to use virtual reference tools and conducting reference interviews over chat or email. Moreover, Tsekea and Josiline (2021) opined that providing digital services to the library users when physical library is closed entails lots of work. Thus, the work from home set-up, as well as the transition of library services from traditional to digital platforms disrupted the usual working ways and patterns of librarians.

Technological problems. Because of the digital library services that were offered during the COVID-19 pandemic lockdown, several technological problems were faced by academic librarians in providing library services to their clienteles. These technological problems include unreliable technology (Tsekea & Chigwada, 2021). Moreover, the limited bandwidth and power outrage hinder the progress of e-learning and development of digital libraries in developing countries (Eke, 2010). Apart from these, the lack of resources and technical expertise are also some of the challenges that contribute to various technological issues (Eke, 2010; Sharifabadi, 2006). Moreover, findings from the study of Tsekea and Josiline (2021) revealed that librarians faced

a number of technological concerns such as the lack of internet connection at home, negative attitude by the community in using technology, lack of technical knowhow on using digital libraries, connectivity challenges with the servers, and expensive data charges. Ezeani and Igwesi (2012) also opined that when it comes to technological applications such as social media, librarians experienced bandwidth constraints, inadequate ICT facilities, poor internet access, lack of ICT skills, and lack of knowledge. This finding also corroborated with the study of Chewe et al. (2020) where it was revealed that academic librarians experienced network problem, poor connection, and low bandwidth. They further noted that academic librarians also lack social media literacy skills, lack of clear policy on social media implementation, and negativity towards the use of social media.

Decreased utilization of the library and its resources. In the midst of the COVID-19 pandemic, academic librarians experienced a decreased utilization of library resources and services (Islam et al., 2015). Findings from the study of Aamir et al. (2022) revealed that there is a decline of usage in library services (printing, scanning, and photocopy facilities, interlibrary loan) and facilities (computer workstations, group study) due to the closure and unavailability of such services and facilities in order to curb the spread of the corona virus. Moreover, De Groote and Scoulas (2021) also reported that the closure of libraries during the pandemic resulted in limited utilization of printed textbooks, book borrowing and inter-library loan.

Adding on, most schools in the community are suffering from a lack of learning materials (Tety, 2016). Moreover, Beltran et. al. (2019) stated that the utilization of printed academic books in the university library is slowly decreasing due to the pandemic. Furthermore, the students were just going to the library for digital use because students and are not satisfied with the materials for their subjects because these learning materials do not have enough copies in the library (Ayolugbe, Ikuelogbon & Odo, 2019; Enidiok, Bassey & Babatunde, 2018; Tiemo & Ateboh, 2016). Moreover, some reason of low utilization was printed materials are outdated, weeding the library materials is needed and the library has different areas of library holdings to meet the needs of the users (Flaherty & Kaplan, 2016; Omallah, Maina, & Wamalwa, 2016).

Literatures reveal that libraries around the world are facing different difficulties and challenges in providing library services amidst the COVID-19 pandemic. Libraries with existing online services and facilities were able to cope up with the pandemic by strengthening and adding more online resources and services. While other libraries in non-developed countries like the Philippines were toughly challenged with their poor ICT infrastructure and electronic resources that are needed to accommodate their clients in the digital platforms. The unprecedented crisis created abrupt changes to the usual library services and stretched out the capabilities and skills of librarians. The challenges were mainly towards the efficient use of technologies and the collection of e-resources. These are

concerns that are not yet flourished by many libraries. Despite the challenges, somehow they opened the door for librarians to learn and be more equipped with the use of technologies. These have actually helped librarians prepare and build their libraries for the digital world.

Strategies of Librarians in Bringing Libraries into User's Doorsteps in the Midst of the COVID-19 Pandemic

The COVID-19 pandemic made drastic changes to the way academic libraries provide resources and services to its clienteles. Hence, this catastrophic event paved way for the academic librarians to innovate and re-create in order to continuously deliver effective and quality information services to library stakeholders. As a matter of fact, many academic libraries around the world have been providing services even before the outbreak but are currently expanding and strengthening their presence to better serve their users through innovative services (Johnson, 2020). And many of them actually have showed agility, resilience, and innovativeness in rendering services amidst the pandemic (Calvert, 2020; Tsekea & Josiline, 2021).

With these in mind, academic librarians have implemented several strategies in delivering library services in the new normal. These strategies are the (1) provision of digital libraries; (2) provision of book borrowing services through pick-up and delivery; and (3) provision of library services through online and social networking platforms. Each of these strategies is discussed below.

Provision of Digital Libraries and Services. Libraries have transformed into spaces where users can connect to knowledge and information digitally rather than physically (Yuvaraj, 2020). According to Breeding (2020), academic libraries easily transform into all-digital services because they already have high proportions in electronic resources and facilities. Hence, various online facilities are delivered through digital library platforms to the faculty, staff, students and researchers including the provision of e-books, e-reference, e-journal access, document delivery, literature search, systematic reviews, research database, and online public access catalogue (OPAC) (Umukoro & Tiamiyu, 2017). Moreover, a study of Aamir, et al. (2022) revealed that librarians provided high proportions of electronic and digital collections to resources to support faculty, students, staff and researchers.

Most of the libraries in the United States have implemented digital libraries resources in order to deal with the new normal. For example, librarians at Penn State University are licensing more e-books and providing online access to course reserves materials (IFLA, 2020). Also, they assist instructors in finding textbook alternatives with the use of electronic databases and open educational resources (OER) (Penn State Libraries, 2020). In addition, research also revealed that libraries in Mumbai, India provided access to various electronic resources, online circulation, online research aid, and other library promotional activities (Chavan, 2020). Moreover, in the Philippines, a study

conducted by Fresnido and Esposo-Betan (2022) revealed that librarians provided their clienteles extensive online services such as the provision of virtual library orientation or information literacy sessions and provision of e-reference services. As a matter of fact, academic librarians from Ateneo de Manila University (Santos, 2020) and Adamson University (Bundoc, 2020) showed how they turned the challenges brought by the pandemic into opportunities. Thus, the COVID-19 pandemic does not hinder them to continue to serve their faculty and students. In fact, they provided onsite and offsite services such as online reference services, webinars, access to databases and learning resources, in-house digitization, indexing, finding aids and archival documents (Delgado, 2020). Ergo, the presence of e-libraries, electronic materials and database in library's collections became an advantage during the pandemic and the librarians responded quickly by providing electronic resources to the end users (Aamir, 2022).

Provision of book borrowing services through pick-up and delivery. The outbreak of the coronavirus did not prevent librarians from making their collections available to the users. Hence, it encouraged them to strengthen their book borrowing services even further. In fact, a university library in Mexico permitted users to request for physical books and pick them up at the library's entrance following safety health protocols such as physical distancing, minimal contact with the borrowers, as well as having scheduled specific time for pick-ups (University libraries, 2020). Also, the Montgomery County Public Schools (MCPS) in Christiansburg, Virginia, partnered with the first commercial drone delivery service in the United States, allowing students to check out books through the school system's library catalog, which are then delivered to their homes via drone (Johnson, 2020).

Thus, this made them the first in the world to deliver books via drone (Ford, 2020). In addition, some of the libraries in Netherlands adopted the click-and-collect or drive-through services to minimize direct contact while other libraries offered facilities by appointments (Jan & Ali, 2020). Moreover, in the Philippines, 39.75% of libraries even went out of their way to deliver books that students and faculty wanted to borrow (Fresnido & Esposo-Betan, 2022). Hence, this proved that amidst the COVID-19 pandemic, borrowing of books still continues to be a sought out service by the library users.

Provision of library services through online and social networking platforms. Studies have shown that academic libraries globally are increasingly adopting a multiplicity of social media apps to design services that allow them to enhance their communication, interaction and collaboration (Tripathi & Kumar, 2010; Onuoha, 2013). This shows that libraries around the world have been innovative and creative in using technology and social media tools in order to provide services during time of pandemic. In fact, a study conducted by Tsekea and Josiline (2021) revealed that in order to support e-learning during the COVID-19 lockdown, librarians used various tools such as library websites,

email lists, blogs; social media platforms like Facebook, WhatsApp, Skype, Twitter, and YouTube; and digital library and other learning management platforms. Also, academic libraries in Zambia are also increasingly incorporating social media to enhance their service delivery (Chewe, et al., 2020).

Furthermore, in Ann Arbor District Library, librarians continued to provide assistance through phone calls, emails, and online platforms, as well as market their library through social media like Facebook, Twitter, and Instagram (Guevara, 2020). Similarly, New York City public libraries used social networking sites like Twitter to post library announcements, library service updates, details of remote library services, book and reading suggestions, events and other happenings, and COVID-19 news, hence, providing support to people in various aspects of life (Alajmi & Albudaiwi, 2020). Also, the OLD Dominion University (ODU) library in Virginia have scanned printed items and transmitted them to clients via email (Cox, 2020). Teachers are also provided with a list of references for respective subjects through email (Hoyt, 2020).

In addition, libraries in Europe have also designed the same strategies for their respective patrons, such that in Italy, where libraries adopted innovative services, including answering phone calls, video conferencing with clients, and communicating with them on social media (Tammaro, 2020). Moreover, through the Microsoft Teams, the library staff at King's College in London provided guidance and bookable individual support sessions to academic personnel through skills training sessions using Zoom app and Teams (McCann, 2020). Apart from these, Universities in Assam, India also used social media to cope with the pandemic's effects on their libraries (Singh, 2020). In fact, according to research, 75% of university libraries in India used social media to provide reference services, 100% gave access to electronic resources, 50% utilized Facebook and blogs, 25% used Twitter and other social media platforms, and 100% used WhatsApp (Neog, 2020).

Moreover, in the Philippines, several libraries are also providing services via social media, instant messaging, email, websites, and other digital platforms (Delgado, 2020). The UP Diliman University Library, for instance, has been able to provide their community with guides to new normal library services and access to resources which are posted in their updated website. Another example is the Miguel de Benavides Library of the University of Santo Tomas, which has never stopped operating and providing various online library services (Angara, 2020). Adamson University library also rendered online services through e-mail and social media and provided flexible learning services like online tutorials on referencing and citation. The University of the Philippines Los Baños library provides as well a unique service which is the virtual front door dubbed ELVA, which stands for Electronic Library Virtual Assistant. Additionally, libraries in Mindanao, the Philippines' southernmost region, have established a variety of online services for students and teachers. For example, the University of Southeastern Philippines (USEP)

Library has used social media to create infographics on electronic resource access procedures, sent emails with library guides to electronic resources, consolidated and shared free links or databases from reputable service providers, provided access to the Online Public Access Catalog through their website, responded to queries via messenger or e-mail, and facilitated webinars to support educational needs (Nugas, 2020).

The various strategies and initiatives presented had demonstrated academic librarians' resiliency and adaptability in delivering both traditional and online services, most particularly in the face of the COVID-19 pandemic. Hence, it proves that academic librarians have transformed themselves by bringing the library to their customers using different technological platforms in order to deliver effective, excellent, and quality services to their patrons. And it is worth noting that despite the COVID-19 pandemic, academic librarians remain committed to elevating the library's role in the community (Cleveland, 2020), thus, transforming people's perceptions of libraries and what they symbolize in the new normal (Braun, 2020).

Therefore, the ample literature and studies presented provide the researchers rich information which helped them established the topics being studied. It also deepened their understanding on the different challenges and strategies of academic librarians in providing library service amidst the COVID-19 pandemic; thus, strongly supporting the findings of this phenomenological qualitative inquiry.

THEORETICAL LENS
This study was viewed and explained through the lens of the Organizational Resilience theory by Mallak (1999) and Change Management Theory by Lewin (1959).

The Organizational resilience theory (Mallak, 1999) described as the organization's ability to "resist adverse situations and/or the ability to recover after disturbances and return to a normal state" (Horne, 1997; Horne & Orr, 1998; Robert, 2010). It is a concept of embracing, managing and responding to organizational changes. Moreover, it is the power of organizational units to endure, resume, recover, or positively adjust to catastrophic events (Sutcliffe & Vogus, 2003). In the context of this study, the adverse situation or disturbance that the organizations encountered is the COVID-19 pandemic. It is undeniable that the impact of the COVID-19 on business/schools' operations and finances was profound. In this sense, this theory explains how the academic library, as one of the organizational units, faced difficulties in continuing its operations and performing its functions in the midst of disruptions. Hence, these challenges urged the academic librarians to unleash their capability in implementing adaptive measures and behaviors that would respond to the current situation. Therefore, this theory is useful in understanding the academic librarians' capability and resiliency as they continue performing their duties and responsibilities, specifically their new work role of bringing the library services to their users' doorsteps amidst the pandemic.

Further, this study could be viewed through the lens of the Lewin's Change Management Theory (1959). This theory aims to understand why change occurs and what must be done to deliver change in the most seamless manner as possible. Also, this theory aims to demonstrate how people react when they face changes in their lives. This theory has three stages: unfreezing (the person has an existing state), moving or changing toward new ways of being, and then refreezing into a new state entirely (Aktas, 2021). In view of this study, academic librarians have their unfreezing/existing state in terms of their work functions and roles, specifically the process of delivering information and services to the users. However, due to the COVID-19 outbreak, most of these functions/roles were halted; hence, academic librarians need to undergo several changes. In the technical aspect, they need to change their old way of providing library services into something relevant and innovative in response to the new users' demands or needs. Apart from that, in their personal aspect, they must also move, adapt, and reinvent themselves to keep abreast with the societal changes brought by the pandemic. In the course of these changes, academic librarians may face various challenges, ranging from discomfort to uncertainty. Nonetheless, if they would be resilient and willing to accept and embrace the changes, they would be able to refreeze into a new state.

PURPOSE OF THE STUDY
The purpose of this phenomenological study was to discover the stories of academic librarians in bringing libraries into users' doorsteps in the midst of the COVID-19 pandemic in Davao del Sur.

RESEARCH QUESTIONS
This phenomenological study would like to discover new ideas and knowledge on the stories of academic librarians in bringing libraries into users' doorsteps in the midst of the COVID-19 pandemic in Davao del Sur. Specifically, it sought to answer the following research questions:
1. What are the challenges of academic librarians in bringing libraries into the user's doorsteps in the midst of the COVID-19 pandemic?
2. What are the strategies of academic librarians in bringing libraries into user's doorsteps in the midst of the COVID-19 pandemic?

METHODS
The study employed a qualitative design using phenomenological descriptive tradition. According to Creswell (2022), phenomenological research involves understanding of the participants' lived experiences regarding the phenomenon being studied. Typically, interviews were conducted with a group of individuals who have first-hand knowledge of an event, situation or experience (Creswell, 2017). Phenomenology is the most appropriate approach to use because the researchers wants to understand the lived experiences of the librarians in the private

sectarian and non-sectarian Higher Educational Institutions in the Province of Davao del Sur with regard to their challenges, and strategies in bringing libraries into the user's doorsteps in the midst of this COVID-19 pandemic. The participants for this study were 10 professional librarians from the private sectarian and non-sectarian Higher Educational Institutions in the Province of Davao del Sur. The librarians-participants were managing their libraries for the past 12 months during the time of COVID-19 pandemic. The 10 participants were invited for the in-depth interview (IDI). According to Creswell (2017) a homogenous group may vary in size from three to four individuals to 10 to 15. The following criteria were set: each participant must be a full-time librarian in the private sectarian and non-sectarian Higher Educational Institution; have at least active two years of experience in managing the libraries; and have provided the different programs and services of the libraries within the last 12 months during the COVID-19 pandemic. Excluded to participate in the study were those para-professional staff and librarians having an experience of one year and below.

Furthermore, we observed credibility, transferability, dependability, and confirmability to ensure the qualitative study's trustworthiness (Morse et al., 2002), to address the research's validity to check if the findings are accurate from the researcher's standpoint, the participant, or the readers (Creswell, 2014). Adding on, qualitative researchers depend upon access to data, which may involve people cooperating in various ways (Hammersley & Traianou, 2012). Thus, we considered the ethical implications of any decisions we made, along with various constraints surrounding the research undertaking (Punch & Oancea, 2014). In conducting the key informant interviews, we ensured that the key informants voluntarily participated in the interview and assured that their identities would be kept confidential. An informed consent and codes were used to conceal the identity of the research participants. This is in the observance of the provisions of the Republic Act 10173 or the Data Privacy Act of 2012 (Official Gazette, 2012), which emphasizes that personal data gathered must be for a declared, specified, and legitimate purpose. Thus, only the information collected based on the interview protocol and the significant responses from the research guide questions were utilized in presenting the study results.

RESULTS AND DISCUSSION
The study results are presented in two (2) parts: the academic librarians' challenges in providing library services in the midst of the COVID-19 pandemic and its emerging themes, and their strategies to address the challenges in providing library programs and services. There were two (2) emerging themes on the academic librarian's challenges in providing library services, and three (3) on their strategies in rendering library services amidst trying times.

The challenges of libraries and librarians in providing programs and services in the midst of the COVID-19 pandemic
When participants were asked about the challenges that they have encountered in implementing programs and providing library services during the pandemic within the private sectarian and non-sectarian HEIs in Davao del Sur, two themes emerged: difficulty in library promotion and marketing, and adjustments to new work roles.

Challenges in library promotion and marketing. One of the challenges that academic librarians primarily experienced in library promotion and marketing was how to reach out to library clients to effectively cater to their information needs during the pandemic. Librarians needed to plan and decide on what services to be offered during the pandemic where there are no face-to-face interactions with the students. As one participant said: *"Our struggle is how to reach out our clients and use social media especially the students since we are used to serve them physically."* (PA7, Q1.2). In addition, one reason why librarians struggled in promoting their libraries is that they were trying to adjust with the situation, since they were used to see many students coming to the library before the pandemic struck. Another participant added: *"For me, nakakapanibago po kasi noong wala pang pandemic, I am used to seeing students come and go to the library; they even come as one whole class pa nga. That's why we'd been thinking paano pa rin namin magagawang i-reach out yung mga students ngayong may pandemic."* (PA5, Q1.1) (For me, I am trying to adjust with the new situation, since I am used to seeing plenty of students coming to the library before the pandemic. With this, we are trying our best to make solutions in reaching out the students during this pandemic).

Moreover, since students had shifted to distance learning, they would be relying mostly on online resources aside from learning modules. Because of this shift in learning modality, librarians were concerned how they would provide their library services to students, especially those living in areas with no internet connection. One participant commented: *"How we can reach out to our clientele since most of them don't have internet connection and how are we going to cater and provide the library services without face to face."* (PA2, Q1.1) Another participant added that they have difficulty in reaching out to students in far-flung areas to let them know about the library services during the pandemic: *"Our struggles are how to effectively market the services and reach out students especially in the far-flung places."* (PA4, Q1.2). On the other hand, libraries offering online services were also experiencing internet connectivity problems. Although academic librarians have seen the need to provide online services during the pandemic, they could not effectively deliver these services to their patrons due to unstable internet connection. As one participant commented: *The challenge is the internet connection since the services are delivered Online. With this, a strong and stable internet connection is needed."* (PA7, Q1.1)

Furthermore, academic librarians experienced lack of support from the institution in promoting new library services. Most of the participants shared that the school administration made budget cuts in library operations due to decline in student population, which had resulted to reduced periodical subscriptions and no library collection development. One of the participants related its implications: *"It changed the way we operate the library due to low internet connection that could not provide access to online resources,"* (PA6, Q1.2). Eventually, librarians felt lack of support from teachers in encouraging the students to avail of the library services during the pandemic; thus, the services were not fully utilized. PA4 mentioned: *"Lack of cooperation from the administration with regard to the new online services, especially to improve the internet connection to effectively provide online services. For example, the use of e-books, etc."* (PA4, Q1.3)

Adjustments to new work roles. Academic institutions were not able to anticipate and prepare for changes in their operations when the COVID-19 pandemic struck. In effect, librarians were trying to keep their presence relevant to the institution through re-alignment of job functions. However, some of the tasks given to them were outside the scope of library work. For instance, one participant shared: *"The librarians struggled to find new ways in delivering services to clients, were assigned ample subjects to be taught and given a new area which is the module reproduction."* (PA1, Q1.3). Another participant added: *"Librarians have struggle on how to provide remote services to clients."* (PA2, Q1.3). Amidst trying times, librarians were challenged to be innovative in providing services to answer the information requests of clients. Because of limited face-to-face interactions, librarians felt the need to strengthen their online presence to effectively provide library services. However, librarians have experienced challenges in providing online library services, including lack of online library resources such as subscriptions of e-journals and e-books. One participant shared: *"The pressure is on the online services, since we are mandated to offer online services and programs, so that our services can still be felt by the users because they are paying the library fee for the provision of electronic books. Also, there is a need to increase the internet bandwidth for internet usage."* (PA7, Q1.3)

Moreover, it has been common among academic librarians to create Facebook pages as a means of communication to their library patrons at the onset of COVID-19 pandemic. Through social media, librarians can also post updates and announcements regarding the library's activities, thus promoting the library along the process. Librarians have shifted their role to social media administrators since they started using Facebook to communicate with patrons during the pandemic. Although Facebook is a familiar platform for library promotion, managing the library social media page is still a challenge because of some technical considerations such as making the posts more engaging to patrons while complying with the institution's policies. According to one participant: *"Kailangan pa po namin i-explore yung mga technicalities like assigning page admins, how we can get more followers sa page, how can we make our posts engaging for our*

followers, at saka ano yung patakaran ng school when posting in the library FB page dahil hindi po sya basta-basta." (PA5, Q1.1). (We need to explore the technicalities such as assigning page admins, how we can get more page followers, how can we make our posts engaging for our followers, and what are the school's policies when posting in the library Facebook page.)

Also, librarians strive to strengthen their online presence by providing 24/7 online services. They would usually encounter patrons sending queries in accessing the library resources even beyond library hours. In effect, they had to adjust with their work by extending up to evening to accommodate users' queries. One of the participants shared: *"Challenge pud sa amua na kanang answering queries gud nga naa na gud ka sa inyong balay, diba kay kung normal lang, pag out og five wala na kaya no, pero pag kanang kini nga online bisag naa ka sa inyong balay, sa gabii nine, mag serve japon ka, murag 24/7 imong service."* (PA9, Q1.1) (It is a challenge for us to answer user queries beyond office hours, even if we are already at home; we still cater to their needs as if we are rendering 24/7 online services). Since the pandemic started, some librarians have adopted the work from home arrangement. Despite the perceived convenience, working at home is still a struggle for librarians because of their responsibility to extend their services beyond office hours. Another participant shared its implication in achieving work-life balance: *"Isa rin pong challenges yun sa work from home kasi parang iba rin po kung mag araw-araw kang magtatrabaho kasi may case na 24/7 po ang aming online services, kahit na midnight pinipilit po naming sumagot sa aming mga client so yun po yung nagiging parang, ako po sa aking experience, nadating ako sa point na hindi ako nakakatulog pagdating ng twelve hanggang alas tres kaya nagigising na ako di na ako nakakatulog."*(PA8, Q1.1) (One of the challenges for me is the work from home scheme of the school. There was a case that even at midnight I answered the queries of my clients because 24/7 service is part of our responsibility and with that I was not able to go back to sleep anymore).

The shared responses of the participants reflected that alongside making the library's presence known to patrons, academic librarians were also concerned on how they can provide effective and efficient library resources and services during the COVID-19 pandemic. However, librarians needed to adjust with the changes in the library service environment to cope with the challenges brought by the pandemic.

The strategies employed by libraries and librarians in providing programs and services in the midst of COVID-19 pandemic
When participants were asked about the strategies they have done in providing programs and library services, three themes emerged: attending webinars and trainings, bringing libraries into users' doorsteps, and embracing change and being resilient.

Attending webinars and trainings. The COVID-19 pandemic has opened opportunities for librarians to pursue continuing

professional development by attending webinars. Through these online trainings, librarians learned new knowledge and skills while staying at home or at work. They also get ideas and strategies on providing effective library services during the pandemic, which can be applied in their respective workplaces. As one participant shared: *"Attending webinars is a big help because librarians talk with each other and share ideas on how to cope with the pandemic, not just in the local scene but also abroad."* (PA7, Q3.4). Another participant noted that: *"Library programs and services are heavy to carry and hard to take but, by benchmarking and attending webinars, you'll find many concepts and ideas."* (PA1, Q3.2). Aside from webinars, librarians also learned from the best practices of other academic libraries in providing services during the pandemic through benchmarking with other institutions. Another participant added: *"Kailangan namin i-apply yung mga natutunan naming new skills like assigning page admins, how we can get more followers sa page, how can we make our posts in social media"* (PA5, Q1.1). (We need to apply our newly learned skills like assigning page admins, how to get more followers in our page, and how to make posts in social media).

Moreover, participants learned how to use various technology facilities in the library in delivering programs and services as well as for professional growth. They shared that: "We learned pod *kanang answering queries through social media and use various technology like websites, etc, nga nakat- unan ra sad namo*." (PA7, Q3.4) (We learned how to administer social media and how to use various technologies in providing services in the new normal). Adding on, one participant noted that through webinars and online trainings, they learned many things and capacitated themselves and noted that these were very helpful for their professional growth. *"Thru webinars, I was able to provide programs and services in the midst of COVID-19 pandemic: learning new things at work in handling some actual services as part of my professional growth".* (PA8, Q1.1). Also, academic librarians received opportunities and benefits from rendering online library skills because there are a lot of professional skills that they get to develop along the way.

Bringing Libraries into Users Doorsteps. The most common strategy implemented by academic librarians in providing library services during the pandemic was the use of social media platforms such as Facebook. Librarians considered social media as a useful means of communication to library patrons during the pandemic to inform them about the library updates and announcements. Library websites were also used as a platform for accessing online information resources and accommodating patrons' queries. As one participant related: *"Our school director encouraged us to make a Facebook page and library website for us to keep in touch with our library patrons thru online services. By doing such thing, we were able to attend the library's patron queries as well as cater what they wish to know and providing them an open free access peer-reviewed articles or fictional stories that are useful in sharpening their vocabularies and to get knowledge from their research."* (PA1, Q2.1). Another participant added that through social media, librarians would let

the patrons feel their presence and see the significance of the library in their lives even in the virtual environment: *"We shared links to open access sites where they can download free e-books, suggested pages related to their learning activities, posted motivational quotes to inspire them and cheered them up. We wanted them feel our online presence every day.*" (PA7, Q2.2). Librarians also sent updates through the group chat of the library committee. In this way, there was collaboration between the librarians and faculty in formulating library policies and programs in the new normal setting. For instance, one participant shared: *"After we drafted the Library New Normal Policies, Guidelines and Services, we disseminated the soft copy to the Facebook messenger group chat account of the Library Committee and the quorum was held to discuss the matters and finalize them. Then we posted it to our Facebook page."* (PA7, 2.2)

Furthermore, academic libraries offered new services which were relevant during the COVID-19 pandemic such as module printing, tutorial services, online delivery of information, and virtual information literacy sessions. Other librarians continued their onsite library services to cater to faculty and staff who still come to school physically. As one participant mentioned: *"Always open for the possibilities coming to your library, making the library open Monday to Friday for the faculty and staff use, and visit the library while observing the safety measures to avoid and stop the viruses."* (PA6, Q2.3)

Moreover, academic librarians also extended their services even outside the corners of the library through bringing libraries into user's doorsteps such practices implemented such as book drive-thru, electronic delivery services, and book delivery services to different parts in Davao del sur. To avail the book delivery service, students would send to the library Facebook page the title of the book that they would like to borrow, together with their address and contact information, and the book would be delivered straight to their homes. Then after two weeks, the library personnel would come back to get the borrowed book. The book delivery service was considered a unique strategy according to one of the participants: *"It's really helpful lalo na po sa mga students na hindi makapunta personally sa library para makahiram ng libro, dahil sa quarantine restrictions like underage sila."* (PA5, Q2.2) (It's really helpful especially for students who cannot go to the library to borrow books because of the quarantine restrictions). Through book delivery services, librarians were able to bring the library to the users' doorsteps. This has also given them the opportunity to reach out to students who were learning within the comfort of their homes. The same participant added: *"When our library started to offer book delivery service, I had the opportunity to get out of the office to reach out to our clients. Kumbaga, I was able to perform my library duty sa field, aside from the usual na nasa loob lang ng office or ng counter."* (PA5, Q3.3) (When our library started to offer book delivery service, I had the opportunity to get out of the office to reach out to our clients. I was able to perform my library duty in the field, aside from being inside the office or counter.)

Another participant noted that: *"We also have the LODI (LRC Online Delivery of Information where we send copy of ebooks and scanned portion of the book to our students and faculty thru their email."* (PA3, Q3).

Adding on, by offering new library services to patron was another strategy implemented by the participants, as they noted their experiences: *"We innovate new library services by offering different online platforms to faculty and offer module printing that would cater their needs in this time of pandemic."* (PA4, Q3). Librarians also offer tutorial services to students and strive to provide innovative services amidst this pandemic, as PA 9 noted: "*Naa gyud mi na-assign na specific person na mu-answer ani, if the request is ebooks ako ang na-assign, ako mag-provide, sa videos and journals among head, or magconduct ug tutor sa mga students.*" (PA9, Q2.1) (There is a specific person assigned to answer the queries of students, provide videos, link to ebooks and even conduct Tutorials to them). Another participant shared that: "*We conducted also online orientation, naka-video, virtual or live video. Sa amin ang ginawa naming doon sa orientation, question and answer."* (PA 6, Q3). (We conducted online orientation using videos and having question and answer method as strategy). Similarly, another participant noted that: "*Sa amuang information literacy session, nag-create na mi og video recording so para pagmag enter mi og klase, i-play nalang to namo, ang problema, nagkuan ang mga estudyante walay interaction, so among gibuhat, gi-live nalang namo, discuss gyud mi.*"(PA5, Q3). (In our information literacy session to students, we created a video recording so that we can discuss many things in the online classroom).

In this time of pandemic, online library services provide convenience to librarians and their clients. Amidst trying times, the academic librarians have continued to provide services through online, and clients can conveniently avail them while home quarantined.

Embracing change and being resilient. Librarians' resourcefulness and openness to adapt the changes amidst the COVID-19 pandemic help them in coping with and implement strategies in providing programs and services to the clients as the participants noted that: "*We cannot stop on what we are doing, so dapat as a librarian, we are being an initiative. So from time to time, dapat ang librarian, they have an initiative how to support the students, especially sa ganitong sitwasyon as we all know that technology is the useful.*" (PA6, Q3). (We cannot stop in providing services to our users, so we librarians need to initiate and be open to adopt changes and use technology). Also, another participant noted that: *"Although these difficulties are challenging but we have no other recourse but to accept the changes, be open to embrace it, and to look for solutions."* (PA9, Q3). Maintaining resilience is one way for librarians to cope with the changes in providing library services in the midst of COVID-19 pandemic. For them, it is necessary to adapt to the changing situation for them to keep up with their work and stay productive even in these trying times. As one participant said: *"Resiliency*

and maintaining emotional and physical composure to cope the negative realities that comes on our way. Resiliency is very important in pandemic time because we would know how to adjust, adaptive to the new normal environment that perceived to be stressful." (PA6, Q3.2). (We have to be resilient and maintain emotional and physical composure to cope with the negative realities that come our way. Resiliency is very important in pandemic time because we need to adapt to the new normal environment that is perceived to be stressful.) Along with embracing these inevitable changes, librarians realized the importance of being resourceful and proactive in creating solutions to provide relevant library services during the pandemic. For instance, part of the process is learning and applying new skills, as one participant shared: "I myself am not a techy person, but in these times where you cannot rely much on the IT personnel because they are also busy doing virtual programs and recording, so, it is us librarians who will do and develop our websites and Facebook page." (PA7, Q3.2)

Librarians also learned to be flexible and innovative so that they could give value-added library services in the midst of the pandemic. They hoped that their patrons would see the library's worth to the institution as they adapt the new normal environment. Another participant stated: "I think napatunayan ko sa aking sarili na I can learn more and I can adapt, I'm flexible in the new normal, we innovate our services. Kung meron kaming existing na services, dapat dagdagan pa talaga para mas ma-feel ng user na ginagawan talaga sila ng paraan kung saan talaga sila comportable." (PA9, Q3.2) (I think I have proved to myself that I can learn more and adapt, and flexible in the new normal. We innovate our services by adding more aside from the existing services so that our users would feel that we are finding ways to make them comfortable [with their library experience].)

Moreover, librarians cultivated a sense of optimism as they strive to cope with the challenges in their workplace brought by the COVID-19 pandemic. They considered the pandemic as a time to grab opportunities for their professional growth and further development of their libraries. One participant gave this advice: "Always have a positive mind so that whatever may be the challenges will come along in your journey, it will just pass. Move forward because as you go along the way, you will see a lot of opportunities and ways to grab and who knows that it will be applied or applicable to your own library." (PA1, Q3.2). (Always have a positive mind to whatever challenges that may come along our way; they will just come to pass. We need to move forward as a lot of opportunities are ready to be grabbed that can be applied in the library.) For academic librarians, the COVID-19 pandemic was not a hindrance to continue serving the students and other library patrons. Although the pandemic had changed the course of library operations, librarians were finding ways to bring the library to the users' doorsteps by providing relevant services despite the limitations in access to learning resources, thus showing the significance of libraries even in these challenging times.

DISCUSSION
The revealed emerging and clustered themes from this study are thoroughly discussed in the context of the academic librarians' lived experiences in bringing libraries into users' doorsteps during the COVID-19 pandemic in Davao del Sur with supporting literature and related studies in the Philippines and in other countries. The discussions also explain the reasons for the emerging themes as a result of the participants' lived experiences.

The Challenges of Librarians in Providing Programs and Services in the Midst of COVID-19 Pandemic
Academic librarians have experienced some challenges and difficulties in bringing libraries into users' doorsteps amidst the COVID-19 pandemic. These include their difficulty in library promotion and marketing and adjustments to new work roles.

Difficulty in library promotion and marketing. One of the challenges that academic librarians experienced was how to let the patrons know that the library continued to offer services during the COVID-19 pandemic. Their responses indicated that librarians experienced difficulties in promoting and marketing the libraries programs and services during the pandemic. This relates with the report of Dempsey (2020) that librarians are challenged to continue proving the library's value as communities' change. But along with the libraries' efforts to show their relevance to the school community, participants experienced lack of support from teachers. Thus, to increase library's visibility, Mandrekar and e Rodrigues (2020) recommended that librarians should create a solid marketing plan to lay down marketing strategies for the academic community to develop interest, and eventually, support the library programs which can help patrons maximize the use of library resources.

Aside from challenges in planning, academic librarians also expressed lack of support from school administration and faculty in promoting the library services during the COVID-19 pandemic. This resonates with the findings of Chisita et al. (2022) which revealed lack of institutional support to enable the academic librarians to work from home and to use social media in delivering services and promoting the library in the process. Still, librarians strive to meet their communities' needs during the pandemic through new and creative means (Bowie, 2020). For instance, librarians implemented innovative ways in marketing and promoting their library services through technology. Some participants mentioned that their libraries started using social media platforms like Facebook to deliver remote services. This relates with some studies which revealed that Facebook and WhatsApp were the most used social media platforms to share announcements, communicate to patrons, and deliver library services amid Covid-19 pandemic (Mandrekar & Rodrigues, 2020; Neog, 2020; Koulouris, Vraimaki, & Koloniari, 2021).

Such studies imply that social media has played an essential role in marketing and promoting library and information services during the COVID-19 pandemic since it has helped establish the library's visibility in the media space and facilitate online

learning (Mandrekar & e Rodrigues, 2020; Bhuyan & Bipasha, 2021). But despite the cited advantages in the use of social media, participating librarians in this study admitted that they still need to learn how to effectively use the social media as a tool for promoting their library services. This relates to the findings of Chewe et al. (2020) that even if the use of social media for personal purposes was very high, its application to facilitate library service delivery was nonexistent due to lack of social media literacy skills. Thus, librarians are recommended to enhance their digital literacy skills to improve the delivery of information resources and services especially in the virtual environment (Chewe et al., 2020; Ifijeh & Yusuf, 2020; Chakraborty & Jana, 2021; Dube & Jacobs, 2023).

Adjustments to new work roles. The participants' responses showed that coping with institutional challenges was part of librarians' adjustments in their functions to provide programs and services in the midst of the COVID-19 pandemic. The results corroborate with Babbar and Gupta (2022), wherein the unpreparedness of educational institutions in handling this health crisis had raised questions in terms of their flexibility, sustainability, and readiness to accept change. Cox (2020) further revealed that academic institutions had experienced displacement of students, transition to online, and the exposure of institutional deficiencies during the pandemic. And despite having the necessary skill sets, many library administrators get overwhelmed because of the lack of abilities, experiences, and knowledge necessary to guide their library through crisis events (Newman, 2021). Esposo-Betan and Fresnido (2022) added that in effect, the libraries' implementation of innovations and changes to respond to the pandemic was most likely done in haste and may have lacked careful planning.

Academic library positioning has been a challenge, with the many changes experienced by their parent institutions such as shifting higher education environment which prompted libraries to define their new roles to establish its relevance to the institution. As information specialists, academic librarians had played a significant role during the COVID-19 pandemic by offering online resources to support researchers and providing COVID-19 related information while maintaining the traditional library services with safety measures (Adigun et al., 2020; Ali & Gatiti, 2020; Okonoko et al., 2020; Petrowicz, 2020; Deol & Brar, 2021). In the case of Father Moses Library in India, librarians had become collaborators with education sectors through conducting webinars, and established connection with the users by organizing reading competition, review writing competition, and virtual book clubs (Devan, 2021).

On the other hand, Davao del Sur academic librarians had cited instances where school administrators could not see the relevance of librarians during the pandemic, thus assigning them with tasks which are not in the line of their practice. This is in contrast with the supporting literature in which the added roles of librarians during the pandemic were somehow related to their function as information professionals. Since the pandemic started, adapting

flexible work arrangements including work from home setup had been encouraged as a safety measure among library staff and in compliance with government orders to contain the spread of the virus. However, some findings revealed that such work arrangement had caused digital divide between employees who have ready access to computers and internet at home and those who do not; thus, some librarians would still go to the library physically to complete some essential official works (Chakraborty & Jana, 2021; Hosoi et al., 2021). Although librarians struggled in remote work because of the needed adjustments in their work routine, they still exhibited high productivity while working from home (Bennett et al., 2020; Rodarte & Moore, 2022).

Also, based on the common experiences shared by academic librarians from Georgia, they were able to achieve work-life balance while working from home during the COVID-19 pandemic (Bennett et al., 2020). Such instance is opposite to the experiences of our participants who would extend their work even at night, which can relate with Ibacache et al. (2021) that as much as possible, librarians may be contacted on the virtual Ask-a-Librarian desk even on extended weekend and evening hours. Moreover, working off-campus can offer numerous distractions and can be stressful at times especially with lack of in-person connection and networking (Fatmawati, 2021; Hosoi et al., 2021). To address these challenges, suggestions were offered such as building a conducive quality of work-life in the library, establishing shared values within the library organization, and providing proper infrastructure to support the mission to offer library services while in a remote environment (Chakraborty & Jana, 2021; Fatmawati, 2021; Hosoi et al., 2021).

The Strategies Employed by Librarians in Providing Programs and Services in the Midst of the COVID-19 Pandemic
Academic librarians have employed different strategies as they work on the provision of services and resources amidst the COVID-19 pandemic. These include attending webinars and trainings, bringing libraries into users' doorsteps, and embracing change and being resilient.

Attending webinars and trainings. The responses revealed that one of the emerging strategies utilized by academic librarians in Davao del Sur is through attending webinars, benchmarking best practices from other libraries and online trainings. Also, benchmarking and attending webinars help librarians gain ideas on providing library services and have created a plan to ensure sustainability of the library services during the pandemic. This reflects that academic librarians still need to learn new strategies and get ideas from other libraries to effectively implement new normal library services. This is being supported by the study of Connell, Wallis, and Comeaux (2021), which revealed that academic libraries can defeat the COVID-19 with the application of powerful and renovated technology tools for community support and satisfaction through adopting various new tactics to overcome the pandemic difficulties and keep the users stay with the world of knowledge and recreation. Furthermore, another

study conducted by Temiz and Lakshmi (2021), confirmed that the role of academic librarians is not limited to an information provider and academic supporter but also the provision of activities and services magnified by intellectual advancement, creativity, social commitment, personal growth, technical and digital knowledge intensification of its clientele especially the students. Also, the redesigned and redefined activities strengthened the user participation leads path ways to defeat the lockdown related stress and loneliness which modified the traditional concepts, methods and theories of providing library services (Istiaq, 2020).

Amidst the pandemic, academic librarians did not only realize about the need to constantly develop their services but also about developing their own professional knowledge and skills, particularly on the technological facets and always be open to new learning opportunities. It implies that academic librarians need to improve on their attitude towards technological innovations, should acquire more ICT skills, and keep themselves abreast with the latest technologies through attending to trainings, conferences and seminars. The findings are supported by Asif and Singh (2020) who found out that during the pandemic, a lot of webinars for librarians and information professionals were organized and offered for free and the academic librarians mentioned that they considered attending to such webinars and applied the learnings in their own libraries. Also, from the conducted webinars, librarians can get opportunities, improve their technological skills and become more competent and confident in digitally managing their libraries (Anderson, 2021).

Academic librarians also mentioned about the need to develop their professional skills in doing research especially in this online mode of learning where the librarians are the ones searching for resources to be sent to clients. In a recent study about the research knowledge and skills of academic librarians in Northern Philippines, it revealed that they were in a competent level, however there are challenges that need to be addressed and their knowledge and skills can still be enhanced by attending trainings, workshops and other professional development plans (Austria & Cabonero, 2020). With the use of technologies and online databases in rendering online library services, academic librarians need to enhance their research skills to provide accurate and substantial information to researchers.

Bringing Libraries into Users Doorsteps. The responses showed that the COVID-19 pandemic had prompted academic librarians to innovate library services, since face-to-face library transactions were suspended as precautionary measure. Most of them used social media, particularly Facebook, to effectively reach out to their clients and provide online library services during the pandemic. Facebook utilization was evident in some academic libraries to help librarians engage with clients, post library updates, promote online library services, and provide a channel to access online resources (Achanya, 2020; Awoyemi et al., 2020; Mandrekar, 2020). Academic librarians also mentioned creating library websites, which Hussaini et al. (2021) considered

as online portals to provide clients with one entry point that will incorporate all library resources and services which eliminate users' difficulty in remembering multiple log-ins. The creation of all-inclusive online library platforms is also practiced in some Indian libraries which have enhanced their visibility during the pandemic by providing an online one stop shop to all of their resources and services (Dadhe & Dubey, 2020; Kaur & Mahajan, 2020). These were among the best practices considered by Ifijeh and Yusuf (2020), along with the adoption of blended librarianship model, in order for academic libraries to cope with the changes in teaching methodologies in the midst of COVID-19 pandemic.

The pandemic has also changed the way librarians interact with patrons and conduct information literacy initiatives. Most academic librarians mentioned using Zoom or Google Meet in offering virtual collaboration rooms for students in replacement of the discussion rooms in the physical library. This is supported by other studies showing that librarians maximized Zoom and various online platforms to provide reference and research assistance and open multimodal learning opportunities (Ma, 2020; Stimpson, 2020; Devan, 2021; Ibacache et al., 2021). In addition, the use of virtual support to patrons increased during COVID-19 as reflected by the maximized usage of virtual communication methods such as email, chat reference interactions, and online meetings (Abubakar, 2021; Connell et al., 2021; De Groot & Scoulas, 2021). Moreover, academic librarians engaged in other activities such as offering tutorial services and providing related information on COVID-19, which resonates with Beglou and Akhshik (2023) where they identified strategies for social responsibilities of the library during the pandemic, which also include documentation of events, preparation of guidelines, current awareness, physical and mental health care programs, and providing medical information about COVID-19.

The participants' responses further indicated that academic libraries continued the physical library services while offering additional services like bringing the libraries to the user's doorsteps through book delivery services, electronic delivery, and other means to cater to the information needs of students who cannot visit the physical library due to health protocol restrictions. The findings were in line with Guo et al. (2021) wherein 12% of studied libraries still provided print materials services during the COVID-19 pandemic. However, physical distancing and non-contact delivery methods were implemented as safety measure for library staff and patrons who would come to the library to minimize the risk of infection due to the virus (Talamo, 2020; Guo et al., 2021; Shoaib et al., 2022). This measure supports the findings of Okonoko et al. (2020) where library users expected various online services such as electronic access to resources and reference services and at the same time, a spacious study hall is opened where users can observe physical distancing while studying in the library.

Some academic librarians mentioned book delivery services as their unique strategy in providing library services in the midst of

COVID-19 pandemic wherein requested books would either be delivered at the students' homes or door to door delivery or picked up at the school's guard house. Online book borrowing and reservations were made beforehand since clients cannot visit the physical library due to quarantine restrictions. Many libraries are offering this service to answer the need to continue the book lending service for clients who really wanted to read print books. The librarians of Montgomery County Public Schools in Christiansburg, Virginia implemented a similar strategy, but through a drone delivery service where students check out books at the school system's library catalog and then delivered to their homes via drone (Ford, 2020). Other libraries also allowed borrowing of print books through pick-up services, wherein users would make online requests and notified if the book requested is ready for pick-up. Library staff maintained physical distancing to minimize direct contact with the borrowers, and have scheduled specific time for pick-up either at curb side or library entrance (Talamo, 2020; University Libraries, 2020; Decker, 2021). Moreover, remote clients may physically return the books by placing them in a drop-off area at the library and after which, books would undergo quarantine for a certain period of time (Talamo, 2020; Tolppanen, 2021; Dube & Jacobs, 2023). The cited strategies agree with Ishtiaq (2020) that academic librarians have strategically developed some convenient library services in both traditional and online means.

Embracing change and being resilient. The COVID-19 pandemic has affected the operations and services of the library organizations and the academic librarians shared how they showed resiliency and embracing changes by responding to the changes it brings to the library operations and made constant innovations. The responses showed that academic librarians realized the need to be resilient and always embrace the changes around them in this time of pandemic. It indicated that academic librarians must adapt to the changes, initiate on developing alternatives and must make actions in rendering library programs and services in order to support the information needs of the academic community in spite of the difficulties they encountered amidst this COVID-19 pandemic and be able to satisfy the classroom related research of the library users. As Filipinos, the academic librarians in Davao del Sur showed the Filipino culture of resilience which comes from their value for family, faith, hard work and positive acceptance to different situations (National Commission for Culture and the Arts, 2020). Resilience amidst trying times is also manifested by librarians from other countries including the librarians in Kazakhstan where they showed their passion of extending their services amidst the pandemic. They responded to the crisis by providing online reference services and improving the access to online databases, book deliveries, scanning services and many other online services (Yap & Manabat, 2020).

The Mallak's Organizational Resilience theory (1999) mirrors the resilience and readiness of academic librarians in Davao del Sur to embrace changes amidst the COVID-19 pandemic, which is a concept of embracing, managing and responding to organizational changes. It is the individual or organization's capability to immediately create and apply adaptive behaviors that would match the current situation, while sustaining the difficulties it brings. The theory of organizational resilience also conceptualizes the positive response to the occurrence and severity of crises and natural disasters that would affect the organization's operations (Kantur & Say, 2015). Furthermore, Lewin's Change Theory (1959) reflected the academic librarian's readiness to accept the expected changes, which necessitated them to step out from their comfort zone (Juneja, n.d.; George, 2020; Weinper et al., 2022). Following the stages in the change process, librarians first had to make adjustments to their work roles and devise new strategies in library operations. Then, they implemented new library services and continued to innovate as they move towards transition to the new normal, with the learnings from webinars and benchmarking for more innovative strategies as their anchor.

The emerging themes from this study were thoroughly discussed in the context of the academic librarians' experiences with supporting literature and related studies in the Philippines and in other countries. The discussions also explained the reasons behind the emerging themes obtained from the lived experiences of the participants. The theories reflect the need for academic librarians to constantly innovate their library resources and services to stay relevant with the changing needs of clients during the COVID-19 pandemic, and the need to be resilient in managing and responding to organizational changes. Eventually, academic librarians are urged to revisit and update their library policies in managing their library like personnel, collection, facilities, procedures, and services as they adapt to the new normal.

Limitations of the Study

The study explored the experiences of academic librarians in rendering library programs and services in the private HEIs in Davao del Sur during the COVID-19 pandemic. Selection of academic libraries in the province was based on the availability of programs and library services through checking their Facebook page, website or web page.

In as much as the researchers would want to gather data from many libraries with existing programs and library services, there were limitations encountered during the conduct of the study caused by pandemic and health protocols implementation in the private higher educational institutions in Davao del Sur. There were private HEIs in the province that did not send or respond any feedback about our intention to conduct an interview with their academic librarian. There were also two participants who confirmed for the interview but failed to coordinate online. Moreover, the data gathered only covered the experiences from the academic librarians regarding their encountered challenges, strategies used and insights in providing programs and library services during the pandemic.

Implications of the Study

Based on the results of this study, academic librarians had experienced challenges, developed strategies, and had new insights as they rendered programs and innovative library services during the pandemic. Since library services are more essential today among the libraries in the province to support the information needs of the academic community, this study has provided insights which may be shared as learning experiences for other librarians and information professionals who would like to follow the strategies and reflect on the needs of rendering physical and online library services in this new normal to bridge the gap between the libraries and users. Thus, we encourage academic institutions, professional associations and library professionals in embracing or boosting the library innovations on providing new library and information services amidst the COVID-19 pandemic.

Furthermore, school administrators of the private sectarian and nonsectarian HEIs may implement new library services and support digital innovations as important actions in developing their academic institution especially their library or learning resource center. Library leaders may ask support from the school administrators to enhance and upgrade their technological infrastructure and the skills of their staff in order to create and strengthen the programs and strategies both the traditional and online library services. Professional association officers and leaders may plan for professional development activities, webinars, and trainings for their colleagues to advance their technological knowledge and skills in rendering library services in the new normal.

As librarians strive to innovate their programs and services amid COVID-19 pandemic, students are encouraged to avail the new normal library services which can be beneficial in their academic pursuits even if they could not go physically to the library due to the distance learning modality. The support of faculty is also needed to promote these new library services to their students, as well as the use of online resources for research and course requirements, thus, further help increase the online utilization of the students.

Moreover, this study can also serve as bridge for further research, especially on the implication of rendering online library services in private and public universities, colleges, schools and research hubs in other provinces. Since the study is only limited to the librarians' experiences in providing programs and services in academic libraries in Davao del Sur, it could be used as the basis for future researchers to conduct another in-depth study on the implication of library services to the extent of student access of the library resources and career progression of academic librarians.

CONCLUSIONS

The COVID-19 pandemic had tested the academic librarians in managing the library with limited resources and services. The online mode of delivering library services demanded their technological knowledge and skills, digital infrastructure, and open access to electronic resources. But despite the struggles working amidst the technological issues in transitioning to online, this study reflected that resilience and openness to change prevailed among Davao del Sur academic librarians as they were able to cope with the challenges of working during this COVID-19 pandemic.

This study also gave a view on how academic librarians in the private HEIs in Davao del Sur continued to open the library to their patrons even in the midst of the pandemic. Although there is a necessity of positively embracing the digital and virtual environment, librarians still found ways to bridge the gap in the perceived information divide and managed to bring the library to users' doorsteps during the pandemic.

Through this study, librarians should provide continuous innovation for their programs and services; academic libraries still stand as the heart of any academic or research institution even in the midst of a health crisis. Therefore, academic librarians can justify their relevance in this ever-changing world by adding more value added services and resources to the institution as a whole.

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A SOCIAL PERSPECTIVE ON LAW AND POLICY FOR SENIOR CITIZENS IN THE PRESENT SCENARIO

Ravani Ukti Nayudu

Fourth year student pursuing BA.LLB(Hons) from Dr. MGR Educational and Research Institute, Chennai

ABSTRACT

Caring for the old: On the United Nations Population Fund's India Ageing Report 2023[1]; India's elderly population to double by 2050, surpassing number of children[2], are some of the news articles that are circulating with a cautionary note on the rapid rise of old age population and its effects on society.

A perusal of these stories reveals a concerning rise in the number of senior citizens, with one in five people predicted to reach the status of a senior citizen.

The UN has noted that the worldwide trend of population ageing is irreversible. Globally, the population of 65 years or older is expected to more than double by 2050. The population that is 80 years of age or older is ageing much more quickly.

With an alarming increase globally, it may be argued that the exceeding increase will have consequences in the sectors of health, economy, and society.

To handle this situation, it is essential that this population has access to their basic rights and necessities.

The paper aims to study the law and policy for senior citizens in the present scenario. It sets the backdrop with a review of the factors that contribute to the isolation of senior citizens, followed by a statistical analysis of their demographics. The problems faced by senior citizens are mentioned and the measures to dealing with the aforementioned are discussed in the form of public policies, legislations and constitutional provisions and its implementation through observations of recent judgements.

KEYWORDS: *Senior Citizen, Public Policy, Legislation, Judgement, Socio-legal perspective*

INTRODUCTION

Every human in the world goes through a life cycle; they begin as a foetus in the womb, born as an infant and grow through the stages of toddler, childhood, adolescence, adulthood, middle age and finally reach the old age.

An elderly person is defined by the United Nations as a person who has reached old age i.e., is over 60 years of age. A senior citizen is an elderly person who belongs to a country.

As an individual approaching the end of their working life, they require more assistance than usual. The majority of this support comes from family members, and in cases where they are alone, they financially hire assistance.

India is a nation whose customs encourage caring and providing for elders as a duty. The country had a joint family system, meaning that all generations of the family—from the oldest to the youngest—lived together. Under this system, the oldest family member was regarded as the head of the household, and in most cases, his or her judgement was definitive.

However, the rise of industrialization and globalization brought about one significant alteration in the family structure: the dissolution of the family system. Joint families split up into nuclear families, which consist of only the parents and their children. As a result, the oldest family members became separated from the family. This occurrence was due to the fact that, in the highly agitated work environment, taking care of elderly family members became an additional responsibility.

The nuclear family structure is still largely in place in the current world, with individuals now departing their country in search of work and other opportunities, leaving the eldest members behind. The eldest members i.e., senior citizens, are

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[1] Editorial, 'Caring for the old: On the United Nations Population Fund's India Ageing Report 2023' The Hindu (29 September 2023) < https://www.thehindu.com/opinion/editorial/caring-for-the-old-the-hindu-editorial-on-the-united-nations-population-funds-india-ageing-report-2023/article67357816.ece> accessed 18 December 2023

[2] Livemint, 'India's elderly population to double by 2050, surpassing number of children, warns report' Mint (28 September 2023) < https://www.livemint.com/news/india/indias-elderly-population-to-double-by-2050-surpassing-number-of-children-warns-report-11695865492972.html> accessed 16 December 2023

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now in a position where they have to live independently and meet their own needs and necessities.

The government has an important role to play since it needs to take further steps to care for the senior citizen population. The measures taken are influenced by a number of elements, which will be examined further in the article from a social perspective.

OBJECTIVE
i. To understand the population segmentation of senior citizens via statistical interpretation.
ii. To understand the need for law and policy i.e., a brief outlook of problems faced by senior citizens.
iii. To study the relevant policies initiated by the Government
iv. To study the relevant legislation and its provisions
v. To assess its legal application i.e., via observation of recent judgements.

METHODOLOGY
The paper is a study on the law and policy for senior citizens, which was undertaken with a combined approach of doctrinal and qualitative research, supported by the following secondary sources;

- Government Reports and Publications
- News articles
- Database for Judgements, Legislation

STATISTICAL INTERPRETATION OF SENIOR CITIZENS
A press release by the PIB[3] in 2022 gives an overview of the last Census (being 2011) taken by the Indian Government on the population of senior citizens in India;

➢ *As per Census 2011, population of Senior Citizens (people aged 60 years and above) is 10.38 Crore in the country.*

➢ *As per Census 2011, the number of senior citizens suffering from any disability in their old age is 53,76,619 which is approximately 5.18 percent of total population*

The National Commission on Population, a division of the Ministry of Health & Family Welfare, created the *Report of the Technical Group on Population Projections on July 2020[4],* which is stated as a scientific attempt to peep into the future population scenario, under certain assumptions by using available data at that point of time.

It provides statistical analysis of population of India (based on 2011 Census) and a projection analysis of the characteristics of population for the year 2036.

Through this report, we can avail our statistical observation in relation to old age population and understand the numerical differences of the last census and the expected population. This can be observed through the following data;

Population by broad age-group

2011	1,01,538
2036	2,27,438

Dependency Ratio – meaning; old= 60+

2011	138
2036	230

Population By Age and Sex

2011	Male	Female		2036	Male	Female
60-64	17,515	17,844		60-64	34,600	36,373
65-69	13,615	13,808		65-69	28,119	29,601
70-74	10,546	10,837		70-74	20,703	22,111
75-79	5,471	5,377		75-79	13,358	15,053
80+	2,943	3,582		80+	11,670	15,850

The report, in its summary of findings stated that; *the number of older persons in the population is expected to increase by more than double from 10 crores in 2011 to 23 crores in 2036 - an increase in their share to the total population from 8.4 to 14.9 percent.*
Observation: Through this report, it can be understood that there has been a gradual increase in the population of senior citizens. However, in the spectrum of needs and rights, they have been facing a static response.

PROBLEMS FACED BY SENIOR CITIZENS
Though ageing is the natural stage of human life, it brings with such problems that gradually lead to a decrease in their way of

[3] *Ministry of Social Justice and Empowerment, 'Population of Senior Citizens' PIB Delhi (2 August 2022)*
<https://pib.gov.in/PressReleasePage.aspx?PRID=1847436>
accessed 14 November 2023
[4] *Technical Group on Population Projections, 'Population Projections for India and States 2011-2036' National Commission on Population, Ministry of Health & Family Welfare (July 2020)*

<https://main.mohfw.gov.in/sites/default/files/Population%20Project ion%20Report%202011-2036%20-%20upload_compressed_0.pdf>
accessed 14 November 2023

living. Three of the major problems faced by senior citizens are mentioned below;

Social Problems	Financial Problems
• Feeling of loneliness and isolation • Age segregation	• Retirement leads to expenses for assistance in all spheres of life • Source of income is mostly dervied from pension; if not a pensioner, will lead to a completely dependent lifestyle.
Health Problems	
• Experience of anatomical and physiological changes, which are primarily degenerative, also brings about behavioural and psychological changes, which are characterised by lack of interest, increased irritability, majorly memory issues leading to mental challenges such as dementia and alzheimer's	

PUBLIC POLICY

Public policy is the set of actions, plans, laws, and behaviors that are adopted by a government. It seeks to resolve or handle pertinent, practical issues; being conceptually driven and frequently carried out through programmes. They are made and/or implemented by a government on behalf of the people.

With an understanding of the above-mentioned problems and a necessity to address them, the Government of India implemented and is implementing newer policy initiatives for senior citizens.

Some of the noted policies are;

i. National Policy on Older Persons 1999[5]

The demographic analysis of the ageing population from the 1950s to the 1990s (including projection population) enabled the government to recognize the effects of the population at the macro and household levels, as well as the vast human reserve.

The government also noted the population's impact in terms of living arrangements, detachment from obligations, and reliance on primary caretakers due to increasing costs of health and other demands, among other things. This ultimately resulted in a majority of senior citizens becoming dependents, necessitating a scale of efforts required to offer social services and other benefits.

Taking these factors into account, the government developed the policy, with the purpose of improving the well-being of older people. It aimed to reassure them that their issues are national concerns and that they will not be neglected or marginalized, and it acknowledged the necessity for affirmative action in behalf of the elderly.

ii. National Policy for Senior Citizens (2011)[6]

A committee was constituted by the Government in 2010 to draft a new national policy on older persons. The Committee submitted the draft policy, whose salient features are;

- Emphasis on the "oldest old" (80+ years)
- Recognition of special attention to elderly women
- Recognition of special attention to rural poor
- Need for inclusion of increasing advancement in technology

The policy aims to address issues concerning senior citizens living in urban and rural areas, special needs of the "oldest old" and older women. Other policy objectives are as follows;

- Mainstream the concerns of senior citizens, especially older women, and bring them into the national development debate;
- Promote income security, homecare services, old age pension, healthcare insurance schemes, housing and other programmes/ services;
- Promote care of senior citizens within the family and to consider institutional care as a last resort;
- Work towards an inclusive, barrier-free and age-friendly society;
- Recognize senior citizens as a valuable resource for the country, protect their rights and ensure their full participation in society;
- Promote long term savings instruments and credit activities in both rural and urban areas;
- Encourage employment in income generating activities after superannuation;
- Support organizations that provide counselling, career guidance and training services; etc.

It recognised certain areas as Areas of Intervention, which would indicate the areas for implementation of the policy and necessary steps to be taken. The areas are as follows;

- Income security
- Healthcare
- Safety and security
- Housing
- Productive ageing
- Welfare
- Multigenerational bonding
- Media

It sought its implementation through the following actions;

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[5] *Ministry of Social Justice and Empowerment, 'National Policy for Older Persons Year 1999' Ministry of Social Justice and Empowerment (2009) <https://socialjustice.gov.in/writereaddata/UploadFile/National%20 Policy%20for%20Older%20Persons%20Year%201999.pdf> accessed 3 December 2023*

[6] *Ministry of Social Justice and Empowerment, 'National Policy for Senior Citizens 2011' Ministry of Social Justice and Empowerment <https://socialjustice.gov.in/writereaddata/UploadFile/dnpsc.pdf > accessed 20 November 2023*

» Establishment of Department of Senior Citizens under the Ministry of Social Justice and Empowerment
» Establishment of Directorates of Senior Citizens in states and union territories
» National/State Commission for Senior Citizens
» Establishment of National Council for Senior Citizens
» Responsibility for Implementation
» Broadening the roles of Block Development Offices, Panchayat Raj Institutions and Tribal Councils/Gram Sabhas

iii. Integrated Programme for Senior Citizens (2018)[7]

The scheme is stated as a *Central Sector Scheme to improve the quality of life of the Senior Citizens*.

It is founded on the issue that ageing has become a major social challenge as the scenario has become not to merely live longer, but to ensure that they lead a secure, dignified and productive life. Thus, it creates a need to provide for the economic and health needs of the elderly and to create a social milieu, which is conducive and sensitive to the emotional needs of the elderly.
The aims and objectives of the scheme are;

- to improve the quality of life of the Senior Citizens by providing basic amenities like shelter, food, medical care and entertainment opportunities
- encouraging productive and active ageing through providing support for capacity building of State/ UT Governments/Non-Governmental Organizations (NGOs)/Panchayati Raj Institutions (PRIs) / local bodies and the community at large.

Under the scheme, grants in aid are given for running and maintenance of Senior Citizens Homes/ Continuous Care Homes, Mobile Medicare Units etc. to the Implementing Agencies (IAs) such as Registered Societies/ Panchayati Raj Institutions (PRIs) / Local bodies; Non-Governmental/Voluntary Organizations.
The scheme also provides detailed guidelines on eligibility conditions for availing grant-in aid under the scheme, procedure of submission of applications and other terms and conditions along with the extent of support.
It also provides assistance to the programmes which comes under any of the following categories;

» catering to the basic needs of Senior Citizens particularly food, shelter and health care to the destitute elderly
» to build and strengthen intergenerational relationships particularly between children / youth and Senior Citizens, through Regional Resource and Training Centres (RRTCs)
» encouraging Active and Productive Ageing, through RRTCs
» proving Institutional as well as Non-Institutional Care/ Services to Senior Citizens
» Research, Advocacy and Awareness building programmes in the field of Ageing through RRTCs
» Any other programmes in the best interest of Senior Citizens

Some of the other policy schemes are summarised in the table below;

Policy scheme	Year of implementation	Aims and Objectives
National Programme for the Health Care of Elderly (NPHCE)	2010-11	address various health related problems of elderly people; provide dedicated health care facilities to the senior citizens (>60 year of age) at various level of primary, secondary and tertiary health care.
Atal Pension Yojana (APY) Motto: minimum investment, maximum benefit during old age.	2015	a pension scheme for citizens of India focused on unorganized sector workers. minimum pension of Rs 1,000 - 5000/- per month at the age of 60 years will be guaranteed depending on the contribution by the subscribers
Rashtriya Vayoshri Yojana (RVY)	2017	providing senior citizens, belonging to BPL category and suffering from any of the age-related disability/infirmity, with such assisted-living devices which can restore near normalcy in their bodily functions.

LEGISLATION

Legislation is a law(s) that are drafted, developed upon and passed by a government. Depending on the subject matter of the legislation, the law may be wide or limited. The legislation providing for senior citizens is the *Maintenance and Welfare of Parents and Senior Citizens Act, 2007*.

- The objective of the Act is to provide for more effective provisions for the maintenance and welfare

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[7] *Ministry of Social Justice and Empowerment, 'Integrated Programme for Senior Citizens' Ministry of Social Justice and Empowerment (1 December 2017)*

<https://socialjustice.gov.in/writereaddata/UploadFile/IPSrC%20English%20version.pdf > accessed 19 December 2023

of parents and senior citizens guaranteed and recognised under the Constitution.

- Section 2(h) of the Act defines "senior citizen" as the person who is the citizen of India and has attained the age of 60 years or above.
- Under this Act, senior citizens are given the entitlement to claim maintenance[8] on the fulfilment of the following conditions;
  - Senior citizen is not able to maintain themselves out of their earnings or from the property owned by them
  - Claim can be made against one or more of their children who is not a minor (in the case of a parent/grandparent) or relative[9] i.e., a legal heir who is not a minor and in possession of/would inherit the property after death (in case of childless senior citizen).
  - The obligation to maintenance extends to such needs whose fulfilment leads to the senior citizens to have a normal life.
- The application of maintenance[10] can be made to the Maintenance Tribunal, who shall take cognizance of the application; if it is satisfied that the respondent neglected or refused to maintain a senior citizen, give an order for monthly allowances as it deems fit. For cases of appeal, the concerned individual may appeal to the Appellate Tribunal who shall, adjudicate and decide upon the appeal filed against the order of the Tribunal.
- Other provisions enabled by the enactment are old age homes[11] and medical support[12]
- The Act also provides enforcement measures, which include;

  » To ensure wide publicity through public media including television, radio and print at regular intervals
  » Legislative and executive officers to be given periodic sensitisation and awareness training on the issues related to the Act
  » effective co-ordination between the services provided by the concerned Ministries or Departments dealing with law, home affairs, health and welfare, to address the issues relating to the welfare of the senior citizens and periodical review of the same is conducted.

The Act was proposed to be amended. In 2019, the *Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill*[13] was introduced in the Lok Sabha., which introduced some important amendments including;

- Extension of the objective by providing measures for achievement through providing maintenance, ensuring their overall physical and mental well-being, establishment, management and regulation of institutions and services for senior citizens
- Substitution of "Old Age homes" with "Senior Citizens' Care Homes and Multi-Service Day Care Centre for Senior Citizens"
- Substitution of "Medical" with "Healthcare"
- Insertion of Section 21A, providing for *Action Plan for senior citizens*.
- Insertion of Section 23A, providing for *Other Welfare Measures for senior citizens.*

CONSTITUTIONAL PROVISIONS
The legislation above provides legal rights to senior citizens. There are however certain rights which are guaranteed by the Constitution of India to its citizens. The constitutional provisions are summarised in the table below;

Provision (Article)	Explanation
21	Right to life and personal liberty of an individual; a broad and inclusive right; In a 2021 case[14], the High Court of Calcutta held that a senior citizen is entitled to live in peace in his own house under article 21.
41	A provision of DPSP; the State within its economic capacity and development is obligated to provide public assistance to old age
Item 24, Concurrent List	Labour Welfare – Old Age pensions

OBSERVATIONS OF JUDEGMENTS
A judgement is an essential topic to be discussed when it comes to law, as it applies the constitutional provisions and legislations in cases of violation of rights or other matters of law.

[8] *Maintenance and Welfare of Parents and Senior Citizens Act 2007, s 4*

[9] *Maintenance and Welfare of Parents and Senior Citizens Act 2007, s 2(g)*

[10] *Maintenance and Welfare of Parents and Senior Citizens Act 2007, s 5*

[11] *Maintenance and Welfare of Parents and Senior Citizens Act 2007, s 19*

[12] *Maintenance and Welfare of Parents and Senior Citizens Act 2007, s 20*

[13] *Ministry of Social Justice and Empowerment, 'Amendment in Maintenance and Welfare of Parents and Senior Citizens Act, 2007.' PIB Delhi (20 July 2022) <https://pib.gov.in/PressReleasePage.aspx?PRID=1843029 > accessed 3 December 2023*

[14] *Ali Burhan & Anr vs The State of West Bengal & Ors* W.P.A. No. 174/2021 (2021)

The decision of the court, in addition to determining the outcome of a case, serves as an instrument for the evolution of law and policy in society by reviewing them when confronted with a problem and offering methods for revision or revocation.

The judgements mentioned below will only discuss the observations made from the reading of the judgements i.e., how the senior citizens are benefitted from the decision.

Case Law 1

- **Case Title -** Cont.P.No.515 of 2018 and WP.No.16984 of 2017 etc. batch
- **Year of Judgement –** 2022
- **Court –** High Court of Judicature at Madras
- **Coram –** Hon'ble Mr. Justice R. Mahadevan
    - Hon'ble Mr. Justice J. Sathya Narayana Prasad

Observation

The case is of batch writ petitions. The discussion will be limited to the following three cases only;

W.P.NO.	PETITIONER & RESPONDENT	GIST (FACTS)
Cont.P.No. 515/2018	• Petitioner: S. Krishnamurthy • Respondent: Dr. Manivasan The Principal Secretary Social Welfare & Nutritious Meal Programme Department	• Filing of PIL praying for writ of mandamus to frame regulation and appointing regulatory authority to monitor functioning of senior citizen homes. • Grievance - the Government or its instrumentalities have not made any attempts to check unregistered or registered senior citizen homes to ensure that the rules given by the Government are followed; instead, the responsibility of inspecting and/or monitoring the old age homes had been merely delegated.
W.P.NO. 16984/2017	• Petitioner: S. Sivaraman • Respondent: The Secretary to Government Social Welfare and Nutritious Meal Programme Department & Ors.	• Filing of PIL; petitioner is a senior citizen and pensioner; • grievance - The promoters of the Old Age Homes are taking advantage of the inhabitants by charging expensive service fees and providing no facilities for filing complains.
Suo motu W P.No.28237/2017	Respondents: The Principal Secretary, Social Welfare and Nutritious Meal Programme Department & Ors.	• Writ proceeding initiated on the basis of a letter; the writer of the letter is a resident of a paid senior citizens' home. • prayer for providing direction for implementation of a GO that provided for the registration of homes with the District Social Welfare Officer, the registration of bi-lateral agreements, the inclusion of fund providers (senior citizens) as a majority in the management of financial transparency, and the provision of basic necessities.

The Court, in the majority of the petitions, was approached for analysing the implementation of GOs in regard with registration, inspection and functioning of senior citizen homes, non-stoppage of food and other essential services, provide proper medical services and other basic requirements by the State and its authorities.

The case also discussed the scenario of the enforcement of rights of senior citizens in line with Article 21 of the Constitution. It mentioned the case of *Ashwini Kumar v. Union of India (2019) 2 SCC 636),* wherein the Supreme Court examined the said scenario in the backdrop of social justice. The following is an excerpt of the judgement;

Eventually age catches up with everybody and on occasion, it renders some people completely helpless and dependent on others, either physically or mentally or both. Fortunately, our Constitution is organic and this court is forward looking. This combination has resulted in pathbreaking developments in law, particularly in the sphere of social justice which has been given tremendous importance and significance in a variety of decisions rendered by this court over the years. The present petition is one such opportunity presented before this court to recognize and enforce the rights of elderly persons-rights that are recognized by Article 21 of the Constitution as understood and interpreted by this court in a series of decisions over a period of several decades, and rights that have gained recognition over the years due to emerging situations.

Following the discussion, the Court stated that the right to life cannot be limited to mere animal existence. It also declared unequivocally that the right to life, as enshrined as a basic right

under Article 21, encompasses the right to health, the right to shelter, and the right to live with dignity.

Apart from having an in-depth discussion, the Court also assumed an authoritative role in addressing the responsibility of the State Government in the care, maintenance, and protection of older residents. The function was assumed through the exercise of *parens patriae* jurisdiction, which grants the Court a paternal and protective duty over its citizens or others subject to its jurisdiction. This enabled the Court to carry on and resolve the case in such a way that the interests of senior citizens are protected, with the hope that Indian society will recognise its

moral obligations to senior citizens and that the State will play a proactive role in ensuring health, self-sufficiency, and dignity for all senior citizens.

Case Law 2
- **Case Title -** Mavila Sathi vs State of Kerala
- **Year of Judgement –** 2016
- **Court –** High Court of Kerala at Ernakulam
- **Presiding Judge –** Hon'ble Justice Mrs. Anuradha Sivaraman

Petitioner	Respondents
Mavila Sathi	1. State of Kerala 2. Presiding Officer, Maintenance Tribunal and Sub-Collector 3. Devaki Amma (mother of petitioner and 4th respondent) 4. Govindan (brother of the petitioner)

Observation

The writ petition was brought to challenge a Maintenance Tribunal ruling on a dispute in which the 4th respondent said that a particular share of property was given to the petitioner on the condition that she look after the 3rd respondent. The 4th respondent claimed that the petitioner refused to look after the third respondent and evicted him from the house. The Tribunal issued an order directing the petitioner to pay maintenance and re-convey the assigned property.

The Court approached the case from a different angle. It switched the emphasis from the property dispute to the issue of maintenance.

It stated that the purpose of the Act is to ensure proper protection and maintenance of senior citizens. It cannot be applied as a tool to settle property disputes. The Act is intended to enforce the substantial right of the third respondent, which is to be maintained and protected by her children.

Earlier, many cases related to protection and maintenance of senior citizen was based on occupation and monetary benefits with relation to properties owned by the said senior citizens. The issues discussed during judgements traversed through the disputed property to decide on the maintenance of senior citizens.

This present judgement, clearly emphasises that the Act, in relation to protection and maintenance of senior citizens takes prominence over the property or ownership over it by the parties involved. This judgement demarcates and differentiates property dispute from the essence of this Act and emphasises only protection and maintenance of senior citizens without any consideration to relevance to property.

CONCLUSION

From the above discussed, it can be concluded that there has been a rising population of senior citizens, in an alarming tone.

The forewarning tone stems from the fact that the facilities and necessities provided to them are in a static position, leading to an imbalance.

Although there are provisions in the form of policies and legislations, and the judiciary lending a helping hand in implementation by providing judicial decisions and guidelines as needed, the aforementioned issue remains a cause for concern, as implementation appears to be moving slowly to close the existing gap between the rising population and their facilities and necessities.

Raising awareness of the situation and fostering a sense of personal morality and social responsibility in each person by supporting a positive social life are two approaches that can be used to effect change and preserve the integrity and dignity of senior citizens.

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UNSTABLE ANGINA, LITERATURE REVIEW

Claudia Gabriela Jara Maldonado[1], Doménica Melissa Ochoa Semería[2],
Jonnathan Efrén Espinoza Calle[3], Sonia Jessica Dumas León[4],
Paúl Andrés Bautista Pambi[5], Lilia Francisca Torres Peñaloza[6],
María Magdalena Toro Andrade[7], Adriana Nicole Baño Cando[8],
Maria Del Cisne Vega Cobos[9], Bryam Esteban Coello García[10].

[1]General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad Católica de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0003-8095-8883

[2]General Practitioner in independent practice, faculty of Medical Sciences, Universidad Católica de Cuenca. Azogues- Ecuador ORCID https://orcid.org/0009-0000-6212-4947

[3]General Practitioner in independent practice, faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0000-0002-2333-4324

[4]General Practitioner at Universidad Católica de Cuenca, faculty of Medical Sciences, Universidad Católica de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0008-6460-9372

[5]Postgraduate doctor in cardiology at Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSOA). Brasil ORCID https://orcid.org/0000-0003-0375-0555

[6]General Practitioner in independent practice, faculty of Medical Sciences, Universidad Católica de Cuenca. Cuenca-Ecuador ORCID https://orcid.org/0009-0005-7254-8125

[7]General Practitioner at "Hospital General Julius Doepfner", Zamora, faculty of Medical Sciences, Universidad Técnica Particular de Loja. Ecuador ORCID https://orcid.org/0009-0007-0080-5393

[8]General Practitioner at "Hospital Vicente Corral Moscoso", Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0001-2366-3566

[9]General Practitioner at "Hospital Vicente Corral Moscoso", Faculty of Medical Sciences, Universidad Católica de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0000-0002-7517-7199

[10]Postgraduate doctor in orthopedics and traumatology at Faculdade de Ciências Médicas Minas Gerais. Belo Horizonte - Brasil. ORCID https://orcid.org/0000-0003-2497-0274

Corresponding Author: Bryam Esteban Coello García,*Address:* Rua Tiradentes 266.Campo Belo. Minas Gerais. Brasil, *Postal Code:* 37270-000

SUMMARY

Introduction: *Angina, or chest pain, is the most frequent symptom of ischemic heart disease, one of the primary origins of morbidity and mortality worldwide. Unstable angina falls within a spectrum under the general term acute coronary syndrome, being the leading cause of death worldwide.*

Objective: *to detail current information related to unstable angina, definition, etiology, epidemiology, anamnesis, physical examination, evaluation, treatment and prevention.*

Methodology: *a total of 28 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 16 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: angina, precordial pain, cardiac management, unstable angina, cardiac emergencies, treatment.*

Results: Coronary artery disease is estimated to cause more than one third of deaths in individuals over 35 years of age. It is the leading cause of death in this age group. The incidence is more frequent in men; however, as individuals exceed 75 years of age, the incidence between men and women becomes more balanced. The average age of presentation is 62 years. The basis of treatment focuses on improving coronary artery perfusion.

Conclusions: Unstable angina is characterized by an onset during rest, its diagnosis is clinical so it is of vital importance to know its clinical, epidemiological manifestations and its evaluation to reach a correct diagnosis, in order to guarantee a timely and adequate treatment. Since this condition continues to be a public health problem that affects a high percentage of the population on a daily basis, it is important to raise awareness of the problem and to try to prevent it by modifying lifestyle.

KEY WORDS: *angina, precordial pain, cardiology.*

INTRODUCTION

Angina, or chest pain, is the most frequent symptom of ischemic heart disease, one of the primary sources of morbidity and mortality worldwide. Chest pain can be due to cardiac and non-cardiac pathologies. Adequate anamnesis and physical examination are essential to differentiate between these origins and to identify individuals with acute coronary syndrome. Angina is one of the signs of acute coronary syndrome (ACS) and can be classified into stable and unstable angina. Stable angina is defined as the appearance of symptoms only with exertion, while in the case of unstable angina, symptoms appear at rest and require early assessment and appropriate management[1,2].

Unstable angina falls within a spectrum under the general term acute coronary syndrome. It is a public health problem that disturbs many people in the world on a daily basis and has become the leading cause of death worldwide. It is paramount to distinguish between this and several other sources of chest pain including stable angina. Health care providers should be aware of the signs and symptoms of acute coronary syndrome, because affected individuals rely on them to distinguish it from other sources of precordial pain. Usually affected individuals with symptomatology are directed to the emergency room, however, acute coronary syndrome can also present in the outpatient setting. Over time, a significant amount of research has been conducted to demonstrate the most effective and appropriate treatment modalities and diagnostic materials available to assess unstable angina and other variants of acute coronary syndrome[3-5].

METHODOLOGY

A total of 28 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 16 bibliographies were used because the information collected was not sufficiently important to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: angina, precordial pain, cardiac management, unstable angina, cardiac emergencies, treatment.

The choice of literature exposes elements related to unstable angina, definition, etiology, epidemiology, anamnesis, physical examination, evaluation, treatment and prevention.

DEVELOPMENT

Definition

Unstable angina is defined as myocardial ischemia at rest or minimal effort, in the absence of cardiomyocyte necrosis, as evidenced by the non release of cardiac biomarkers of myocardial necrosis into the circulation. With clinical diagnosis and is characterized by its onset at rest, with progressive intensity and recent onset[6].

Etiology

Chest pain can be of non-cardiac origin, from nonischemic heart disease, as well as from ischemic heart disease. Non-cardiac causes include gastroesophageal reflux disease, musculoskeletal causes, pulmonary disease and anxiety/panic attacks. Non-ischemic cardiac causes include pericardial disease. It is now widely accepted that the etiology of chest pain caused by cardiac ischemia is due to coronary artery atherosclerosis and coronary vasospasm. This condition leads to a mismatch between myocardial oxygen supply and demand. In stable angina, the increase in demand only occurs with exertion; on the other hand, in unstable angina it also occurs at rest. The increase in myocardial oxygen demand due to exercise is primarily due to increased blood pressure, heart rate and myocardial contractility, as well as other factors. In normal cardiac physiological conditions, the increase in oxygen demand generated by exertion and consequent coronary vasodilatation, however in cases of coronary artery atherosclerosis, this function is interrupted, leading to ischemia and chest pain[1,2,7,8].

Coronary atherosclerotic disease is the underlying reason for unstable angina in most individuals with acute myocardial ischemia. The most common origin of unstable angina is due to coronary artery narrowing caused by a thrombus that develops over a ruptured atherosclerotic plaque and is not occlusive.

A less common origin is vasospasm of a coronary artery (Prinzmetal's angina variant), due to endothelial or vascular smooth dysfunction[3,9].

Epidemiology

Coronary artery disease is present in a large part of the population. It is estimated that coronary artery disease causes more than one third of deaths in individuals over 35 years of age. It is the leading cause of death in this age group. It is estimated that around 18

million people in the USA alone are affected by this disease. The incidence is more frequent in men, however, as individuals exceed 75 years of age, the incidence between men and women becomes more balanced. Other risk factors are family history, obesity, high cholesterol, smoking, diabetes, hypertension, cocaine or amphetamine abuse, HIV, autoimmune disorders, anemia and chronic kidney disease. The mean age of presentation is 62 years. African-Americans have a propensity to show pathology at younger ages(3,10).

Unstable angina is caused by obstacles in the blood flow that generate a lack of perfusion in the myocardium. The initial perfusion starts directly from the heart towards the aorta and subsequently in the direction of the coronary arteries, which supply their respective parts of the heart. The left coronary artery branches into the circumflex artery and the left anterior descending artery. Subsequently, they branch into smaller vessels. The right coronary artery also has smaller branches. Unstable angina occurs when blood flow to the myocardium is impeded. Typically, this blockage may be caused by intraluminal plaque formation, intraluminal thrombosis, vasospasm, and elevated blood pressure. Usually, a mixture of these is the precipitating factor(3,11).

Factors that increase myocardial oxygen demand:
- AV shunts.
- Arrhythmias.
- Fever.
- Hypertension.
- Anemia.
- Thyrotoxicosis.
- Aortic stenosis.
- Pheochromocytoma.
- CHF.
- Cocaine use.

Anamnesis and Physical Examination
Affected individuals usually show chest pain and shortness of breath. Chest pain will usually be reported as a pressure type, however it does not necessarily present with this description. They may present with squeezing, burning, and sharp types of pain. Often the pain radiates to the jaw or arms, occurring on both the left and right sides. Other symptoms that may occur are nausea, diaphoresis, dizziness, vomiting and palpitations. Exertion may aggravate the pain and rest may decrease it. The use of nitroglycerin and aspirin may improve the pain. A characteristic factor of unstable angina is that the pain may not be fully restored with these reported relieving factors. In addition, several individuals present with coronary artery disease. This may denote established coronary artery disease or symptoms that they have been experiencing for a certain period of time.

These individuals may be accustomed to the symptoms and may report an increase in episodes of chest pain that will take longer to resolve, as well as an increase in the seriousness of the symptoms. These symptoms show that unstable angina is the most likely diagnosis, as opposed to stable angina or other causes of chest pain. It is vital to keep this in mind, because these differences may suggest impending myocardial infarction, ST-segment elevation myocardial infarction (STEMI), and should be assessed as soon as possible because of the risk of morbidity and mortality(3,12).

The examination is likely to be normal, however the patient may be chest tightening, shortness of breath, diaphoresis, tachycardic heart sounds and sometimes rales due to pulmonary edema. Findings suggestive of a high-risk situation are:
- Presence of rales and crackles.
- Hypotension.
- Dyskinetic apex.
- Elevated JVP.
- Presence of S3 or S4.
- New apical systolic murmur.

Evaluation
When a patient presents with symptoms suggestive of angina, he/she should be evaluated promptly and an ECG should be performed to assess for ischemic signs or possible STEMI. The ECG in unstable angina may show hyperacute T waves, flattened T waves, inverted T waves and ST segment depression. ST elevations indicate STEMI and these individuals should be managed with percutaneous coronary intervention or thrombolytics pending availability of catheterization. Acute coronary syndrome may be accompanied by any number of arrhythmias, including junctional rhythms, ventricular fibrillation, left bundle branch block, sinus tachycardia, ventricular tachycardia, and others. Most commonly, however, the individual is in sinus rhythm, primarily in the case of unstable angina rather than infarcted tissue.

The individual should have laboratory tests that include a complete blood count to evaluate anemia, platelet count and a basic metabolic profile to screen for electrolyte abnormalities. In addition it is advisable to perform fasting blood glucose, glycated hemoglobin (HbA1c) and thyroid stimulating hormone (TSH). A troponin test should be ordered to find out if any myocardial site has developed an infarction. A pro-brain natriuretic peptide (Pro-BNP) may be checked, because a higher level is associated with a higher risk of mortality. Coagulogram should be used if the affected individual will be anticoagulated or if anticoagulation is anticipated. Usually, a chest X-ray will present the size of the heart and mediastinum allowing to detect dissection, as well as other explanations of precordial pain.

It is important to stress the history to detect other possible emergent origins of chest pain, shortness of breath, pulmonary embolism, pneumonia, pneumothorax, aortic dissection, and esophageal rupture. The individual with angina should remain on a cardiac monitor to watch for any rhythm changes. Occasionally additional tests such as cardiac stress tests, treadmill stress test, myocardial perfusion imaging, cardiac CT/MRI or the gold standard, stress echocardiogram and cardiac catheterization may be performed. Typically, these are ordered and performed by

hospital care providers as well as primary care providers, however, with the rise of observational medicine, emergency medicine providers may request them(3,6,13).

Echocardiogram: allows assessment of ventricular function, as well as analysis of the contractility of the various segments. The presence of akinesia or hypokinesia in segments supplied by a coronary artery strongly suggests coronary artery disease. The echocardiogram also rules out some other origins of chest pain, such as valvular problems.

Chest X-ray: serves to rule out secondary causes of pulmonary origin, such as pleural effusion. In order to select the most appropriate complementary examination, it is important to know the probability that the affected individual is suffering from coronary artery disease(14).
Assessment of the risk of acute coronary syndrome:
- ST depression or elevation greater than 1 mm.
- Marked symmetrical T wave inversion.
- Previous MI or known history of CAD.
- Transient ECG or hemodynamic changes during chest pain.
- Chest, neck or left arm with documented angina.

Treatment
The basis of treatment focuses on improving perfusion of the coronary arteries. This is done in multiple ways.

Affected individuals can be managed with aspirin as antiplatelet therapy, 162 to 325 mg orally or 300 mg rectally, if the individual is unable to swallow. Aspirin should be given within 30 minutes. Clopidogrel is an alternative for aspirin intolerant individuals. Prasugrel is more effective than clopidogrel, however it is associated with a higher risk of bleeding. Ticagrelor is currently approved, in addition to aspirin, to decrease the rate of thrombotic cardiac events.

Nitroglycerin comes in multiple presentations, intravenous, sublingual, transdermal and oral, it improves perfusion through vasodilation of the coronary arteries, which allows optimizing blood flow and blood pressure. This will reduce the amount of work the heart must do, which reduces the heart's energy demand.

Supplemental oxygen should be administered through a nasal cannula to maintain correct oxygen saturation. These 3 actions are the most rapid and essential functions to perform in the assessment and treatment of unstable angina. In individuals with ongoing pain or longer recovery time, the response of the affected individual should be assessed because of a greater risk of myocardial infarction.

Other potential therapies include anticoagulation with high or low molecular weight heparin. Beta-blockers can also reduce energy demand by lowering blood pressure and heart rate. One drug ranolazine used in individuals with unstable angina showed a significant decrease in the endpoint of recurrent ischemia. Several

studies have validated the use of statins in individuals with unstable angina(3,15).
Diabetes is an independent predictor of adverse outcomes in individuals with medically managed unstable angina(16).
Cardiac angiography is indicated in unstable angina if the affected individual presents:
- Cardiogenic shock.
- Depressed ejection fraction.
- Angina refractory to pharmacological treatment.
- Unstable arrhythmias.
- Early PCI in NSTEMI (within the first 6 hours) has been shown to have lower mortality compared to those undergoing late PCI.

Differential Diagnosis
The differential diagnosis of angina can be classified according to body systems:
- Gastrointestinal: hiatal hernia, gastroesophageal reflux, peptic ulcer.
- Pulmonary: pneumothorax, pulmonary embolism, pneumonia.
- Musculoskeletal: muscle spasm, costochondritis, rib injury, chest wall injury.
- Psychiatric: panic attack, generalized anxiety.
- Non-ischemic cardiac: pericarditis, myocarditis.
- Vascular: aortic dissection(1).

In the specific differential diagnosis of unstable angina we have:
- Aortic dissection.
- Pulmonary embolism.
- Peptic ulcer disease.
- Pericarditis.
- Pneumothorax.
- Essential complications of unstable angina include:
- Myocardial infarction.
- Stroke.
- Death(3).

There is evidence showing that individuals with recent ST-segment elevation (more than 1 mm) have a 12-month MI or death rate of about 11%, compared to only 7% of individuals with only isolated T-wave inversion.
Negative prognostic factors include:
- Hemodynamic instability.
- Continuous congestive heart failure (CHF).
- Sustained VT.
- Recurrent episodes of angina despite maximal treatment.
- Low ejection fraction.
- New or worsening MR.

Prevention
The objectives of prevention are to enable the affected individual to return to all activities of daily living, in addition to preserving myocardial function and preventing future cardiac events. Currently, most cardiac centers have specialized teams, such as

cardiac rehabilitation, providing intensive and effective counseling.

- Lifestyle: smoking cessation is mandatory to prevent repeated cardiac events. Lipid-lowering individuals should aim for a target LDL-C level of 70 mg/dl or less, an HDL level of at least 35 mg/dl and a triglyceride level of less than 200 mg/dl. The affected individual should be physically active and have a low-fat diet.
- Control of hypertension: with the objective of maintaining blood pressure below 140/90 mm Hg, as well as reducing sodium and alcohol intake.
- Management of diabetes mellitus: blood sugar levels can be reduced with diet, physical activity or drug therapy.
- Weight control and nutritional counseling: the patient should be guided to lose weight and achieve an appropriate body mass index (BMI).
- Activity management: individuals at risk for unstable angina should avoid strenuous physical activity, particularly in cold weather.

CONCLUSIONS
Unstable angina is characterized by an onset during rest, its diagnosis is clinical so it is of vital importance to know its clinical and epidemiological manifestations and its evaluation to reach a correct diagnosis, in order to ensure timely and adequate treatment. Since this condition continues to be a public health problem that affects a high percentage of the population on a daily basis, awareness of the problem should be raised, in addition to trying to prevent it by modifying lifestyle.

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Conflict of Interest Statement
The authors report no conflicts of interest.

ON THE CREATION OF JOINT VIEWS ON ENGLISH AND UZBEK TRANSLATION SCIENCE

Sadiqova Salima Zohid Qizi
Doctoral Student, Namangan state university (Uzbekistan)

ANNOTATION
The article will discuss aspects and features of world translation studies, including transformational theories in English translation and their Uzbek translation schools, as well as discuss the development and history of translation thinking in the world.
KEYWORDS: *Translation, interpretation, analysis, transformation, alternative words and equivalence, translation, conduct, clarification*

INTRODUCTION

Translation is one type of art, translation study is one independent science with own objekt. The word "translation" is taken from the Arabic translation "tarjuma". And in persian language means "tarzabon", that is, a professional and a beautiful speaker. In the Turkic language, the term translations is also used with words such as chevirish, agdarish, o´tkazish (transpozition, etc.) [1].

In the work of Yusuf Khos Hajib "Kutadgu bilig," who lived in the XI century, [4] for the first time a version of a tilmach was met. The word is used in modern German as Dolmetschen. In world translation, in particular, in English translation, the widely used concept of translation studies is used, and among Germans it can also be noted that it is accepted in the form of Translation (first used by the Austrian translator Erich Prunch) and is recognized as the general concept of translation.

Translation is associated with linguistics, nolinguistics and literary science. Translation cannot be without language. but not every specialist who knows a foreign language cannot engage in translation. Therefore, the science of translation arose on the basis of linguistic science. In world translation in the early stages of this science, mainly the focus of the linguistic translator. The famous uzbek sceintist Gaybullah Salomov noted that the translation is based on creative activity, on the one hand, on the confrontation of two languages with languages and literature, and on the other, on agreement on relationships, recreating the original by means of an imitative language [1.151].

The analysis of the translation shows that the comparison of each individual language with other languages reflects specific results. Research on linguistic translation was originally published by Yeager (1975) and later by Wills (1977) and Koller (1979) of the Leipzig Young Linguistic School. By the 80s, German scientists Katarina Rice and Hans Vermeer had founded the Skopos theory in translation.

This proved that this science has not only linguistic, but also cultural spheres. The first studies in English translation refer to the American linguist and theologian Jugine Naida. In his book "Toward of science of translating" [5], he drew attention to the linguistic and semantic aspects of translation and expressed a special attitude to the issue of equivalence.

In the book of the Russian scientist I. Ubozhenko "Foreign re-education. Great Britain "[6] we can see an important lines of this problem. At the same time, it is appropriate to mention the directions of translability: 1) The theory of linguist translation. 2) Take a nationwide look at the translation. 3) Translation approach in terms of text analysis. 4) Empirical translation. 5) At the integration stage, you can specify view cables in the translation.

Translation is the process of replacing one text with another language. First of all, scientists believe that any theory of translation should be based on language theory - general language theory. One of them is the British translator J. Cutford.

In his views, J. Catford paid special attention to the lexical and syntactic aspects of the translation of the two languages. At the same time, he, relying on the theory of the British scientist A. K. Halliday "System Grammar" and the views of another English linguist J. Fers, notes that the origin of translation theory is based on comparative linguistics, which studies the relationship between the language of translation and the language of translation.

J. Cetford's work "Linguistic Theory of Translation" [7] played a significant role in the formation of modern world translation theory. J. Cetford's book was an attempt to construct in English translation an entire and completed theory of translation based on certain ideas about language and speech. He drew on the linguistics of J. Fers. J. Cetford laid down the tradition reflected in many works on linguistic theory of translation: he considered the problems of translation in advance, outlining the first general linguistic concepts. Briefly, the first work of the book

is devoted to the structure of the language, its unity, interaction between language and situations.

It is important that the issue of interchangeability of both languages and their capabilities, attention to changes in each linguistic phenomenon occurring in a speech process, in a certain context, was put on the agenda, indicating that language is considered as a system and its structural component is taken into account. The relationship of contextual changes resulting from the ratio of grammatical and consonant units directly to translation practice is justified. J. Catford first introduced the concept of text material into translation. At the same time, he emphasized that work on the text should not end and in this matter it is necessary to pay serious attention to the text, the information reflected in it.

In this monograph by the founder of the Uzbek school of translation, Gaibulla Salomov, "Translation from Russian to Uzbek," published in 1961, [2] for the first time, the text is not something in writing with dry data, but what we see on the surface as in a refrigerator, but the true meaning is hidden under it.

At the same time, after 3-4 years, the British scientist J. Catford published the essay "Linguistic Theory of Translation," which reflects the theory of linguist eiquivalence [7]. According to him:
- Translation for Catford is the process of replacing text with another language. And it is obvious that its definition is aimed at the process, which confirms the "replacement of the" fox instrument ";
- According to Catford, any translation theory should be based on language theory, a general language theory, the language categories of which can be used to describe and analyze the translation process. He was a student of Fert and Fert Hallidey and founded the theory of translation in functional language;
- Catford builds his story on the concept of equivalence, describing single-language translation as replacing text material with equivalent text material;
- Catford uses a number of translations according to three variables.

The fact is that Gaybulla Salomov, without full information about this study by the British translator John Catford, published in 1965, published the so-called "Language and Translation" in the Uzbek publishing house "Science" (3). It was in this book that he first analyzed in atrosflick the problems of linguistic translation and substantiated that he should rely on the achievements of the Slick sphere. This study, of course, was fabricated by an English colleague. First, it is based on the continents translated from Uzbek-Russian, Russian-Uzbek and fraternal Turkic peoples into Uzbek. Secondly, in the book of the Uzbek scientist, attention was paid not only to the fact of linguistic, but also to study, the national-cultural economy. Thirdly, G. Salomov, starting from the first studies, believes that the translation linguistic or literary education is.

Catford's attention that speech and speech are at the center of translation still contributed little to the perfection of communal-communication dialogue between translation texts. That this

theory also began to focus on aspects of translation related to culture and context was instrumental in creating broad opportunities for further research.

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EFFECT OF FAMILY INCOME LEVELS ON LEARNING OF PRIMARY SCHOOL GOING CHILDREN IN KAPEDO WARD IN TURKANA COUNTY- KENYA

Tom Odera Jimbo[1], Dr. Wilson Muna[2]

[1]*Kenyatta University,*
[2]*Department of Public Policy and Administration, Kenyatta University*

ABSTRACT

Access to basic education in conflict-prone communities is a significant challenge in Kenya. Empirical reviews had suggested that, during intercommunal conflicts, various factors influencing access to basic education were compromised. However, these influences manifest differently in distinct situations and locations. There has been limited research on how access to basic education was affected following intercommunal conflicts in Kapedo, Turkana County. The study aimed to examine the effect of family income levels on learning of primary school going children in Kapedo ward in Turkana County- Kenya. The study drew on three theories: Relative Deprivation theory, System Resource Theory, and Hierarchy of Needs Theory. It employed a descriptive survey research design, covering the entire population with two Ministry of Education officials, four headteachers, and twenty-four teachers as respondents. Data collection used a semi-structured questionnaire and an interview schedule, ensuring voluntary participation, confidentiality, and clarity of the study's purpose. The analysis combined descriptive statistics (frequencies, percentages, and averages) and inferential statistics (regression analysis) and presented results through charts and tables, with qualitative data analyzed thematically. The study revealed that family income affected education, with conflict-induced economic instability leading to resource allocation challenges and school attendance issues, especially for girls. The study recommends that the Ministry of Education and Local Authorities maintain the provision of essential learning resources, emphasizing administrative functionality, classroom safety, and resource access to enhance learning outcomes. Non-Governmental Organizations and Donors should support programs to address economic challenges during conflicts, offering financial assistance, livelihood opportunities, and scholarships for children's education.

KEY WORDS: *Family Income Levels, Learning, Access to Basic Education, Primary School Going Children, Intercommunal Conflicts*

INTRODUCTION
Access to Basic Education
Globally, millions of school-age children face deprivation of educational opportunities due to armed conflicts and natural calamities, with an estimated 27 million children unable to attend school in conflict-affected areas (UNICEF, 2017). Armed conflicts, though declining between nations, persist with significant consequences, particularly in regions such as the Middle East, the Balkans, and Africa (Piccolino, 2016). The education sector is notably impacted, as evidenced by cross-national analyses linking intercommunal conflict to reduced school attendance (Lai & Thyne, 2007; Shields & Paulson, 2015). Conflict-related repercussions extend to attacks on educational institutions, faculty members, and students in nations experiencing civil war, such as Niger, Congo, Nigeria, Afghanistan, Colombia, and DR Congo (UNESCO, 2011). Access to quality education is seriously jeopardized in conflict-affected countries like Somalia and Sudan (Ahmed, 2015).

Intercommunal conflicts not only hinder access to education but also affect its quality by diminishing resources through the destruction of facilities and displacement of education stakeholders, leading to a reduction in overall educational attainment (Valente, 2011; Justino, 2016). The government's diversion of resources meant for education to address security and humanitarian aid further exacerbates the situation, reflecting both the direct and indirect impacts of conflict on education (Omoeva et al., 2021; Blumar & Buttlan, 2008).

Conflict and access to Education in Africa
Report on Children and Armed Conflict highlighted 2018 as the worst year for children affected by armed conflict, with about 250,000 students impacted by school closures in Mali alone. Despite the recognized importance of investing in education to mitigate conflict, armed groups like Boko Haram in Nigeria and the Taliban in Afghanistan and Pakistan actively target schools in their attacks (Rohner & Saia, 2019). Conflict disrupts access to

education by causing injuries, fatalities, and displacements of both teachers and learners. Examples include the killing and displacement of teachers during the Rwandan genocide and school closures in Nigeria due to attacks on educational institutions (Buckland, 2005; Jones & Naylor, 2014). Moreover, conflict-induced population displacement, public health effects, increased family labor demand, and reduced public capacity contribute to the multifaceted challenges in maintaining access to and quality of education during conflicts (UNICEF, 2016).

Inter- Communal Conflicts and access to Education in Kenya
Wangare (2021) found that intercommunity disputes in Kenya stem from various factors such as resource rivalry, discrimination, tribal animosity, politics of exclusion, historical injustices, and unequal resource distribution. These conflicts have significantly disrupted education by impoverishing communities, leading to migration, school dropouts, and hindering the enrolment and retention of both learners and teachers. The impact of intercommunal conflicts on the education sector is evident in instances like the closure of over 10 schools in Kapedo, at the border of Baringo and Turkana counties in 2021. The schools, including Nginy'ang, Cheptunoiyo, Komolion, Chemolingot, Nalegat, Chesirimnyon, Kositei, and Chepkalacha primary schools, were shut down due to the conflict and only reopened after government assurances of residents' safety (Kipsang, 2021).

Statement of the problem
Access to basic education is one of the major concerns of a government. This is due to the role that education plays in development and stability. Studies on intercommunal conflict's consequences on Kapedo ward's learning and access to basic education have noted that children experience a low enrolment, retention and completion rates due to conflicts. These intercommunal conflicts lead to physical displacements of both learners and teachers, destruction of learning resources and a disruption to the education calendar (Sifuna, 2005). The fear that accompanies these conflicts also affects the children psychologically and also affects enrolment, retention and completion rates. The displacement of teachers causes the pupils to be moved to neighboring schools that could still be having teachers or leads to poor performance due to the inability of the teachers to complete the syllabus or give the required attention to the pupils. Some guardians also lose lives or get incapacitated in these intercommunal conflicts thus forcing the pupils to drop out of school to fend for themselves. The recurrent intercommunal conflict has great impact on access to basic education which impedes the government's effort in implementing the Education For All policy. It is in this regard that this study seeks to assess the effects of intercommunal conflict on access to basic education in Kapedo ward, Turkana County. Moreover, while several studies have been conducted on education in conflict areas, the challenges still persist as governments strive to find lasting solutions to the challenges faced in education in conflict prone areas. However, there is limited research on the effect of the state access to education on learning of primary school going children. It is this gap that the researcher seeks to fill.

Objective of the study
The objective of the study is to examine the effect of family income levels on learning of primary school going children in Kapedo ward in Turkana County- Kenya.

Research Question
What is the effect of family income levels on learning of primary school going children in Kapedo ward in Turkana County- Kenya?

LITERATURE REVIEW
Access to Basic Education
The first nine years of formal education are classified as basic education, comprising two levels: Level 1, equivalent to elementary education, and Level 2, corresponding to lower secondary school (Shaw, 2021). This initial phase, primarily provided through primary education, plays a crucial role in shaping individuals' future learning and cognitive development. UNHCR (2021) emphasizes the significance of basic education in raising public awareness, fostering self-improvement, reducing chronic and intergenerational poverty, and addressing fundamental insecurities associated with illiteracy and innumeracy. Access to basic education not only establishes the foundation for literacy and numeracy but also allows for the identification of gifted and struggling young minds, enabling timely corrective measures (Hodal, 2016). However, challenges persist in achieving universal access to basic education, with estimates suggesting a need for millions of additional primary school teachers, particularly in Sub-Saharan Africa and South Asia (Hodal, 2016). This underscores the ongoing struggle to ensure comprehensive basic education globally and the potential consequences of limited access for both individuals and society as a whole.

Family Income Levels and Learning of Primary School Going Children
According to Shuani (2016), there are three types of household income and these are Real Income, Money Income and Psychic Income. Money Income is an individual or a household's purchasing power over a given period of time. Money income is therefore all earnings accruing to a family in the form of any medium of exchange over a specified period of time. These may include wages, profits, salaries, sick benefits, rent, interest, pensions, gifts, dividends, royalties, securities. Real income refers to the quantity of consumer goods, services, and public goods and services that are available during a particular time period. Both consumer and producer items make up real income. The happiness that a family experiences as a result of using their actual and financial resources is known as psychic income. Psychic income is intangible and subjective since it varies from one individual to the other and is also referred to as enjoyment

income. This revenue is the result of a period of time's worth of proper use of real and monetary income..

Han and Lv (2017) used an empirical study of CHNS data in China to investigate how family income influences children's schooling. According to the study, a child's educational attainment is significantly influenced by family wealth. The study also shown that raising family income can raise the children's educational attainment in those homes.. It also shown that, despite the fact that parental money has little bearing on children's academic performance, rising income does have a higher impact on raising children's educational attainment. A family that is financially secure may offer more, particularly in the area of educational resources. On the other hand, low-income families must choose between providing for their families' needs and sending their children to school, and frequently they may prioritize providing for their own needs. The study, however, was conducted in a developed country as compared to the current study.

In their study, Jurges, Stella, Hallaq, and Schwarz (2022) explored the impact of violence on primary school performance among children in households, specifically focusing on the severity of the Israeli-Palestinian conflict during the Second Intifada in the West Bank. The researchers utilized family income as a categorical variable, analyzing its net monthly impact. The study revealed that heightened exposure to conflict had a lasting effect on the long-term educational achievement of children. Another study conducted by Marbuah (2017), using data from the Ghana Living Standards Survey 2012/2013, investigated the relationship between parents' income and their children's educational success in Ghana (Marbuah, 2017). The research found a positive correlation between parental income and academic success, emphasizing the role of income levels in shaping educational opportunities and learning resources for students as parents directly contribute to supporting their children's education. These studies collectively underscore the critical influence of contextual factors, such as conflict and income, on children's educational outcomes..

At Haramaya University in Eastern Ethiopia, Gobena (2018) looked at the effect of a family's socioeconomic position on students' academic achievement. The research method used was a descriptive survey. The study found no evidence that learners' academic achievement was directly influenced by their family's socioeconomic condition. In nomadic regions, raising livestock, growing cereal crops, conducting small-scale business, and raising other associated cash crops were the major economic activity However, the poor infrastructure and lack of market led to little or no sufficient income from these activities and this negatively affected learning at the university as some of the students could either not attend college or would be involved in activities to sustain their families. The study was however conducted on a University and was carried out in a different geographical location.

Galgallo (2014) examined the factors affecting pupils' retention in Kenya's arid North-Horr District and Marsabit County public primary schools. Eight (8) head teachers, 44 instructors, and 96 students in class 8 made up the research sample. Due to starvation, parents betrothed their daughters, which resulted in early pregnancies and underage prostitution among enrolled students. The study discovered that the loss of a household's main source of income has a substantial influence on student retention rates in public elementary schools in dry areas.. The study came to the conclusion that students' participation in home economic activities had an impact on retention rates in public elementary schools in dry areas. The study however, was not in the context of intercommunal conflict.

Summary of Literature Gaps
With respect to the effect of family income levels on access to basic education in the context of intercommunal conflicts, the followings gaps emerge. Han and Lv (2017) in China, Jurges, Stella, Hallaq and Schwarz (2022) in Israeli-Palestinian, Adzido, *et al.* (2016) in Ghana and Gobena (2018) in Eastern Ethiopia are examples of studies conducted in a different geographical context from Kenya. Some studies focused on a different dependent variable. For instance, Adzido, *et al.* (2016) was on the academic performance of tertiary students, and Gobena (2018) on students' academic Achievement, while the current study is on access to basic education.

THEORETICAL FRAMEWORK
Relative Deprivation theory
This study was based on the Relative Deprivation theory of conflict by a Sociologist Samuel A. Stouffer (1900-1960). Relative Deprivation theory (Gurr, 1970) gives a description that is built on the difference among groups projected and real access to wealth and influence. If it could be, countries known for wars would be the most racially dissimilar which in fact not the case is. Definitely, it may well be that ethnic and spiritual fractionalization even decreases the danger of fierce war (Collier, 1999), possibly since it inspires different sets to get to know the abilities of living together regardless of cultural differences (Chakravarty & Mukherjee, 1999). Once such knowledge course flops, nonetheless, cultural multiplicity may lead to exacerbation of war and upsurge the probability of stern growth, exactly because it brings about fertile material for political recruitment (Walter & Ambrosio, 2007).

This theory is applicable to this study in that in areas in which minorities' experienced economic bias, inequalities in living standards contrary to other tribes, and unbalanced provisions of national opportunities like land and wealth, inter-ethnic war was more possible to erupt. Such circumstances triggered tribal politics, and served to marshal a society's supporters. This increased the chances of the war intensifying from the prevailing tribal pressures. These tensions that lead to conflict have adverse effects on schools, pupils and teachers.

System Resource Theory
The study used Yutchman and Seashores' System Resource Theory (1967). According to the notion, achieving organizational goals requires making an effort to find, share, and efficiently use limited resources. According to the theory, institutions like inputs like human, physical, and material resources are changed in schools. to produce desired outcomes. Similar to a business, schools use inputs to get desired results (Oni, 1995). After being accepted into a school, students engage with the teaching and learning materials, which produce learning outcomes. A school can achieve quality learning results if Its material and physical resources are sufficient and well used. Academic achievement is regarded as a yardstick for a good education all over the world. The achievement or failure of students reveals how resources have been used..

Hierarchy of Needs Theory
Abraham Maslow's Hierarchy of Needs Theory serves as the basis for this investigation (1943). According to Maslow, there are certain fundamental needs that must be met in order to live decently. They are sometimes referred to as physiological requirements. These include things like food, housing, and healthcare. Prior to addressing other wants like security, love, affection, and self-actualization, these needs must be met. This theory is pertinent to the research since it contends that basic needs, such as those for food, shelter, and security, must first be met before considering attending school. Failure to meet these needs would foster a lack of interest and commitment to education by all the education stakeholders. In a conflict prone area like Kapedo, conflict over community resources causes families to flee and become homeless. Businesses and other economic activities are also affected by the inter clan conflicts. These affect the provision of the basic human needs which end up affecting access to education and learning of primary school going children.

RESEARCH METHODOLOGY
Research Design
A descriptive survey research design in the context of one organization was adopted for the study. The study examined access to basic education in the context of intercommunal conflict and the learning of primary school-going children in Kapedo ward of Turkana County. The design was appropriate since it aided in the management of quantitative data gathered through questionnaires. The design was a quick and inexpensive way of investigation, and the researcher had complete control over subject selection.

Variables/Categories of Analysis
The study variables were as follows. The independent variables were availability of learning resources and facilities, family income levels, cultural practices and tradition, and staffing rates. The dependent variable of the study was learning of primary school-going children. The study was carried out among Head teachers and Teachers of schools in Kapedo ward, Turkana East Sub County, as well as Ministry of Education Officials in the area. The categorical variables of the study included gender, age group, and educational level. The discrete variable had five levels, and thus was treated as a continuous variable. Treating the predictor as continuous variables implied that regression analyses were computed in the relationship between the response and the predictor.

Target Population
The study's target population included 24 teachers, 2 Ministry of Education officials, and 4 head teachers. Kapedo ward domiciled four basic education institutions: These were Kapedo Girls Primary School, Kapedo Mixed Boarding Primary School, Silale Primary School, and Lomelo Primary School.

Sampling Techniques and Sample Size
In consideration of the small population sample size, the study employed the census approach, and thus, the entire population was studied. The study respondents consisted of 2 Ministry of Education officers (1 QASO and Zonal officer), 4 Head teachers, and 24 teachers.

Data Collection
For this study, semi-structured questionnaires and an interview schedule were employed as data collection methods. The majority of the data gathered was qualitative data. The interview schedule was used to obtain information from Ministry of Education officials and Head teachers, while the questionnaire was utilized to collect data from the teachers. A pilot research was carried out in the surrounding Nadome region with 10% of the study sample. The data collected were used to improve the quality of the research tools.

Validity & Reliability
The study presents its approach to ensuring the validity and reliability of the instruments used. Construct and content validity of the questionnaire were established through collaboration with approved college research supervisors, with a focus on enhancing the instrument's quality by eliminating unclear items. Reliability was assessed using the test-retest approach, and a correlation coefficient of 0.7 or more was considered strong, indicating the suitability of the questionnaire for data collection.

Data Analysis and Presentation
The questionnaire's quantitative data was updated to remove discrepancies. The replies were edited to ensure that they are accurate, comprehensive, and appropriate for further processing. The Statistical Package for Social Sciences (SPSS) version 25 software was then used to code and analyze quantitative data. The researcher analyzed the data using both inferential statistics (Pearson Correlations and regression analysis), and descriptive statistics (frequency, means, and percentages). The results for quantitative analyses were presented in the form of charts and tables. The following was the regression model:

$Y = \beta_0 + \beta_2 X_2 + \varepsilon$

Where:
Y= Learning of primary school children
X2 = Family Income
B0 = Constant
β2 = Coefficients of determination
ε= Error Term
Qualitative data was analysed using textual analysis and presented in prose form.

RESULTS
Response Rate
The study achieved a 100% response rate from the Ministry of Education Officials, Head Teachers, and Teachers in Turkana County, who showed a high level of interest and cooperation in addressing the issue of intercommunal conflict and its impact on access to education. The data collected from the respondents is expected to provide reliable and valid information for the study, and to inform policy and practice for improving access to basic education in conflict-affected areas.

Demographic Characteristics
The findings show that the respondents are predominantly male (66.7%), which indicates a gender imbalance that may affect the study's results and implications. The gender distribution should be taken into account when analyzing the data and addressing any gender-specific issues related to education and conflict. It was shown that the respondents have a diverse age range, with most of them being between 26 and 35 years old (45.8%) or between 36 and 55 years old (41.7%). The age diversity can help to identify any variations in perspectives or experiences among different age groups regarding education and conflict. The age distribution also reflects the typical age group of teachers in educational settings.

The results show that the respondents have different levels of academic achievement, with most of them holding a certificate (79.2%) or a diploma (16.7%), and only a few having a degree (4.2%). The academic qualifications may influence the respondents' insights and opinions on education and conflict. The academic background of the respondents should be considered when interpreting the findings and ensuring their relevance.

It was found that the respondents have different lengths of employment at their current educational institutions, with most of them having less than 5 years (29.2%) or between 11 and 15 years (29.2%) of experience. The employment length distribution is relatively balanced, which can help to reduce the bias related to experience affecting the results. The employment length distribution also suggests that the sample is representative of the educational workforce in the region. The paragraph also cites a recent study by Kipkoech et al. (2021) that shows the high turnover rate of teachers in Kapedo schools due to conflicts.

Frequency of Conflicts
The frequency of conflicts in the studied area is a crucial aspect to consider when assessing their impact on education. The responses from various key informants provide insights into the nature of these conflicts. According to the Resp 1, the conflicts tend to occur sporadically, lacking a fixed pattern or schedule. Similarly, the Resp 2 notes that the conflicts vary in frequency but have occurred periodically over the years. Head Teachers 1, 2, and 3 also emphasize the irregular nature of conflict incidents, with instances of intensity when they do happen. HT 4 further added that conflicts occur intermittently, making it challenging to predict when they'll take place. This varying and unpredictable frequency of conflicts raises important questions about their potential disruptions to the educational process and underscores the need for adaptive strategies to mitigate their impact on students and schools.

The respondents were asked to provide their perspectives on the frequency of conflicts in the area. The question posed to them was, "How often do the conflicts occur?" Their responses revealed varying viewpoints on the matter. Resp 1 mentioned that conflicts in the area occur sporadically, without adhering to any fixed pattern. This implies that the conflicts are not predictable and may happen at irregular intervals. Resp 2, shared that the conflicts exhibit a varying frequency but have occurred periodically over the years. This response suggests that there is some degree of consistency in the occurrence of conflicts, even though they are not strictly regular.

HT 1 expressed that conflict incidents have taken place irregularly, but when they do happen, they can be quite intense. This response highlights the unpredictability of the conflicts and the potential for them to escalate. HT 2, noted that the conflicts have no specific schedule and happen unpredictably. This emphasizes the absence of any discernible pattern in the conflicts' occurrence. HT 3 indicated that the frequency of conflicts can be sporadic, without following a set pattern. This response aligns with the notion that conflicts are sporadic and lack predictability. Finally, HT 4 stated that the conflicts occur intermittently, making it difficult to predict when they will happen. This response underscores the irregular nature of conflicts in the area.

It is evident that there is a consensus among the respondents that conflicts in the area do not follow a fixed or predictable pattern. The terms used, such as "sporadic," "irregular," and "unpredictable," all convey the idea that the occurrences of conflicts are not easily anticipated. However, some respondents also pointed out that there may be periods when conflicts occur with more intensity, which could have implications for the community's preparedness and response strategies. These diverse perspectives provided by the respondents offer valuable insights into the nature of conflicts in the area, emphasizing the need for flexibility and adaptability in managing and mitigating such events.

Descriptive Statistics for Family Income Levels

The findings regarding the impact of reduced household income due to conflicts on families' priorities for children's education suggest that, on average, respondents are in agreement that economic instability resulting from conflicts noticeably affects how families allocate resources for education. This aligns with a study in Kenya conducted by Ndung'u and Njoka (2019), which found similar effects of conflict-related income reduction on education priorities, highlighting the relevance of these findings.

When examining the statement concerning the influence of a shift in family financial status due to conflicts on pupils' school attendance, the mean score of 3.375 indicates a general agreement among respondents that changes in family financial status due to conflicts influence school attendance among pupils. These findings are consistent with a study by Chege and Sifuna (2020), emphasizing the role of economic factors in determining school attendance in conflict-prone regions in Kenya.

The assertion regarding the impact of reduced family income due to inter-communal conflict on parents pushing their children into early marriage at the expense of schooling yielded a mean score of 3.3333. This mean score suggests that respondents, on average, agree that reduced family income resulting from inter-communal conflicts contributes to parents pushing their children into early marriages instead of prioritizing their education. This aligns with a study in Kenya by Kiplagat et al. (2020), which found that conflict-induced poverty often leads to early marriages among girls, supporting the findings in this study.

Regarding whether reduced family income due to inter-communal conflict leads to girls dropping out of school due to pregnancies and involvement in prostitution, the mean score of 3.7083 indicates that respondents, on average, agree that reduced family income resulting from inter-communal conflict has serious consequences for girls' education and well-being. This finding is consistent with the results of a study conducted by Mwenda and Njiru (2019), which highlighted the association between conflict-related poverty and girls' dropout rates in Kenyan schools.

On the impact of the loss of household livelihood on the retention levels of students in public primary schools, the mean score of 3.6250 suggests that respondents generally agree that the retention levels of students in public primary schools are affected by the loss of household livelihoods. This finding is in line with a study by Ondari-Okemwa and Nyagah (2018) in Kenya, which emphasized the adverse effects of livelihood loss on student retention, reinforcing the importance of addressing economic stability to improve educational outcomes.

The results regarding reduced family income leading parents to prioritize food and shelter over educational provisions for their children recorded a mean score of 3.6250. With this mean score, respondents, on average, agree that economic challenges often overshadow investments in education, particularly in meeting basic needs. These findings are consistent with a study by Kamau and Njoroge (2021), which highlighted the trade-off between economic survival and educational investments in conflict-affected areas of Kenya.

The interview schedule participants were asked about the impact of armed conflict on household income. The Quality Assurance and Standards Officer (QASO) pointed out that armed conflict often leads to economic instability, which negatively affects household income. The Zonal Officer concurred, stating that household income can decrease due to conflict, as it disrupts economic activities. The head teachers, represented by Head Teachers 1, 2, 3, and 4, echoed similar sentiments, emphasizing that conflict tends to reduce opportunities for livelihoods and income sources, leading to financial strain for households.

Table 1: Descriptive Statistics for Family Income Levels

	N	Min	Max	Mean	Std. Deviation
Reduced household income due to conflicts has made families change their priorities on children's education	24	1.00	5.00	3.8750	1.19100
A shift in family financial status due to conflicts affects pupils' school attendance	24	1.00	5.00	3.3750	1.01350
Reduced family income due to inter communal conflict has made parents push their children to early marriage at the expense of schooling	24	1.00	5.00	3.3333	1.30773
Reduced family income due to inter communal conflict has made girls' drop out of school due to pregnancies and prostitution	24	1.00	5.00	3.7083	1.23285
The retention levels of students in public primary schools are impacted by the household's loss of livelihood.	24	1.00	5.00	3.6250	1.27901
Reduced family income made parents concentrate on food and shelter, at the expense of educational provisions for the children	24	2.00	5.00	3.6250	1.05552
Valid N (listwise)	24				

Qualitative Responses

The question of how armed conflict affects household income is a complex one, as different factors can influence the economic outcomes of households in conflict-affected areas. However, based on the results from the Resp 1, Resp 2, and the four Head Teachers, the analysis was as follows. The respondents generally

agreed that armed conflict has a negative impact on household income, as it disrupts the normal functioning of the economy and reduces the opportunities for livelihoods. Resp 1, stated that armed conflict often leads to economic instability, while the Resp 2 mentioned that household income can decrease due to conflict. The four Head Teachers also expressed similar views, noting that conflict tends to reduce the sources of income for households, especially those dependent on local economic activities. Therefore, the respondents suggested that armed conflict can cause a decline in household income, leading to financial strain and hardship for many families.

The participants were asked about how changes in family income due to conflict affect the learning of primary school-going children. The Resp 1 and Resp 2, highlighted that reduced family income can limit children's access to essential educational resources and services. The respondent 2, Resp 2 expanded on this by mentioning that decreased income can result in children facing challenges in accessing educational materials and support. The head teachers, represented by Head Teachers 1, 2, 3, and 4, reiterated these points, emphasizing that lower family income can hinder students' ability to access necessary school supplies, meet their educational needs, and may create financial barriers that affect their educational progress.

The question of how the change in family income due to conflict affects learning of primary school-going children is an important one, as it relates to the quality and equity of education in conflict-affected areas. Based on the results from the Resp 1, the Resp 2, and the four Head Teachers, the analysis of their opinions was as follows. The respondents generally agreed that reduced family income can have a negative impact on the learning of primary school-going children, as it can limit their access to essential educational resources and services. The Resp 1 stated that reduced family income can limit access to educational resources and services for children, while the Resp 2 mentioned that decreased income can result in children facing challenges in accessing educational materials and support. The four Head Teachers also expressed similar views, noting that lower family income can hinder students' ability to access necessary school supplies and support their learning, lead to students facing difficulties in meeting their educational needs, and result in students experiencing financial barriers that affect their educational progress. The respondents suggested that the change in family income can limit students' access to educational resources and opportunities, which can have adverse effects on their learning outcomes and well-being.

The participants were asked to indicate in what ways the change in family income due to conflict affect learning of primary school-going children? This qiestion addresses the impact of changes in family income due to conflict on the learning of primary school-going children. The responses from various educational stakeholders consistently highlight that reduced family income can have adverse effects on children's education. The Quality

Assurance and Standards Officer (RESP 1) points out that this decrease in income has the potential to restrict students' access to crucial educational resources and services, which may, in turn, impede their learning. The Zonal Officer adds that decreased income can lead to challenges in accessing educational materials and support, affecting the educational experience of children.

The question of how the change in family income due to conflict affects the learning of primary school-going children is an important one, as it relates to the quality and equity of education in conflict-affected areas. The results from the Resp 1, the Resp 2, and the four Head Teachers show that they all emphasize that lower family income can restrict students' access to necessary school supplies, affecting their educational progress. This consistent feedback underscores that the change in family income due to conflict is a significant factor influencing children's education. The Resp 1 stated that reduced family income can limit access to essential educational resources and services for children, while the Resp 2 mentioned that decreased income can result in children facing challenges in accessing educational materials and support. The four Head Teachers also expressed similar views, noting that lower family income can hinder students' ability to access necessary school supplies and support their learning, lead to students facing difficulties in meeting their educational needs, and result in students experiencing financial barriers that affect their educational progress. The respondents suggested that the change in family income can limit students' access to educational resources and opportunities, which can have adverse effects on their learning outcomes and well-being.

The respondents to the interview schedule were asked to indicate what their experience was with regard to the effects of conflict on family income and learning. The question sought to gather insights into the experiences of educational stakeholders regarding the effects of conflict on family income and its subsequent impact on learning. The responses align in highlighting that conflicts often lead to families diverting resources away from education to meet basic needs, as observed by the Resp 1. The Resp 2 notes that families affected by conflict struggle to prioritize education due to financial constraints, directly impacting children's learning. The question of how the change in family income due to conflict affects the learning of primary school-going children is an important one, as it relates to the quality and equity of education in conflict-affected areas. The results from the Resp 1, the Resp 2, and the four Head Teachers indicate that they all share the experience of how conflicts strain family resources, sometimes resulting in students missing school or dropping out. This shared experience emphasizes that conflict-related changes in family income pose substantial challenges to supporting children's education, reflecting the intricate interplay between socio-economic factors and learning outcomes.

The respondents all pointed out how conflicts can affect family income and consequently impact children's education. The Resp 1 stated that conflicts often lead to families diverting resources

away from education to meet basic needs, while the Resp 2 mentioned that families affected by conflict struggle to prioritize education due to financial constraints. The four Head Teachers also expressed similar views, noting that conflicts can strain family resources, making it challenging for students to access quality education, and sometimes resulting in students missing school or dropping out. The respondents suggested that the economic consequences of conflict often translate into difficulties for families in supporting their children's education, and reduce investments in education. The respondents highlighted the importance of addressing the socio-economic challenges faced by families in conflict-affected areas, and ensuring that children have access to quality education.

The respondents were asked to suggest in what ways learning can be cushioned from the effects of conflict on family income. This sought to address the critical issue of cushioning learning from the adverse effects of conflict on family income. Several approaches are proposed to safeguard education in such circumstances. The Quality Assurance and Standards Officer (Resp 1) suggests providing financial assistance or scholarships to affected families, ensuring that children can continue their education. The question of how the change in family income due to conflict affects the learning of primary school-going children is an important one, as it relates to the quality and equity of education in conflict-affected areas. The results from the Resp 1, the Resp 2, and the four Head Teachers indicate that they all propose various strategies to address the financial challenges faced by families in conflict-affected areas, and to ensure continued access to education for their children.

The respondents all suggested different ways to provide financial assistance or support to affected families and students, aiming to create safety nets and preserve access to education, even in the face of financial challenges. The Resp 1 stated that efforts can be made to provide financial assistance or scholarships to affected families, while the Resp 2 highlighted the importance of collaborative initiatives with NGOs and government programs to offer financial support for affected students. The four Head Teachers also expressed similar views, emphasizing community-based support systems and initiatives, flexible payment options and fee waivers, donor interventions and community partnerships, and community-driven education funds as viable strategies to assist families in need during conflict times. The respondents emphasized the importance of addressing the socio-economic challenges faced by families in conflict-affected areas, and ensuring that children have access to quality education.

The respondents were asked to indicate how family income can be secured from the effects of conflict. The question delved into the broader issue of securing family income from the disruptive effects of conflict. The responses from the RESP 1, Zonal Officer, and Head Teachers 1 and 2 focus on enhancing families' economic resilience. Suggestions include diversifying income sources, promoting income-generating activities, empowering communities with vocational skills, and facilitating livelihood

support programs. Head Teachers 2 and 3 propose creating savings and credit cooperatives and strengthening local economies through entrepreneurship and job creation. These multifaceted strategies aim to help families withstand the financial shocks of conflict, ensuring their long-term income security. Additionally, HT 4 recommends education and awareness campaigns to assist families in understanding and planning for income security in conflict-prone areas, offering a comprehensive approach to address this challenging issue.

The question of how the change in family income due to conflict affects the learning of primary school-going children is an important one, as it relates to the quality and equity of education in conflict-affected areas. The results from the Resp 1, the Resp 2, and the four Head Teachers indicate that they all suggest various ways to improve income security and resilience for families in conflict-affected areas, and to enhance their economic opportunities and well-being.

The respondents all proposed different ways to diversify income sources and promote income-generating activities for families in conflict-affected areas, aiming to reduce their vulnerability and empower them during and after conflicts. The Resp 1 stated that diversifying income sources and promoting income-generating activities can help families become more resilient to conflict-related shocks, while the Resp 2 highlighted the importance of empowering communities with vocational skills and economic opportunities. The four Head Teachers also expressed similar views, suggesting government and NGOs can facilitate livelihood support programs, creating savings and credit cooperatives, strengthening local economies through entrepreneurship and job creation, and education and awareness campaigns as viable strategies to improve income security and resilience for families in conflict-prone areas. The respondents emphasized the importance of addressing the socio-economic challenges faced by families in conflict-affected areas, and ensuring that they have access to quality education and economic opportunities..

Descriptive Statistics for Learning of Primary School-Going Children

The statement reading "The school is able to implement the school curriculum effectively" has a mean score of 3.46. This indicates that, on average, respondents believe that schools in Kapedo Ward are moderately effective in implementing the curriculum. This indicates that there is room for improvement in aligning teaching methods and resources with the curriculum. This suggests a need for curriculum review and teacher training programs to enhance the effectiveness of curriculum delivery.

The statement "The teachers and learners are able to complete the school syllabus in time" has a mean score of 3.67, reflecting a moderate level of agreement. The results suggest that there is reasonable progress in syllabus coverage but room for enhancing efficiency. Schools may benefit from strategies that ensure

syllabus completion without rushing through topics, such as improved time management and resource allocation.

The statement "The teachers are able to optimally deliver the desired lessons" scored a mean of 3.75. This indicates that teachers are generally perceived to be doing reasonably well in delivering lessons. This is a positive finding, as effective teaching is crucial for student learning. However, continuous professional development opportunities for teachers could further enhance their teaching skills.

The statement "The learners continue to register high academic achievement amidst conflicts" has a mean score of 3.67. Despite the challenges posed by conflicts, learners are still achieving moderate academic success. This highlights the resilience of students in adverse circumstances. This underscores the importance of maintaining educational opportunities even in conflict-affected areas, as students can still achieve academic success. This finding highlights the remarkable resilience and determination of students in the face of adverse circumstances such as conflicts. Despite disruptions and limited resources, these learners manage to perform well academically, showcasing their commitment to education and their ability to adapt and overcome challenges. This result underscores the importance of maintaining educational opportunities even in conflict-affected areas, as it demonstrates that students can excel academically when provided with the necessary support and resources.

The statement "School attendance rates registered are impressive among the learners" received a mean score of 3.46. This suggests that attendance rates are decent but could be further improved. The moderate mean score indicates that school attendance is not a major concern in the study area. It suggests that a significant portion of primary school-going children in Kapedo Ward regularly attend school. Impressive school attendance rates are essential for ensuring that children have consistent access to education, which is crucial for their academic development and future opportunities. High attendance rates can contribute to the overall quality of education and improve learning outcomes among primary school learners. Strategies to enhance attendance, such as community involvement and addressing barriers to attendance, should be explored.

The statement "The environment is accommodative for learning" scored a mean of 3.54. This indicates that the learning environment in Kapedo Ward is perceived to be moderately conducive to learning, with some aspects that may need enhancement. This implies that certain conditions are in place to facilitate learning, such as adequate infrastructure, a safe and conducive atmosphere, and resources that enhance the learning experience. However, the moderate score suggests that there may still be challenges or areas where improvements can be made to create an even more supportive and enriching learning environment for primary school-going children in Kapedo Ward. In a related study conducted in Kenya's conflict-affected regions, such as parts of Turkana County and neighboring areas (Chepkorir & Njoroge, 2019), similar findings were observed,

where students displayed resilience and determination in their pursuit of education despite the challenges posed by conflicts. These findings align with the broader literature on education in conflict zones, emphasizing the significance of education as a means of empowerment and hope for students in such contexts (UNESCO, 2020).

Qualitative Analysis
The respondents were asked about their ability to adequately cover the syllabus and how they managed this challenge during conflict times. The Quality Assurance and Standards Officer (RESP 1) acknowledged that adequately covering the syllabus can be challenging during conflicts. Schools often adjust schedules, provide catch-up sessions, or focus on essential topics to manage. According to the Resp 2, schools may prioritize core syllabus content and extend the academic calendar when necessary to ensure that students receive a comprehensive education. The Head Teachers recognized that covering the syllabus may require flexibility, additional support for students, and effective time management strategies. They also mentioned that teachers may adapt teaching methods and emphasize key concepts to ensure that students grasp essential knowledge despite time constraints caused by conflicts. Furthermore, schools employ strategies such as accelerated learning programs and supplementary materials to ensure that the syllabus is adequately covered, even in conflict-affected areas. The responses were as follows.

The question of how schools and teachers manage to cover the syllabus during conflict times is an important one, as it relates to the quality and continuity of education in conflict-affected areas. The respondents generally agreed that adequately covering the syllabus can be challenging during conflict times, but schools and teachers often employ various strategies to ensure that students receive a comprehensive education. The Resp 1 stated that schools often adjust schedules, provide catch-up sessions, or focus on essential topics to manage, while the Resp 2 mentioned that schools may prioritize core syllabus content and extend the academic calendar when necessary. The four Head Teachers also expressed similar views, noting that covering the syllabus may require flexibility, additional support for students, and effective time management strategies, that teachers may adapt teaching methods and emphasize key concepts to ensure that students grasp essential knowledge despite time constraints caused by conflicts, that schools and teachers strive to deliver the curriculum by optimizing available teaching time and resources, and that schools often employ strategies such as accelerated learning programs and supplementary materials to ensure that the syllabus is adequately covered, even in conflict-affected areas. The respondents suggested that schools and teachers demonstrate resilience and innovation in delivering the syllabus, and that they require adequate support and guidance to ensure quality and equity of education.

The results indicate that schools and teachers face various challenges in covering the syllabus during conflict times, such as disruptions, delays, and shortages of resources. However, the results also show that schools and teachers adopt various measures to overcome these challenges, such as adjusting the curriculum, providing extra support, and using alternative methods. The results imply that schools and teachers are committed to ensuring that students do not miss out on essential learning, and that they are willing to adapt to the changing circumstances. The results also highlight the importance of supporting schools and teachers in their efforts to cover the syllabus, and ensuring that they have access to relevant and updated curriculum materials and guidelines. The results suggest that covering the syllabus during conflict times is a complex and dynamic process that requires collaboration and coordination among various stakeholders, and that it is essential to monitor and evaluate the effectiveness and impact of the strategies employed.

The question of how learners' participation in learning is affected by conflict is a relevant one, as it relates to the quality and continuity of education in conflict-affected areas. Based on the results from the Resp 1, the Resp 2, and the four Head Teachers, an analysis of their opinions was as follows. The respondents generally agreed that learners' participation in learning may decrease during conflict due to various factors, such as safety concerns, disruptions, and challenges. However, the respondents also suggested that schools and teachers work to maintain and enhance learners' participation in learning through alternative and adaptive methods, such as providing support, motivation, and continuity. The Resp 1 noted that learners' participation in learning may decrease during conflict due to safety concerns, but schools work to maintain engagement through alternative methods, such as radio or online learning. The Resp 2 emphasized that conflict can disrupt students' participation in learning, but efforts are made to adapt teaching approaches and ensure continued engagement, such as using interactive and participatory methods.

The four Head Teachers also expressed similar views, mentioning that learners may exhibit reduced participation during conflicts, but schools aim to create a supportive learning environment to encourage engagement, such as providing counseling and peer support. They also noted that conflict situations can lead to fluctuations in learners' participation, but schools seek to foster a sense of continuity in the learning process, such as extending the academic calendar and providing catch-up sessions. The respondents suggested that during conflicts, students may face challenges that affect their participation, but schools strive to keep them motivated and involved in learning activities, such as celebrating achievements and providing feedback.

The results indicate that learners' participation in learning is influenced by the conflict context, and that it may vary depending on the intensity and duration of the conflict. However, the results also show that schools and teachers play a vital role in ensuring that learners' participation in learning is not compromised, and that they employ various strategies to engage and support learners during conflict times. The results imply that schools and teachers are committed to providing quality and inclusive education, and that they are willing to innovate and adapt to the changing circumstances. The results also highlight the importance of supporting schools and teachers in their efforts to enhance learners' participation in learning, and ensuring that they have access to relevant and updated resources and guidelines. The results suggest that learners' participation in learning during conflict times is a complex and dynamic process that requires collaboration and coordination among various stakeholders, and that it is essential to monitor and evaluate the effectiveness and impact of the strategies employed.

The question of how learner performance is affected by conflict is a relevant one, as it relates to the quality and continuity of education in conflict-affected areas. Based on the results from the Resp 1, the Resp 2, and the four Head Teachers, the analysis was as follows. The respondents generally recognized that learner performance may be affected during conflict, but they also highlighted the resilience and efforts of many students to succeed academically. The RESP 1 stated that learner performance may be affected during conflict, but many students exhibit resilience and make efforts to succeed academically, while the Resp 2 acknowledged that performance during conflict can fluctuate, but emphasized the determination and perseverance demonstrated by many learners. The four Head Teachers also expressed similar views, noting that learner performance may face challenges during conflict, but some students manage to excel despite adverse circumstances, that conflict times may pose obstacles to learner performance, but students often demonstrate adaptability and the ability to overcome adversity, that during conflict, learner performance may vary, but schools support students in achieving their academic goals to the best of their abilities, and that learner performance can be influenced by conflict-related disruptions, but some students excel through their dedication to learning. The respondents suggested that learner performance during conflict is not uniform, and that it depends on various factors, such as the intensity and duration of the conflict, the availability and quality of resources and support, and the individual characteristics and circumstances of the learners.

The results indicate that learner performance is influenced by the conflict context, and that it may vary depending on the situation and the learner. However, the results also show that many learners demonstrate remarkable resilience and efforts to achieve their academic goals, and that they do not let the conflict deter them from learning. The results imply that learners are committed to pursuing their education, and that they are willing to adapt and overcome the challenges posed by the conflict. The results also highlight the importance of supporting learners in their academic endeavors, and ensuring that they have access to relevant and updated resources and guidance. The results suggest that learner performance during conflict is a complex and dynamic process

that requires collaboration and coordination among various stakeholders, and that it is essential to monitor and evaluate the effectiveness and impact of the strategies employed.

Table 4. 1: Descriptive Statistics for Learning of Primary School-Going Children

	N	Min	Max	Mean	Std. Deviation
The school is able to implement the school curriculum effectively	24	1.00	5.00	3.4583	1.38247
The teachers and learners are able to complete the school syllabus in time.	24	1.00	5.00	3.6667	1.43456
The teachers are able to optimally deliver the desired lessons	24	2.00	5.00	3.7500	1.22474
The learners continue to register high academic achievement amidst conflicts	24	1.00	5.00	3.6667	1.16718
School attendance rates registered are impressive among the learners.	24	1.00	5.00	3.4583	1.25036
The environment is accommodative for learning	24	1.00	5.00	3.5417	1.28466
Valid N (listwise)	24				

Correlations

The results in Table 2 show statistically significant positive correlations between family income, and the learning outcomes of primary school-going children in Kapedo ward. All correlation coefficients are above 0.68, and the p-values are less than 0.001, indicating strong associations. Family income shows a significant positive correlation (Pearson Correlation = 0.688, p < 0.001) with the learning outcomes of primary school children. This implies that students from families with higher incomes tend to perform better in their studies. This finding aligns with the study conducted by Kamau and Mwangi (2019) in Kenya, which highlighted the role of socioeconomic factors, including family income, in shaping students' academic achievements. This result also aligns with the findings of Nyokabi and Karugu (2020), who found that family income significantly influences the educational achievement of Kenyan primary school students.

Table 2: Correlation between Access to Education and Learning of Primary School Going Children

		Learning of Primary School Going Children
Family Income	Pearson Correlation	.688**
	Sig. (2-tailed)	.000
	N	24

Regression Analysis

In this section, we present the results of the multiple regression analysis conducted to examine the relationship between various factors and their impact on the learning outcomes of primary school-going children in Kapedo ward, Turkana County, Kenya. The analysis includes three key components: the Model Summary, ANOVA (Analysis of Variance), and the Coefficients table. These components provide valuable insights into the predictive power of the selected variables and their significance in influencing the learning of primary school children. The model aims to assess how factors such as school infrastructure, family income, cultural practices, and the availability of learning resources and facilities collectively contribute to explaining variations in the learning outcomes of these students. Each of these components will be discussed in detail, offering a comprehensive understanding of the findings and their implications for education in the study area.

Model Summary

The R Square value of .931 indicates that approximately 93.1% of the variance in the learning of primary school-going children can be explained by the predictors included in the model, which consist of School Infrastructure, Family Income, Cultural Practices, and the Availability of Learning Resources and Facilities. This high R Square value suggests that these factors collectively have a significant influence on the learning outcomes of children in the study area.

The Adjusted R Square, which accounts for the number of predictors in the model, is .916. This adjusted value reaffirms the model's strong explanatory power while penalizing for any unnecessary variables. The Standard Error of the Estimate (0.31812) represents the average error in predicting the learning outcomes of primary school-going children. A lower value indicates a more precise prediction. In this case, the relatively low standard error suggests that the model provides a reasonably accurate estimate of learning outcomes based on the chosen predictors. Lastly, the Durbin-Watson statistic, with a value of 0.814, is used to detect the presence of autocorrelation in the model's residuals. A value close to 2 suggests no significant autocorrelation, indicating that the model's assumptions are met.

Analysis of Variances (ANOVA)

Table 3 presents the results of an Analysis of Variances (ANOVA) conducted to examine the effects of access to education on the learning outcomes of primary school-going children in Kapedo ward, Turkana County, Kenya. The table provides insights into the impact of various predictors, including school infrastructure, family income, cultural practices, and the availability of learning resources and facilities, on the dependent variable, which is the learning of primary school-going children.

The ANOVA results reveal a statistically significant relationship between the predictors and the learning outcomes of primary school-going children (F = 63.961, p < 0.001). This indicates that the combined influence of school infrastructure, family income, cultural practices, and the availability of learning resources and facilities significantly affects the children's learning.

Table 3: Analysis of Variances (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.892	4	6.473	63.961	.000[b]
	Residual	1.923	19	.101		
	Total	27.815	23			

a. Dependent Variable: Learning of Primary School Going Children
b. Predictors: (Constant), School Infrastructure, Family Income, Cultural Practices, Availability of Learning Resources and Facilities

Beta Coefficients

Table 4 Beta Coefficients presents the results of a study aimed at understanding the effects of access to education on the learning outcomes of primary school-going children in Kapedo Ward, Turkana County, Kenya. This table displays the unstandardized coefficients, standardized coefficients (Beta), t-values, and significance levels (Sig.) for various independent variables related to the children's learning outcomes. The table includes variables such as Availability of Learning Resources and Facilities, Family Income, Cultural Practices, and School Infrastructure.

Table 4: Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	-.056	.309		-.181	.859
Availability of Learning Resources and Facilities	.628	.146	.664	4.304	.000
Family Income	.164	.121	.150	1.358	.190
Cultural Practices	.052	.101	.046	.516	.612
School Infrastructure	.178	.133	.165	1.333	.198

The following was the regression model:
$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$
Substituting with the values
$Y = -0.056 + 0.664 X_1 + 0.150 X_2 + 0.046 X_3 + 0.165 X_4 + \varepsilon$

The results show that availability of learning resources and facilities has ($\beta = 0.628$, p =0.000). The beta coefficient for the availability of learning resources and facilities is 0.628, indicating a positive and statistically significant relationship with learning outcomes (p < 0.05). The positive and statistically significant relationship between learning outcomes and the availability of learning resources and facilities highlights the critical role these resources play in a conflict-prone area like Kapedo. In such regions, where disruptions to education are common due to conflicts, having access to adequate learning resources and facilities can significantly enhance the educational experiences and outcomes of primary school children. This finding aligns with the local context, where improved access to resources may act as a stabilizing factor in the face of frequent disruptions, contributing to better learning outcomes. This implies that when children have access to adequate learning resources and facilities, their learning outcomes tend to improve.

The beta coefficient for family income is 0.164, suggesting a positive relationship with learning outcomes, though it is not statistically significant (p =0.190; p > 0.05). While the beta coefficient for family income is positive ($\beta = 0.164$), its lack of statistical significance (p > 0.05) suggests that the influence of family income on learning outcomes may not be as pronounced as in other settings. In Kapedo, where conflicts disrupt normal life, other factors such as resource availability and safety may have a more substantial impact on learning outcomes. The positive relationship indicates that higher family income may still contribute positively to learning outcomes, but this effect is tempered by the unique challenges posed by the conflict-prone environment.

The beta coefficient for cultural practices is 0.052, indicating a weak and non-significant relationship with learning outcomes (p = 0.612; p > 0.05). This suggests that, in this study, cultural practices do not have a substantial impact on children's learning outcomes. The weak and non-significant relationship ($\beta = 0.052$, p > 0.05) between cultural practices and learning outcomes suggests that, in the context of Kapedo, cultural practices do not exert a significant influence on children's educational achievements. However, it is essential to delve deeper into specific cultural practices to understand their dynamics fully. In conflict-affected areas, cultural practices may undergo changes or

adaptations in response to the security and social challenges faced by communities.

The beta coefficient for school infrastructure is 0.178, showing a positive but non-significant relationship with learning outcomes ($p = 0.198$; $p > 0.05$). The positive but non-significant relationship ($\beta = 0.178$, $p > 0.05$) between school infrastructure and learning outcomes implies that while improved infrastructure is beneficial, it may not be the sole determinant of learning success in Kapedo. Other factors, such as teacher quality, safety, and resource availability, may also play critical roles. Enhancing school infrastructure remains important, but it should be part of a broader strategy to improve education in conflict-prone areas. This implies that while improved school infrastructure may contribute to better learning outcomes, it is not the sole determining factor. Other variables may also influence student performance.

CONCLUSION

The study concludes that family income levels significantly affect children's education, influenced by economic instability due to conflicts, impacting resource allocation, school attendance, early marriages, and dropout rates, particularly among girls. However, family income's influence on learning outcomes may be overshadowed by factors like resource availability and safety in conflict-prone areas.

RECOMMENDATIONS

Support to programs and initiatives that address the economic challenges faced by families due to conflicts: Non-Governmental Organizations and Donors should consider supporting programs and initiatives that address the economic challenges faced by families due to conflicts in Kapedo. These programs can provide financial assistance, livelihood opportunities, and scholarships to mitigate the impact of reduced family income on children's education. This recommendation is based on the finding that family income levels significantly affect various aspects of children's education.

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GENDER STEREOTYPING IN SELF-LEARNING MODULES (SLMs) IN THE PHILIPPINES: A CRITICAL DISCOURSE ANALYSIS

Edzsell B. Sayao, PhD

Cor Jesu College, Digos City, Philippines

ABSTRACT

This study aimed to determine the processes employed in embedding male and female characters in the Self-Learning Modules (SLMs) in the Philippines, how these processes reflect gender stereotype, and the underlying ideologies embedded in them. This study utilized a qualitative research method employing Critical Discourse Analysis. In the conduct of this study, 51 SLMs from the Department of Education Central Office which served as the corpora of the study were examined. The results showed six processes employed in embedding male and female characters which include material, mental, relational, behavioral, verbal, and existential. In addition, these processes reflect gender stereotypes as shown in: Males Doing, Females Behaving, Males Sensing, Females Saying, Males as Cognitive and Desiderative Characters, and Females as Perceptive and Emotive Characters. Lastly, the ideologies embedded in the SLMs are traditional and egalitarian.

KEYWORDS: *Education, Linguistics, Qualitative, Self-Learning Modules, processes, gender stereotyping, ideologies, critical discourse analysis, Philippines*

INTRODUCTION
Background of the Study

Designing and developing any learning material is a crucial task for educators. In fact, Hanoi et al. (2010) argue that learning materials have a crucial role in shaping the values, attitudes, and social skills essential to achieving gender equality, a cornerstone of both the Millennium Development Goals (MDGs) and the goals of Education for All (EFA). However, based on EFA Global Monitoring Report issued by United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2012, there still can be found gender stereotyping in education.

There is a long history of portraying men and women stereotypically in children's and youth's learning materials (Ullah & Skelton, 2016). In Saudi Arabia, AlJumiah (2016) found that hidden discourses in the EFL textbooks contain gender ideologies, such as male dominance and women's marginalization. In the Philippines, Tarrayo (2014) found that Philippine preschool English language textbooks are still rife with sexist ideologies. These are apparent in textbook examples and images, such as males being more visible in terms of appearances or females being dominantly assigned to reproductive roles such as doing household chores.

At the height of the implementation of the Self-Learning Modules (SLMs) as a new type of learning material used by schools all over the Philippines, an emerging controversy made rounds on social media platforms as there are several reports of the Department of Education's printed SLMs containing gender stereotyping, asymmetries, and biased gender representations (Antonio, 2020). In the self-learning modules, men were described to be "strong, logical, and brave" while women were "weak, dependent, and fragile," among other things (Antonio, 2020). In addition, in Negros Oriental, social media users had pointed out several printed grade 8 modules with one asking learners to classify "roles" for men and women, such as washing dishes, cleaning the house, and taking ballet lessons (Deiparine, 2020).

Many scholars have attempted to investigate learning materials focusing on gender stereotyping (AlJumiah, 2016; Amerian & Esmaili, 2015; Jannati, 2015; Samadikhah & Shahrokhi, 2015; Sulaimani, 2017). For instance, Jannati (2015) compared gender roles as they appeared in Iranian EFL textbooks by focusing on adjectival and pictorial representations employing content and semiotic analyses. In the Philippines, Java and Parcon (2016) assessed gender role depiction in textbooks. Findings revealed that traditional gender roles pervaded in various content. Males gravitate toward productive and community roles, whereas females are oriented toward the reproductive roles.

There has been a considerable, increasing amount of literature on gender stereotyping among learning materials and its effects on their audience. However, many studies have focused on gender stereotyping in textbooks only. In addition, these studies focused only on the roles that men and women portray that manifest

gender stereotyping. Only a limited number of studies focused on the processes employed in embedding gender stereotyping in these materials. With self-learning modules practically replacing the textbooks as part of the new educational system in the Philippines during the pandemic era, no single study has examined the gender stereotyping and the processes employed in embedding male and female characters in these materials in the Philippine context.

Therefore, it is paramount that the Department of Education curriculum specialists, SLMs designers, division heads, school administrators, and educators should pay attention to the processes employed in embedding male and female characters and the underlying ideologies constructed in these SLMs. Thus, the final product of this research undertaking will be community involvement through a stakeholders' forum articulating the research findings to the abovementioned stakeholders who may benefit from the results of the study. Lastly, findings of the study will be presented to local, national and international research conferences and the whole research will be submitted to an international journal for publication in order to contribute to the pool of existing knowledge available in the field.

Purpose of the Study
The goal of this qualitative research employing Critical Discourse Analysis was to undertake analysis of SLMs in the Philippines. Specifically, this study aimed to identify the processes employed in embedding male and female characters in the SLMs and how these processes reflect gender stereotypes. Lastly, this study aimed to determine the underlying ideologies embedded in the SLMs.

Research Questions
1. What processes are employed in embedding male and female characters in SLMs?
2. How do the processes reflect the gender stereotype?
3. What underlying ideologies are embedded in the SLMs?

Research Design
This study employed qualitative research design using Critical Discourse Analysis as an approach. It is a qualitative research since it deals with a variety of analytic procedures with the intention of analyzing gender stereotyping in SLMs in the Philippines. Specifically, this study employed Critical Discourse Analysis as an approach to determine the processes employed in embedding male and female characters in SLMs, how these processes reflect gender stereotype, and the underlying ideologies embedded in the SLMs.

In employing CDA in this study, Fairclough's Three-dimensional Model (TDM) was used as the main method. Fairclough's TDM consists of three stages or dimensions such as description, interpretation, and explanation with corresponding types of analysis that were performed: textual analysis, processing analysis and social analysis, respectively.

The first stage of Fairclough's model involves describing the text. It was done by identifying the processes employed in embedding male and female characters in SLMs. The second stage involved providing an interpretation by determining how these processes reflect gender stereotype. Lastly, the final stage involves analyzing the SLMs within the social and cultural contexts. This was done by determining the underlying ideologies embedded in the SLMs.

Research Material
This study utilized a set of corpora in the form of Self-Learning Modules. A total of 51 SLMs coming from the Department of Education Central office were analyzed. Specifically, the corpora analyzed were the SLMs in English subject that were used by grades seven (7) to ten (10) students enrolled in the public schools for school years 2020-2021 and 2021-2022. The researcher chose these grade levels since the users of these learning materials are mostly in the adolescent stage between 12 to 17 years old. Bowler and Weinraub (2018) argue that people in the adolescent stage have the developmental task of adjusting to changes in societal role. In this study, the SLMs are seen as critical as it has the power to influence the students' perceptions and ideologies since they are still adjusting to the social norms which basically include gender roles. Lastly, English 7 to 10 SLMs for one quarter of school year 2020-2021 and another one quarter for school year 2021-2022 were used for data analysis.

Data Analysis
In analyzing the data in this study, Critical Discourse Analysis (CDA) approach was utilized, particularly Fairclough's Three-Dimensional Model (TDM). Specifically, it employed Halliday's Transitivity System, Goatly's Hierarchy of Participant's Power (HOPP) Framework, and Somech & Drach-Zahavy's Ideological Framework.

Firstly, in the textual analysis, which involved the identification of the processes employed in embedding male and female characters in the SLMs, the framework of Halliday's (1994) Transitivity System was used. Specifically, this was done by identifying the significant clauses/statements from the SLMs and by selecting the clauses that used male and female characters as data. The raw data were then classified on the data sheets.

Secondly, in the processing analysis, it involved the identification as to how these processes reflect gender stereotype. This was done by comparing the processes employed using Goatly's (2002) Hierarchy of Power framework based on their various roles in the different types of clauses or processes. Further, the researcher compared the power relations between male and female characters by determining which character dominates each type of process and which character is considered as more powerful or powerless based on the roles of the participants.

Finally, in order to perform the social analysis, the researcher employed Somech and Drach-Zahavy's (2016) categories of gender ideologies in order to determine the underlying ideologies embedded in the SLMs. This was done by categorizing them as to traditional, egalitarian and transitional.

RESULTS
Processes Employed in Embedding Male and Female Characters in SLMs

Table 1

Male Characters		
Type of Process	**Sample Text From the SLMs**	**Code**
Material	Transitive Material Process • He fixed a trap in the tree. • Prince Bantugan led his soldiers to defend the country. • Prince Madali transferred the soul of Prince Bantugan from the bottle to his body. • Dad packed a first aid kit, some water, food, a whistle, a blanket, a flashlight, and my little sister's medicine. • Father brushed his old Army uniform and borrowed a pair of shoes from one of my brothers. • The delivery man brought the package for me. • The boy gives him the piece of white Gold. • Tea was invented accidentally by the Chinese Emperor Shen Nong in 2737 B.C.	SY20-21_Eng7_Q2_ Mod4#20pg11 SY20-21_Eng7_Q2_ Mod3#55pg5 SY20-21_Eng7_Q2_ Mod3#69pg7 SY20-21_Eng8_Q2_ Mod1#74pg20 SY21-22_Eng7_Q4_ Mod5#210pg11 SY20-21_Eng9_Q2_ Mod1#135pg22 SY21-22_Eng7_Q4_ Mod3#188pg10 SY20-21_Eng7_Q2_ Mod4#25pg14
	Intransitive Material Process • He works hard for his family. • Pope John Paul II visited the Philippines on January 12, 1995.	SY20-21_Eng8_Q2_ Mod2#79pg2 SY21-22_Eng7_Q4_ Mod1#182pg
Mental	Cognitive • Fortunately, his father understood her feeling. • Ulap was instantly hypnotized by her beauty. • Statesmen envisage that particular agreement in whose development they themselves had played a crucial part will preserve their names for future generations. • He thinks that the SDRRMC did an excellent job. • He dreamt of reading "Robinson Crusoe." • At age 8, Nick thought of committing suicide because he thought he did not have hope.	SY20-21_Eng8_Q2_ Mod4#91pg6 SY21-22_Eng7_Q4_ Mod6#217pg5 SY20-21_Eng7_Q2_ Mod4#40pg30 SY20-21_Eng8_Q2_ Mod5#98pg9 SY20-21_Eng7_Q2_ Mod3#10pg13 SY21-22_Eng9_Q4_ Mod2#257pg6
	Perceptive • The boy could hear other ladies laughing and talking in the large house. • Jack felt a bead of sweat trickle down his face…	SY20-21_Eng9_Q2_ Mod3#148pg16 SY20-21_Eng9_Q2_ Mod3#146pg15
	Desiderative • He needs to buy the materials in the mall but he forgot his face mask. • Elizabeth's father disapproved of their love. • He wants to buy the suede shoes.	SY21-22_Eng9_Q4_ Mod1#252pg7 SY20-21_Eng9_Q2_ Mod1#138pg23 SY20-21_Eng9_Q2_ Mod3#157pg22 SY20-21_Eng7_Q2_ Mod4#12pg3

	• Caboboy's husband, Jek-Jek, decided to meet his foreman…	
	Emotive • He hates indolence. • because he was loved by his mom and dad. • The two brothers rejoiced at seeing each other. • He could enjoy, even was it under a thatched roof, health of the meanest of his servants. • I believe that Benjamin dearly loves his family. • yet he has inspired millions of people to dream big. • I believe that Benjamin dearly loves his family.	SY20-21_Eng7_Q3_ Mod3#47pg2 SY21-22_Eng8_Q4_ Mod6#249pg7 SY21-22_Eng10_Q3_ Mod3#303pg10 SY20-21_Eng7_Q2_ Mod4#39pg29 SY20-21_Eng8_Q2_ Mod2#78pg2 SY21-22_Eng9_Q4_ Mod2#267pg6 SY20-21_Eng8_Q2_ Mod2#78pg2
Relational	• The king was so enraged. • Prince Bantugan is so brave. • Prince Bantugan was a good, brave, and handsome prince. • The lad was fortunate to be saved by the dog from the snatcher. • Jose Rizal is our country's national hero • Grandpa was 85 years old. • Melchizidek, king of Salem meaning peace, is an archetype of Christ. • The brother had grown neither rich nor poor. • Prince Bantugan became very weary from his travels. • The PMA cadets stay enthusiastic. • The king looked angry. • The marching PMA Cadets looked amazing on the grandstand. • He has the eye of a tiger. • He had some beautiful daughters. • He has a beautiful wife and two sons. • The Lord is my shepherd. • He is really Mrs. Jones' son.	SY21-22_Eng7_Q4_ Mod6#226pg14 SY20-21_Eng7_Q3_ Mod3#53pg5 SY20-21_Eng7_Q3_Mod3#71pg13 SY20-21_Eng8_Q2_Mod5#100pg9 SY20-21_Eng8_Q3_ Mod1#109pg3 SY21-22_Eng9_Q4_ Mod3#269pg3 SY21-22_Eng9_Q4Mod3#276pg7 SY21-22_Eng10_Q3_ Mod4#302pg10 SY20-21_Eng7_Q3Mod3#58pg5 SY20-21_Eng9_Q2_ Mod2#142pg3 SY20-21_Eng7_Q3_ Mod3#49pg5 SY20-21_Eng9_Q2_ Mod2#140pg3 SY20-21_Eng8_Q2_ Mod5#97pg3 SY21-22_Eng8_Q4_ Mod6#246pg7 SY21-22_Eng9_Q4_ Mod2#246pg6 SY21-22_Eng9_Q4_ Mod3#275pg6 SY20-21_Eng9_Q2_ Mod3#155pg22
Behavioral	• He displays eagerness to see his old friends. • He will look with contemptuous eye on marble, on gold and on purple. • He sees the beggar woman seated next to the leper. • The rich man appeared at a window and glowered down at us. • Father strutted around the courtroom… • One day, the king saw the beautiful tomb. • That same day, Jesus *sat* beside the sea. • The brother was living in a village.	SY20-21_Eng7_Q2_ Mod1#3pg12 SY20-21_Eng7_Q2_ Mod4#38pg29 SY21-22_Eng7_Q4_ Mod3#193pg11 SY21-22_Eng7_Q4_ Mod5#205pg10 SY21-22_Eng7_Q4_ Mod5#213pg13 SY21-22_Eng7_Q4_ Mod6#223pg14 SY21-22_Eng9_Q4_ Mod3#273pg5 SY21-22_Eng10_Q3_ Mod3#302pg10
Verbal	• Mr. Santos said, "Dear son, I can still remember when my father told me his secret. • "Aye, aye, captain. I will do what I am told," yelled the young cadet.	SY21-22_Eng8_Q4_ Mod5#233pg11 SY20-21_Eng8_Q2_ Mod5#96pg2 SY21-22_Eng7_Q4_ Mod3#191pg11

	• The Star-Child says that he cannot become king…	SY21-22_Eng9_Q4_ Mod3#279pg12
	• The Apostle Paul in his letters to the Hebrews said that Faith is the confidence in what we hope for and the assurance about what we do not see (Hebrews 11:1).	SY21-22_Eng7_Q4_ Mod5#209pg11
	• He told Father the man claimed that for years we had been stealing the spirit of his wealth and food.	SY21-22_Eng7_Q4_ Mod6#221pg6
	• King Makusog proclaimed that the two shall be buried together since it is not right to separate what death has united as one.	SY20-21_Eng9_Q2_ Mod1#132pg17
	• The Prime Minister explained _____ (clear, clearly) his points of view.	SY20-21_Eng9_Q2_ Mod2#145pg12
	• Martin Luther King Jr. delivered his speech on August 28, 1963 at the Lincoln Memorial, Washington DC in the United States of America.	SY20-21_Eng10_Q2_ Mod2#159pg2 SY21-22_Eng7_Q4_ Mod5#200pg1
	• So far, he hasn't told her the truth.	SY21-22_Eng9_Q4_ Mod3#277pg7
	• A man questions himself about what decision to make.	
	• Jesus told these stories with heavenly meanings (Parables)…	
Existential	• A hundred years ago there lived a king. • There was a young boy named Fred. • There were two brothers set out on a journey together.	SY21-22_Eng8_Q4_ Mod6#245pg7 SY21-22_Eng8_Q4_ Mod6#247pg7 SY21-22_Eng10_Q3_ Mod3#293pg9

Female Characters		
Type of Process	**Sample Text From the SLMs**	**Code**
Material	Transitive Material Process • Princess Datimbang placed flowers upon the bed. • The ladies shrieked and tore their hair. • She got her survival kit from her closet. • She coiled and grabbed a blanket. • Once, she nearly threw her guitar against a wall. • The lady is eating sweet food. • The old woman gave the first woman a sack of rice that would never be empty. • To the other she gave a bottle of water that would never be drained dry. • And she opened and spread her arms out to them in welcome.	SY20-21_Eng7_Q3_ Mod3#335pg6 SY20-21_Eng7_Q3_ Mod3#341pg7 SY20-21_Eng8_Q2_ Mod1#349pg20 SY20-21_Eng9_Q2_ Mod2#399pg3 SY21-22_Eng9_Q4_ Mod3#514pg3 SY21-22_Eng10_Q4_ Mod2#549pg6 SY21-22_Eng10_Q3_ Mod4#529pg9 SY21-22_Eng10_Q3_ Mod4#530pg9 SY21-22_Eng10_Q3_ Mod4#536pg14
	Intransitive Material Process • She ate from the fridge this morning. • She had studied all night.	SY20-21_Eng9_Q2_ Mod2#400pg3 SY20-21_Eng10_Q2_ Mod2#421pg2
Mental	Cognitive • Most female middle school students thought that brown made them feel bored, and so did the male middle school students! • Our elderly neighbor, Anna, knew about the evacuation.	SY21-22_Eng10_Q4_ Mod1#542pg28 SY20-21_Eng8_Q2_ Mod1#345pg20

	• She *thought* about the cold meal (she *ate* from the fridge this morning). Perceptive • She felt somehow frail looking at the girl with dark eyes. • Daragang Magayon was startled by this revelation. • She too was hypnotized by the lad's stance. Desiderative • She values humility. • Mrs. Jones wants to adopt Roger. • She wanted an ice cream bar. • since she does not want the food. Emotive • She had fallen deeply in love with the handsome stranger. • Princess Datumbang fell in love with him. • Camille's mom hates dogs. • She struggled to start the athlete talking again. • She admires the LGBTQ for being so brave in showing people who they really are.	SY20-21_Eng9_Q2_ Mod2#400pg3 SY20-21_Eng9_Q2_ Mod3#404pg15 SY21-22_Eng7_Q4_ Mod6#465pg5 SY21-22_Eng7_Q4_ Mod6#466pg6 SY20-21_Eng7_Q3_ Mod3#338pg2 SY20-21_Eng9_Q2_ Mod3#414pg22 SY20-21_Eng10_Q2_ Mod2#423pg2 SY21-22_Eng10_Q4_ Mod2#546pg6 SY20-21_Eng7_Q3_ Mod3#338pg6 SY20-21_Eng7_Q3_ Mod3#324pg13 SY20-21_Eng9_Q2_ Mod3#402pg15 SY21-22_Eng7_Q4_ Mod2#442pg11 SY20-21_Eng8_Q2_ Mod5#359pg9
Relational	• She has impeccable conduct. • Patrick's mom was disgusted by his very bad grades. • Our neighbor's little girl is very honest in answering questions. • Women leaders are better than men when handling a health crisis. • Women are very sensitive compared to men. • "My mistress' eyes are nothing like the sun…" • Women are careful drivers. • This time, the young woman felt rejected. • The sultana, who's pregnant, however, was lost in the woods. • Thus, Bidasari became the new queen of the kingdom. • She must be over 90 years old. • She admires the LGBTQ for being so brave in showing people who they really are. • She *thought* about the cold meal.	SY20-21_Eng7_Q3_ Mod3#331pg2 SY20-21_Eng8_Q2_ Mod5#362pg10 SY20-21_Eng8_Q2_ Mod5#370pg19 SY20-21_Eng8_Q3_ Mod1#374pg3 SY20-21_Eng8_Q3_ Mod1#377pg10 SY20-21_Eng9_Q2_ Mod1#394pg15 SY20-21_Eng10_Q2_ Mod3#426pg2 SY21-22_Eng7_Q4_ Mod2#441pg11 SY21-22_Eng7_Q4_ Mod6#470pg14 SY21-22_Eng7_Q4_ Mod6#475pg14 SY21-22_Eng9_Q4_ Mod1#501pg5 SY20-21_Eng8_Q2_ Mod5#359pg9 SY20-21_Eng9_Q2_ Mod2#400pg3
Behavioral	• whenever she looks in the mirror. • The beautiful Princess Datimbang watched nearby. • The young ladies smiled. • Holding a toothpaste, a beauty queen *smiles.* • The lady was crying. • The woman was sitting on the day-bed. • The woman squatted on the ground. • She barely stands. Fyokla, a little beggar-girl of six, is running through the village.	SY21-22_Eng7_Q4_ Mod5#458pg8 SY20-21_Eng7_Q3_ Mod3#337pg6 SY20-21_Eng7_Q3_ Mod3#334pg5 SY20-21_Eng8_Q3_ Mod2#385pg14 SY20-21_Eng8_Q3_ Mod2#385pg14 SY20-21_Eng9_Q2_ Mod3#410pg17 SY20-21_Eng7_Q2_ Mod4#324pg9 SY21-22_Eng8_Q4_ Mod6#493pg5 SY21-22_Eng10_Q4_ Mod4#524pg3

Verbal	• Princess Datimbang asked him what the matter was.	SY20-21_Eng7_Q3_ Mod3#339pg6
	• Although my aunt lives abroad, she sometimes calls us to say hello.	SY20-21_Eng8_Q2_ Mod5#357pg2
	• In her speech, Ms. Flora thanked her family for their constant love and support.	SY20-21_Eng8_Q2_ Mod2#355pg2
	• She talks spontaneously and fluently.	SY20-21_Eng9_Q2_ Mod1#392pg3
	• She [*sayer*] speaks 5 dialects, so she must be clever.	SY20-21_Eng10_Q2_ Mod4#429pg5
	• Ana delivered a short message in front of the children.	SY20-21_Eng9_Q2_ Mod1#393pg3
	• She responded to Max that she was unavailable.	SY21-22_Eng8_Q4_ Mod5#489pg11
	• My mother asked me if I am going to wash my clothes or wash the dishes.	SY20-21_Eng10_Q2_ Mod2#424pg3
	• The princess asked the parrot to go ahead of them and notify the King of Bumbaran of their coming.	SY20-21_Eng7_Q3_ Mod3#340pg6
	• Ms. Maghilum told us to go home.	SY21-22_Eng8_Q4_ Mod3#483pg5
Existential	• Once upon a time, there were two blind women.	SY21-22_Eng10_Q3_ Mod4#525pg9
		SY21-22_Eng10_Q3_ Mod3#294pg10
	• There are two sisters in the family.	

All the processes of the transitivity system are employed in embedding both male and female characters in SLMs such as material (process of doing and happening), mental (process of sensing, thinking, perceiving and feeling), relational (process of being and having), behavioral (process of physiological and psychological behavior), verbal (process of saying), and existential (process of existing).

For the Material process, results revealed that males are dominant characters who are more active participants compared to females. This supports the study of Orgi (2019) who found that the male characters carry out more material processes than female ones. For the Mental process, results revealed that the male and female characters involved in mental processes are in a doing sense, - having feelings, perceiving, desiring and thinking. Female characters who are represented as Sensers in mental clause are lower compared to male characters. This confirms the study of Alfiana (2019) stating that there are more male characters who are represented as Sensers in mental clauses compared to female

characters. However, this contradicts the study of Orgi (2019) who found out that females perform more mental processes than males. For the Relational process, results revealed that there are more male characters who act as possessors than female ones. Also, stereotypical traits and stereotyped roles of male and female are depicted in the attributes used. This is in congruent to the finding of Gallardo (2006) arguing that the character's outer experience (material) and the inner one (mental) may be construed by 'relational' clauses, but they model this experience as 'being' rather than as "doing" or "saying". For the Verbal process, results revealed that male characters used declaration and commissive types of speech acts by reporting statements of facts, claiming/making promises, proclaiming a certain decision, delivering a speech, questioning, and telling stories. On the other hand, female characters perform declarative, directive, and expressive types of speech acts by asking, commanding, stating facts, questioning, responding, and thanking. This confirms the study of Saragih (2010) which states that verbal processes show activities related to information, question, command or request.

How the Processes Reflect Gender Stereotype

Table 2

Gender Stereotype	Type of Participant	Sample Text From the SLMs	Code
Males Doing	Male Actor in a Transitive Material Process	• He therefore treated the body of the young woman as she would a royal person. • Prince Bantugan married the beautiful Princess Datimbang. • The boy gives her the piece of white gold. • until he has earned his mother's forgiveness. • In the kingdom, the king has just remarried a beautiful woman named Permaisuri. • The king waited Bidasari to wake up for two days. • Later on, the king took Bidasari and they got married. • He offered her the treasure box. • He gave her the large portion of the land. • He challenged her to search the treasures.	SY20-21_Eng7_Q3_ Mod3#62pg6 SY20-21_Eng7_Q3_ Mod3#70pg7 SY21-22_Eng7_Q4_ Mod3#188pg10 SY21-22_Eng7_Q4_ Mod3#192pg11 SY21-22_Eng7_Q4_ Mod6#222pg14 SY21-22_Eng7_Q4_ Mod6#224pg14 SY21-22_Eng7_Q4_ Mod6#227 SY21-22_Eng8_Q4_ Mod5#234pg11 SY21-22_Eng8_Q4_ Mod5#236pg11 SY21-22_Eng8_Q4_ Mod5#237pg11
Males Doing	Male Actor in an Intransitive Material Process	• Both Rajah Sulayman and Jose Rizal fought for freedom and independence. • He hits like a girl in the ring. • … he explores every unturned stone to quench his thirst for what is. • Pope John Paul II visited the Philippines on January 12, 1995. • He went home with the treasure. • …and fathers rest. • That same day, Jesus went out of the house and sat beside the sea. • He ruled for five years…	SY20-21_Eng8_Q2_ Mod4#88pg3 SY20-21_Eng8_Q2_ Mod5#106pg21 SY20-21_Eng9_Q2_ Mod1#130pg10 SY21-22_Eng7_Q4_ Mod1#182pg9 SY21-22_Eng8_Q4_ Mod5#235pg11 SY21-22_Eng8_Q4_ Mod6#244pg7 SY21-22_Eng9_Q4_ Mod3#273pg5 SY21-22_Eng10_Q3_ Mod3#299pg10
Females Behaving	Female Behaver in Behavioral Process	• so she acts as the mother to Itong. • but she displayed firm attitude as everyone bids the boy goodbye. • and she observes more yet accepting that change is indeed inevitable. • The young ladies smiled at Prince Bantugan.	SY20-21_Eng7_Q2_ Mod1#313pg12 SY20-21_Eng7_Q2_ Mod1#317pg12 SY20-21_Eng7_Q2_ Mod1#319pg12 SY20-21_Eng7_Q3_ Mod3#334pg5 SY20-21_Eng8_Q3_ Mod2#385pg14 SY20-21_Eng7_Q2_ Mod4#323pg9

		• Holding a toothpaste, a beauty queen smiles... • One day the Moon, who was a woman named Kabigat, sat out in the yard making a large copper pot. • The woman squatted on the ground with the heavy pot against her knees. • I saw a mother begging for food for her emaciated baby. • whenever she looks in the mirror. • She joyfully ran towards the waiting arms of her lover. • She barely stands just to cope with all the needed things to accomplish. • She could see in the open square before her house the tops of trees that were all aquiver with the new spring life. • She arose at length and opened the door to her sister's importunities. • The lady was crying.	SY20-21_Eng7_Q2_ Mod4#324pg9 SY20-21_Eng8_Q3_ Mod3#390pg13 SY21-22_Eng7_Q4_ Mod5#458pg8 SY21-22_Eng7_Q4_ Mod6#469pg6 SY21-22_Eng8_Q4_ Mod6#493pg5 SY21-22_Eng10_Q4_ Mod4#533pg14 SY21-22_Eng10_Q3_ Mod4#538pg15 SY21-22_Eng10_Q4_ Mod2#543pg6
Males Sensing	Male Senser in Mental Process	• Fortunately, his father understood her feeling. (cognitive) • The boy could hear other ladies laughing and talking in the large house. (desiderative) • He wants to trust Mrs. Jones. (desiderative) • so that he would know who she was and where she came from. (cognitive) • he could enjoy, even was it under a thatched roof, health of the meanest of his servants. (emotive) • Statesmen envisage that particular agreement in whose development they themselves had played a crucial part will preserve their names for future generations. (cognitive) • He hates indolence... (emotive) • He decided to go along with the choice of the majority. (desiderative) • Elizabeth's father disapproved of their love. (desiderative)	SY20-21_Eng8_Q2_ Mod4#91pg6 SY20-21_Eng9_Q2_ Mod3#148pg16 SY20-21_Eng9_Q2_ Mod3#156pg22 SY20-21_Eng7_Q3_ Mod3#65pg6 SY20-21_Eng7_Q2_ Mod4#39pg29 SY20-21_Eng7_Q2_ Mod4#40pg30 SY20-21_Eng7_Q3_ Mod3#47pg2 SY20-21_Eng8_Q3_ Mod2#116pg24 SY20-21_Eng9_Q2_ Mod1#138pg23 SY20-21_Eng9_Q2_ Mod3#157pg22 SY21-22_Eng10_Q3_ Mod3#303pg10

		• He wants to buy the suede shoes. (desiderative) • The two brothers rejoiced at seeing each other. (emotive)	
Females Saying	Female Sayer in Verbal Process	• Princess Datimbang asked him what the matter was. • The princess asked the parrot to go ahead of them and notify the King of Bumbaran of their coming. • When mom told her that we need to leave,… • Although my aunt lives abroad, she sometimes calls us to say hello. • She talks spontaneously and fluently. • Ana delivered a short message in front of the children. • My mother asked me if I am going to wash my clothes or wash the dishes. • She speaks 5 dialects, so she must be clever. • Ms. Maghilum told us to go home. • She responded to Max that she was unavailable. • A superstar mother talks about her experience of using the diaper.	SY20-21_Eng7_Q3_ Mod3#339pg6 SY20-21_Eng7_Q3_ Mod3#340pg6 SY20-21_Eng8_Q2_ Mod1#348pg20 SY20-21_Eng8_Q2_ Mod5#357pg2 SY20-21_Eng9_Q2_ Mod1#392pg3 SY20-21_Eng9_Q2_ Mod1#393pg3 SY20-21_Eng10_Q2_ Mod2#424pg3 SY20-21_Eng10_Q2_ Mod4#429pg5 SY21-22_Eng8_Q4_ Mod3#483pg5 SY21-22_Eng8_Q4_ Mod5#489pg11 SY20-21_Eng8_Q3_ Mod2#378pg3
Males as Cognitive and Desiderative Characters	Male Senser in Cognitive and Desiderative Mental Process	• so that he would know who she was and where she came from. (cognitive) • Fortunately, his father understood her feeling. (cognitive) • He thinks that the SDRRMC did an excellent job. (cognitive) • He realizes that he is being punished for his mistreatment of his mother. (cognitive) • He knew what the boy was going to face: depression, loneliness and others. (cognitive) • He decided to leave Bumbaran. (desiderative) • Elizabeth's father disapproved of their love. (desiderative) • He wants to trust Mrs. Jones. (desiderative)	SY20-21_Eng7_Q3_ Mod3#65pg6 SY20-21_Eng8_Q2_ Mod4#91pg6 SY20-21_Eng8_Q2_ Mod5#98pg9 SY21-22_Eng7_Q4_ Mod3#187pg10 SY21-22_Eng9_Q4_ Mod2#262pg6 SY20-21_Eng7_Q3_ Mod3#57pg5 SY20-21_Eng9_Q2_ Mod1#138pg23 SY20-21_Eng9_Q2_ Mod3#156pg22 SY21-22_Eng9_Q4_ Mod1#252pg7

		• He needs to buy the materials in the mall but he forgot his face mask. (desiderative)	
Females as Perceptive and Emotive Characters	Female Senser in Perceptive and Emotive Mental Process	• Inciang notices everything. (perceptive)	SY20-21_Eng7_Q2_ Mod1#311pg12
		• Inciang feels in pain soon being apart from her brother for the first time. (emotive)	SY20-21_Eng7_Q2_ Mod1#314pg12
		• She had fallen deeply in love with the handsome stranger. (emotive)	SY20-21_Eng7_Q3_ Mod3#338pg6
		• Princess Datumbang fell in love with him. (emotive)	SY20-21_Eng7_Q3_ Mod3#324pg13
		• and she had not heard the warning on the radio. (perceptive)	SY20-21_Eng8_Q2_ Mod1#347pg20
		• She admires the LGBTQ for being so brave in showing people who they really are. (emotive)	SY20-21_Eng8_Q2_ Mod5#359pg9
		• She noticed dark spots on her face. (perceptive)	SY20-21_Eng8_Q3_ Mod2#388pg20 SY20-21_Eng9_Q2_ Mod3#402pg15
		• Camille's mom hates dogs. (desiderative)	SY20-21_Eng9_Q2_ Mod3#404pg15
		• She felt somehow frail looking at the girl with dark eyes. (perceptive)	
		• It is because she trusted her.]… (emotive)	SY21-22_Eng10_Q4_ Mod3#551pg5

The processes of transitivity system employed in embedding male characters in SLMs reflect gender stereotype. Male and female characters are prominently stereotyped in the SLMs which were seen through: *Males Doing, Females Behaving, Males Sensing, Females Saying, Males as Cognitive and Desiderative Characters,* and *Females as Perceptive and Emotive Characters.* Based on the results, in all types of participants except Behaver in behavioral process and Sayer in verbal process, male characters dominate the role of participants.

The first stereotype, Males "Doing" and Females "Behaving" is seen in the following:male dominance in transitive material process, male dominance in intransitive material process, and stereotypical masculine traits. Thus, males are prominently portrayed as the characters who hold important roles in the stories, texts and examples of sentences used in the SLMs. Meanwhile, females are more likely portrayed as Goals, the ones who are affected by the action of the Actors. This supports the findings of Damayanti (2014) and Emilia et al. (2017) which reveal that the main characters in the books they were investigating were primarily male, while the female characters were placed as the passive ones; they became the receiver of the action, the ones affected by the active characters, or they were simply the listeners to male's speech. On the other hand, Female Dominance in Behavioral Process is shown in stereotypical

feminine traits and domestic roles. Female characters identify strongly with their activities at home. There are clauses depicting female characters who are stereotyped to be responsible for the maintenance of the home, doing household chores, taking care of their children and managing things at home. This confirms the claim findings of Millett (2000) stating that the stereotype of female characters in domestic roles is closely related to real societies' cultural values.

The third stereotype, Males "Sensing" and Females "Saying" is shown in the dominance of male characters as Sensers, which means that males have higher power over other participants in the mental process. On the other hand, female characters are stereotyped as phenomenon having no power over the Senser. The same results are found in the study of Rasman (2014) wherein female characters who are depicted as Sensers in mental clause are far lower compared to male characters. This shows how male characters are depicted as more powerful than female characters in mental clauses.

Lastly, males are stereotyped as "Cognitive and Desiderative Characters". It shows that male characters as Sensers demonstrate a process of thinking, wanting, needing, deciding, and disapproving towards the varied phenomenon they are facing. These cognitive clauses reveal male character's mindfulness of

his actions, decisions, ways of thinking, and the characters' awareness of the phenomena they are facing. On the other hand, females are stereotyped as "Perceptive and Emotive Characters". Females are attributed to do household chores, manage the house and take care of the children and the entire family. Since females are responsible for caring about their children, they might be stereotyped as kind, emotional and sensitive rather than sensible. This supports the study of Blackstone (2003) stating that females are commonly stereotyped as being irrational or overly emotional.

Underlying Ideologies Embedded in the SLMs

Table 3

Ideology	Classification	Sample Statement/s from the SLMs	Code
Traditional	Breadwinning	• The father never married again and he spent his time tilling their land and helped in the everyday sustenance of the family • to see if he could get his salary.	SY20-21_Eng7_Q2_ Mod1#1pg12 SY20-21_Eng7_Q2_ Mod4#13pg3
	Decision-making	• "Fathers are always responsible in making decisions than mothers."	SY20-21_Eng8_Q3_ Mod1 #108pg2
	Parenting	• Children play, mothers bond… • so she acts as the mother to Itong. • A superstar mother talks about her experience of using the diaper. • I saw a mother begging for food for her emaciated baby.	SY21-22_Eng8_Q4_ Mod6#497pg7 SY20-21_Eng7_Q2_ Mod1#313pg12 SY20-21_Eng8_Q3_ Mod2#378pg3 SY20-21_Eng8_Q3_ Mod3#390pg13
	Homemaking	• Princess Datimbang placed flowers upon the bed on which the body lay. • She also decorated it with colored jewelry. • On Sundays after church, she would iron out her teacher's uniform for a fee of one hundred pesos. • In the past, most women stayed at home to take care of domestic chores such as cooking or cleaning. • The woman designed the room _____ (elegant, elegantly).	SY20-21_Eng7_Q3_ Mod3#335pg6 SY20-21_Eng7_Q3_ Mod3#336pg6 SY20-21_Eng8_Q2_ Mod1#353pg20 SY20-21_Eng8_Q2_ Mod5#367pg17 SY20-21_Eng9_Q2_ Mod1#395pg17
	Doing Domestic Works	• She heated some lima beans and ham she had in the icebox, made the cocoa, and set the table. • Before Shena left the house, she made sure that she had washed the dishes, disposed the trash, and locked the door. • She declutters her cabinet. • She cuts them and turns them into beautiful quilted blankets. • She cooks _____ (good).	SY20-21_Eng9_Q2_ Mod3#412pg17 SY21-22_Eng8_Q4_ Mod1#477pg5 SY21-22_Eng8_Q4_ Mod3#478pg3 SY21-22_Eng8_Q4_ Mod3#482pg3 SY21-22_Eng9_Q4_ Mod1#507pg14

	Leadership	• He took his long knife and went to the forest to cut some bamboo.	SY20-21_Eng7_Q2_ Mod4#17pg11
		• Cowboys faced cattle rustlers, stampedes and extreme weather, but kept pushing those steers to the train station.	SY20-21_Eng7_Q2_ Mod4#28pg16
		• An old king ruled over the kingdom of Bumbaran.	SY20-21_Eng7_Q3_ Mod3#48pg5
		• Prince Bantugan led his soldiers to defend the country.	SY20-21_Eng7_Q2_ Mod3#55pg5
		• "He defended them in war…	SY20-21_Eng7_Q3_ Mod3#66pg6
		• Men are better drivers than women.	SY20-21_Eng8_Q3_ Mod1 #12pg10
Egalitarian	Doing Domestic Chores	• Dad saturates the cloth with water.	SY21-22_Eng10_Q4_ Mod2#306pg5
		• After it had been soak, he pours spot remover on the stain.	SY21-22_Eng10_Q4_ Mod2#307pg5
		• He gave them great recipes to try.	SY21-22_Eng9_Q4_ Mod3#272pg3
		• He therefore treated the body of the young woman…	SY20-21_Eng7_Q3_ Mod3#62pg6
		• Dad packed a first aid kit, some water, food, a whistle, a blanket, a flashlight, and my little sister's medicine.	SY20-21_Eng8_Q2_ Mod1#74pg20
		• Jang demonstrated his culinary expertise by cooking Korean-styled beef with mushroom puree as the main dish.	SY20-21_Eng7_Q2_ Mod3#8pg5
	Parenting	• A father reminds his son…	SY20-21_Eng8_Q3_ Mod2#113pg16
		• Mothers nurture the emotional intelligence of their children.	SY20-21_Eng8_Q3_ Mod1#8pg9
		• Susan likes to spend time with her son by participating in his activities.	SY21-22_Eng8_Q4_ Mod1#476pg5
	Breadwinning	• In the afternoon, she volunteers weeding at a neighbor's garden for an hour and greatly receives fifty pesos for the work extended.	SY20-21_Eng8_Q2_ Mod1#352pg20
		• She goes to war instead regardless of the severe punishment waiting once her disguise would be uncovered.	SY21-22_Eng8_Q4_ Mod3#488pg11
		• Your sister is working in a fast food chain as a cashier.	SY21-22_Eng9_Q4_ Mod1#502pg9
		• She earns more than what she needs.	SY20-21_Eng8_Q2_ Mod1#351pg20

The underlying ideologies embedded in the SLMs are traditional and egalitarian. For the traditional ideology, results reveal that males are expected to fulfill their roles through breadwinning activities and making important family decisions. The traditional view of the masculine gender role suggests that men should be the heads of their households by providing financially for the family and making important family decisions. This confirms the claim of Konrad (2007) stating that individuals holding traditional gender ideologies support men's role which is to provide financial support as the breadwinner of the family. On the contrary, results show that women are expected to fulfill their roles through parenting activities. They are more likely to focus on family responsibilities, taking care of the children at home, playing the role as a mother, taking care of the children, and providing the needs of the children. This confirms the claim of Eagly et al. (2003) stating that the traditional social role of women is that of the lady of the house, taking care of the family, being focused on children and their happiness. For the egalitarian ideology, results reveal that both male and female are equally suited for housework, parenting, breadwinning/career. This supports the claim of Coleman (2006) stating that fathers in egalitarian households are generally very involved with their children and believe that their parental contributions are just as important as those of their wives.

Implications for Educational Practices

1. SLMs designers are challenged to improve the aspect of gender equality in the content of the SLMs. It is also essential for SLMs designers to take into account gender equality in all forms as instructional objectives of an educational program are not achieved unless curriculum specialists and SLMs designers consider one of the important and crucial aspects which is gender equality.

2. SLMs reviewers, editors and consultants must take into consideration the balance representation of male and female characters in the passages, stories and sentences used in the SLMs. They must ensure that both genders are included in all the process types. With this, the Department of Education personnel may give further training to the editors and consultants of SLMs in order for them to be fully-equipped with the different processes that may be employed in embedding male and female characters.

3. DepEd officials should organize frequent training that target the personnel involved in the production of SLMs. Hence, teacher training would provide such assistance in order for the teachers to be fully-equipped with the necessary skills on how to combat gender stereotyping in textbooks and other learning materials and teach students to be critical to gender stereotypes.

4. Teachers must also be trained on how to discuss and remedy stereotypes of the two genders, especially with regards to females. Seeing such gender stereotyping in SLMs is an opportunity for the teachers to see how they are going to make use of the gender issues in the classroom.

5. Results of the study will also serve as basis for curriculum specialists to come up with guidelines that can be used as basis for SLMs review and analysis from a gender perspective.

6. School administrators must ensure that societal gender stereotypes are not inherited in the educational settings. With the results, school administrators will be challenged to introduce gender equality by choosing appropriate learning materials and reinforce it in the teaching-learning process and other educational practices.

Recommendations for Future Research

1. This research was restricted within the boundary of the grades seven (7) to ten (10) SLMs for school years 2020-2021 and 2021-2022. Also, this study only focused on one quarter per grade level year of school year 2020-2021 and another one quarter for school year 2021-2022. Thus, the researcher could not make generalization about the general situation of gender stereotypes in the primary, elementary and senior high school levels. Hence, future researchers may conduct analysis on gender stereotyping in SLMs at the elementary and senior high school levels.

2. This study was limited to the processes employed in embedding male and female characters in SLMs using the Transitivity System. With this, future researchers can also explore more than this research has accomplished. Moreover, further researchers can investigate other language aspects by looking into a broader perspective of discourse. Since this study limits the analysis to transitivity only, future researchers can observe modality in the content of the SLMs. By conducting modality, they can observe the interpersonal function to see how the speaker/writer shows the relationship with the addressee(s). They can also explore on textual function analysis: Theme-Rheme analysis on the content of the SLMs.

3. Further research on how SLMs are utilized in the classroom may also be conducted in order to explore teacher-students' interaction, and student-students' interaction regarding gender issues in the classroom.

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THE AWARENESS AND KNOWLEDGE ON ARTIFICIAL INTELLIGENCE AMONG ACCOUNTANCY STUDENTS

Mr.S. Muruganantham, M.Com., M.Phil., (Ph.D)[1], R. Rajesh [2], V. Jagadeeshwaran [3]

[1]*Assistant Professor, Department of Commerce with IT, Dr. NGP Arts and Science College, Coimbatore*
[2]*Roll No:231CI142, Student, Department of Commerce with IT, Dr. NGP Arts and Science College, Coimbatore*
[3]*Roll No:231CI120, Student, Department of Commerce with IT, Dr. NGP Arts and Science College, Coimbatore*

ABSTRACT

Artificial intelligence (AI) has significantly influenced various sectors, including education, healthcare, politics, social, and the economy, yielding both positive and negative outcomes. According to Accenture's research on 12 developed countries, AI holds the potential to double annual economic growth by 2035. PricewaterhouseCoopers (PwC) suggests that global GDP could increase by up to 14% in 2030 due to AI. Given AI's pervasive role in daily life, it is crucial to regularly update awareness and knowledge about this technology. This study focuses on analyzing AI awareness and knowledge among accountancy students, aiming to foster their interest in AI. UiTM Tapah's accounting students were surveyed using questionnaires for data collection. Results indicate that accounting students possess moderate knowledge about AI but are generally aware of its impact. The study's findings offer valuable insights, contributing to the development of interest and knowledge, particularly among accounting students, in the realm of AI technology.

INTRODUCTION

In the context of the Fourth Industrial Revolution (4IR), transformative technologies like Artificial Intelligence (AI), Internet of Things (IoT), Cyber Security, and Unmanned Aerial Vehicles (UAVs) are reshaping daily work processes (**Raska, 2019**). **Silfverskiöld et al (2017)** emphasize that IoT plays a crucial role in enabling the development of Big Data and AI technologies. As society strives to keep pace with technological advancements, understanding AI's scope becomes imperative. **Leitner-Hanetseder et al's (2021)** Delphi study identifies cloud computing and blockchain as drivers in technologically empowered accounting, with AI-based tools like smart robots and business intelligence poised to replace human roles in the field. Conversely, **Frey and Osborne (2017)** highlight the susceptibility of hotel desk clerks to automation, exemplified by robot-staffed hotels such as Henn-na Hotel in Japan and Alibaba Future Hotel in China (Northfield, 2015).

Definition of Artificial Intelligence

In 1956, the founding figure of AI, John McCarthy, defined it as the scientific and engineering pursuit of creating intelligent machines. According to Smith (2020), artificial intelligence refers to a set of computer programs capable of either enhancing or potentially replacing human involvement and oversight in entire processes or specific segments. Smith further categorized AI into types such as computational AI, linguistic AI, spatial AI, reactive computing, limited memory, theory of mind, and self-awareness. Examples of AI technologies encompass face detection, text editors, social media platforms, chatbots, recommendation algorithms, and search algorithms. These AI applications find utility in diverse fields, including manufacturing, business,

medical sciences, defense security, transportation, law, and technology.

APPLICATION OF ARTIFICIAL INTELLIGENCE

Application in Accounting and Auditing

Neely and Cook (2011) foresee a significant impact of new technologies, particularly in AI, on the fundamental structure and processes within accounting. These advancements are poised to swiftly transform professional roles and task profiles. Software robots are anticipated to assume responsibilities in fraud detection and liquidity planning, enhancing the overall effectiveness of accounting organizations alongside existing technologies like enterprise resource planning and accounting information systems. In the auditing domain, AI is set to replace traditional methods, giving rise to E-Accounting Audit (Zakaria, 2021), facilitating processes such as recording, tabulating, posting, summarizing, and reporting for electronic and digital transactions. Furthermore, Hassan's (2022) examination of Big 4 accounting firms reveals a clear trend — the steady investment and integration of AI into key business processes, with the acknowledgment that the future success of accounting will be significantly influenced by AI. This emphasizes the importance for businesses, regardless of size, to stay abreast of technological advancements to remain competitive in the evolving landscape where accounting and technology converge.

Application in Defense Industry

Artificial Intelligence finds application in Unmanned Aerial Vehicles (UAVs), commonly known as drones, renowned for their widespread use in civilian and military contexts, especially in monitoring and surveillance. These UAVs, valued for their

rapid deployment, adaptable altitude, and versatility, provide features like high-resolution video or imagery, autonomous flight capabilities, and real-time data streaming, catering to a variety of applications (Barbosa et al., 2020). The UAV sector has experienced substantial growth, reaching a market value of US$127.3 billion globally in 2019, according to PricewaterhouseCoopers (Rozaidee, 2019). Looking forward, the future trajectory of UAVs as mobile communication terminals holds potential for reliable and cost-effective applications in both civilian and military domains (Mozaffari et al., 2019).

Application in Healthcare Field
Machine learning, a subset of AI technology, plays a crucial role in the diagnosis and treatment planning process, contributing significantly to healthcare advancements (Lee et al., 2018). The application of AI has shown promise in enhancing diagnostic effectiveness, as highlighted by Dawes et al. (2017). Moreover, AI's utility extends to nursing and palliative care for cancer patients, providing essential constant monitoring, as emphasized by Schmidt-Erfurth et al. (2018). According to Ashwin and Muralidharan (2015), AI has the potential to streamline the diagnosis, treatment, and overall care of patients. Assessing awareness and knowledge in this domain, Samyuktha et al. (2020) reported a generally positive response from medical and healthcare professionals, with 92% expressing belief in AI as the future of medicine. The study concluded that participants possessed a moderate level of knowledge about AI and its scopes, indicating room for improvement in understanding and application.

Application in Higher Education Sector
AI and robotics have the potential to revolutionize education, reshaping the learning process, redefining the roles of educators and researchers, and transforming the operations of universities as institutions (Cox, 2021). In the educational landscape, AI tools like Intelligent Tutoring Systems (ITS) have been introduced to deliver course content in a step-by-step manner. Additionally, Automatic Writing Evaluation (AWE) tools, including Grammarly, QuillBot, and Turnitin's Revision Assistant, assess and provide feedback on writing styles. Winkler and Sollner (2018) highlight the use of conversational agents, also known as Chatbots or virtual assistants, as AI tools that facilitate both short-term and long-term interactions. These agents can serve as tutors, engage in language practice, answer questions, promote reflection, or even function as co-learners.

AI Innovation Ecosystem (AI-IE) Model in Malaysia based on Quadruple Helix Approach
The success of AI relies on a robust, purpose-driven, and open-data ecosystem. In pursuit of this goal, the Malaysian Government, in collaboration with the National Tech Association of Malaysia (PIKOM) and Microsoft Malaysia, has initiated the development of the AI Innovation Ecosystem (AI-IE) model. This model adopts a quadruple helix approach, emphasizing participation and collaboration. The key consideration is aligning AI advancements with Malaysia's socioeconomic drivers, showcasing how these applications can create demand and foster improvements in industries and services for the broader community. Every industry stands to benefit from AI, and the onus lies on organizational leaders to tailor its implementation to their unique contexts. Another crucial factor is the industry itself, identifying those capable of supplying AI technology and expertise. While established companies in the AI sector offer cutting-edge services, collaborating with startups is equally vital. Startups serve as hubs for innovation, playing a significant role in reshaping economies (Dzaharuddin, 2021).

RESULTS AND FINDINGS
Figure 1:People's opinions on future behaviors of artificial intelligence
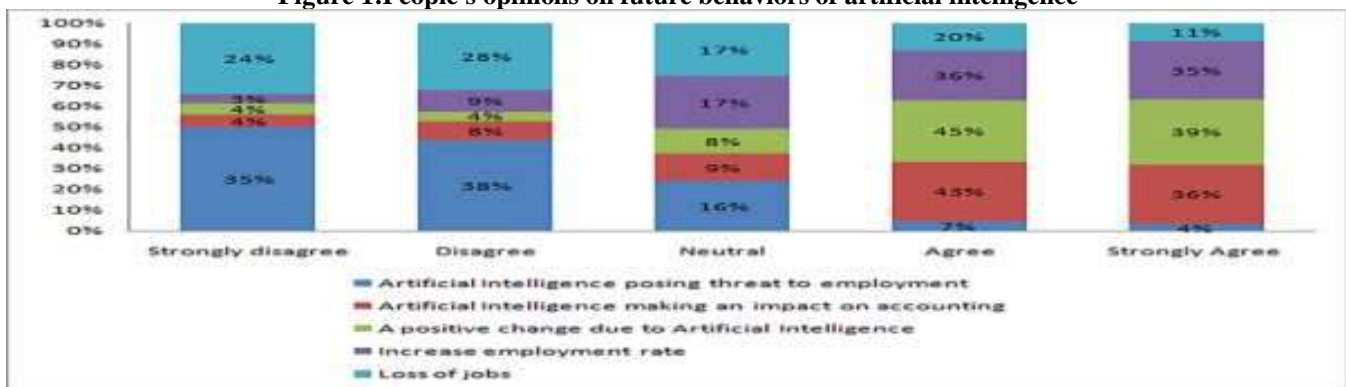
Figure 2 :when do you predict AI will take over SEO
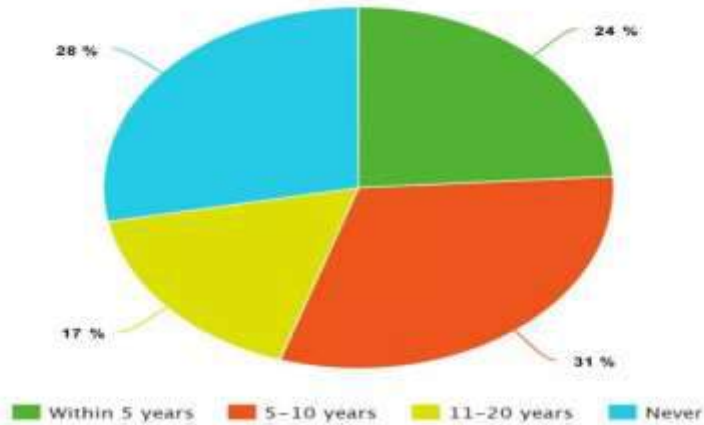
Figure 3 : Artificial intelligence in food and beverages market size

Figure 4:

CONCLUSION

AI has captured widespread attention across the public, academia, and government, emphasizing its crucial role in today's society (Cox, 2021). This study centered on assessing the awareness and knowledge of AI among accounting students, revealing a moderate level of comprehension within the examined context. Offering a fresh perspective on AI's diverse applications, the findings provide valuable insights to influence the interest and knowledge of accounting students in AI technology. Recognized as a noteworthy progression in AI technology research, the study highlights the imperative for continued exploration and a deeper understanding of AI and its evolving scope for future reference. Despite its contributions, certain limitations, such as potential constraints in generalizing results due to the specific selection of accounting students from UiTM Tapah, were acknowledged. Future research is encouraged to broaden the sample selection for a more representative population. Additionally, the study's exclusive focus on awareness and knowledge underscores the importance of exploring other contributing variables, including potential negative effects of AI, to enhance overall comprehension. To mitigate respondent bias, future research should thoughtfully consider questionnaire distribution, potentially favoring face-to-face surveys to ensure more candid and unbiased responses.

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PHYSICO-CHEMICAL PARAMETERS AND CLIMATE CHANGE IMPACT ON ALGAL GROWTH

Raju Potharaju[1*], M. Aruna[2]

[1*]*Department of Botany, City Womens Degree College, Hanamkonda, Telangana, India.*
[2]*Professor& Head Department of Botany, Hydrobiology and Algal Biotechnology Laboratory, Telangana University, Dichpally, Nizamabad, Telangana, India*

ABSTRACT

Identifying the biological processes that influence algal growth is essential for ecosystem management. Algae are little aquatic plants that exist either as solitary cells or in regions of diverse dimensions. Zooplankton rely on them as a crucial component of the aquatic food chain, since they provide as their primary source of nutrition. Algae, via the process of photosynthesis, produce oxygen that is subsequently released into the water, serving as a vital resource for fish and other aquatic organisms. This work presents a methodology for estimating the biological characteristics of algae, which play a crucial role in the regulation of eutrophication, via the use of modelling and exploration methodologies. The estimation of algae growth and respiration rates was conducted by using a one-dimensional water quality model and two-dimensional regionally distributed water quality data taken from Lower Manair Dam of Karimnagar District, Telangana. A total of 24 algae were detected in the sample. The most abundant types of algae include Green algae, Flagellate algae, Cyanobacteria, and Diatoms. In the summer season, 17 types of algae were found, while in the spring season, 20 types were detected. The estimation of biological characteristics of algae in natural freshwater environments may be achieved by a physico-chemical technique, which offers an alternate option to sampling and in situ testing.

KEYWORDS: *Algal growth, biological parameters, Lower Manair Dam, eutrophication, in situ testing*

1.INTRODUCTION
The presence of water is crucial for all forms of life on Earth and for maintaining a stable climate.

There are few chemicals with such a significant impact on the natural world as this one. The physicochemical and biological characteristics of water are often used to define its quality.(Bajic, S.J., et.al 1985). The hasty adoption of modern farming practices, including the overapplication of chemical fertilisers and Heavy and diversified aquatic contamination is caused by pesticides in agriculture, which in turn causes the decline in water quality and loss of aquatic habitats. People get water-borne infections as a result of drinking polluted water. That is why regular water quality checks are essential. Things like temperature, pH, salinity, turbidity, nitrate, and phosphate are among the testable parameters. (Bhateria, R., & Jain, D. 2016). In biological monitoring programmes, algae play a significant role in determining the water quality. For a long time, algae have been seen as a good way to measure the effects of climate change, eutrophication, water management, and changes in land use at the watershed scale. (Gokce, D.,et.al. 2011). Because of their hyper-reactivity to changes in their environment, algae provide a promising bioindicator for the fast evaluation of water quality. (Bellinger, E. et.al. 2010). Unfortunately, there are some time and expense limitations that make continuous analysis useless.

Biological measures, on the other hand, may immediately and continuously show all features of water quality.

Evaluate how different factors in the ecosystem affect the environment. Using biomonitoring, conditions may be reliably and affordably recorded at several sites. Because of their low life cycle, rapid reproduction rate, and nutrient needs, algae are suitable for water quality monitoring. (Beck, M. 1987). As a direct result of changes in water quality, such increasing pollution, algae respond to changes in the quantitative and qualitative composition of species across a wide range of water parameters, making them important markers of environmental health.(Jagdish Prasad, T. 2014).

2.MATERIALS AND METHODS
StudySite-Lower Manair Dam also known as LMD was constructed across the Manair River, at lugunur, Thimmapur mandal, Karimnagar District, in the Indian state of Telangana during 1974 to 1985. It provides irrigation to a gross command area of 163,000 hectares. The Lower Manair Dam is located on the Manair River at 18°24' N latitude and 79° 20' E longitude in Karimnagar District at Km.146 of Kakatiya Canal. The Manair River is a tributary of the Godavari River and

the dam is built across the river at the confluence with Mohedamada River.(Fig 1).
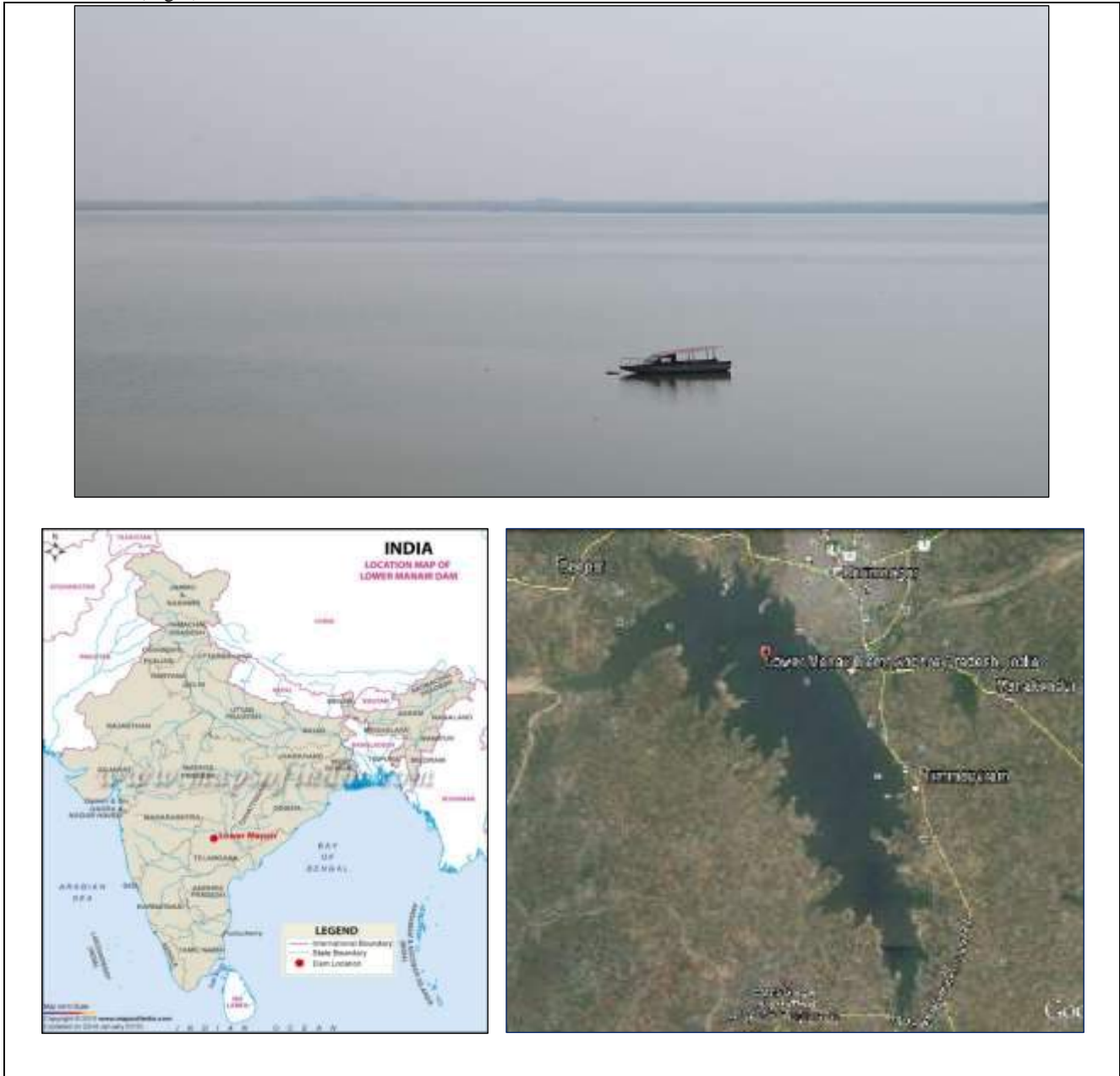
Fig .1 Indicating Lower Manair Dam over view- Google Map

Water sample Collection
The water will be collected from the Lower Manair Dam once a month at 8 a.m. in a 1-liter container for physical-chemical examination. As per the American Public Health Association (APHA 2012), Water Pollution Control Federation (WPCF), and American Water Association (A.W.A.), certain physicochemical characteristics will be studied on-site while others will be.

Laboratory work
Over the course of one year, we will examine the physicochemical properties of the water from the dam. Chemical parameters like pH, alkalinity, hardness, dissolved oxygen (D.O.), biochemical oxygen demand (B.O.D.), chemical oxygen demand (C.O.D.), salinity, and physical factors like colour, odour, temperature, electrical conductivity (E.C.), and total suspended solids (T.S.S.). The pH, fluoride, phosphate, and nitrate levels were measured.
(a) Temperature-by use of a thermometer calibrated in Celsius.
(b) Turbidity–using turbidity meter.

(c) Using a pH meter to determine the concentration of hydrogen ions.

(d) The release of CO2 using titrimetric analysis.

Using a 0.1 N NaOH solution and phenolphthalein indicator, titrate 100 ml of the sample.

Dissolved Oxygen

The Winkler modified technique is used to measure dissolved oxygen (D.O). 300 ml sample in B.O.D. container plus 2 ml .Manganese sulphate + 2 mL. To dissolve alkali-iodideazide reagent, shake the container for 15 minutes, then add 2 mL of concentrated H2SO4. Then, titrate the 100 ml solution with 0.025 N. Sodium thiosulphates. With a starch indication.

Biological oxygen demand (B.O.D.) – By using Winkler's modified method

Algae sampling.

We will collect the algal samples using a plankton net made of No. 18 nylon bolting cloth with a mesh size of 0.072 mm. Then, we will transfer the samples to a glass container and preserve them in a 4% formalin solution. Morphological features will be used to identify algae up to the species level, according to literature from laboratory and microscopic studies.

Analysis of microalgae using quantitative methods

The quantitative microalgae analysis included the filtration of 100 litres of sea surface water using the conventional plankton net. The filtrate obtained in the collecting bucket was used for quantifying both viable and fixed cells utilising a Sedgwick Rafter Cell.

Preservation of the sample

The samples for qualitative and quantitative analysis were preserved using a solution of 10% formalin, which is comparable to a 4% concentration of commercial formaldehyde. Hexamethylene diamin (Hexamin) was added to the solution for further analysis.

3.RESULTS AND DISCUSSION

It is required to do a chemical analysis of water quality, including organic and inorganic contaminants, salinity, inorganic and organic nutrients, and so on. However, due to the unique time and cost constraints, continuous analysis is not useful. But biological assessments can show you how water quality changes over time and how ecosystem factors affect the environment in a direct way. Using biomonitoring, conditions may be reliably and affordably recorded at several sites.

As many as 24 different types of algae were identified in the specimen. The most abundant types of algae have been found to be green algae, flagellate algae, cyanobacteria, and diatoms; 17 and 24 algae, respectively, were found in the summer and spring seasons. (Srivastava, N. et.al.2018).

Algae are ideal for biological monitoring due to their unique features compared to other ecosystems.

A. Algae are autotrophs that exist between the habitat and the food chain.

B. Because algae lack stems, they are unable to move away from contamination, leading to their demise.

C. Algal communities have diverse species with unique tolerances.(Roka, D. et.al.2022).

D. Algae have short life cycles and are susceptible to change, while communities can withstand influences over time.(Lüning, K. et.al.1989).

E. Algae are densely packed and simple to sample and store.

F. Algae are smaller than other creatures, making them more vulnerable to pollution at low quantities.

The key aspects of each segment are listed below

Result 1: Overflow from the Lower Manair dam leads to improved surface water quality and algal development, higher ion and oxygen concentrations, and lower phytoplankton density. Substances' harmful effects on algae are decreased.(Meena, S. K. et.al.2020).

Result 2: Deepwater quality is characterised by poor algal growth and oxygen content, as well as a strong nutritional component mostly in the form of ammonia nitrogen. Eutrophication or super nutrient systems are also present. (Das, M. et.al. 2022). The prevalence of tiny central diatoms and Chlorella is dominant, but the concentrations of heavy metals much beyond the threshold that ensure the protection of aquatic life.(Baykal, T.et.al. 2002).

Result 3: Enhanced water depth, width, velocity, and dissolved oxygen levels; enhanced water quality by restoring oxygen concentrations; increased nutritional value and chlorophyll levels associated with the eutrophication process; indications of harmful impacts on algae.

4.CONCLUSION

In this work, we used the algal growth potential (A.G.P.) test to anticipate changes in water quality and assess the danger of algal development in Manair Dam after water transfer. Our research found an 8.7% reduction in algal growth in dam water.

Depth of Secchi Disc

The depth at which the Secchi Disc is submerged has a role in determining the water's quality, both in terms of its appearance and visual clarity. The average measurements recorded by Secchi in the spring and summer are 3.96 meters and 4.23 meters, respectively. Consequently, the reservoir has limited clarity due to the presence of algae.

The research of the Lower Manair Dam was made possible by analysing the water's physical and chemical properties, the structure of phytoplankton, the variety of algae, and the fundamental hydrological data. We engaged in a period of academic pursuit lasting three months. The impact of highly contaminated dam perimeters, as well as the quality of both

surface and deep water, is acknowledged. The hydrodynamic behavior of the lake ecosystem system was determined by physical and chemical factors, as well as the variability caused by algae growth.(Reynolds, et.al. 2009).

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HEMATOLOGICAL DYNAMICS IN HEMODIALYSIS: A COMPREHENSIVE EXAMINATION OF PATIENTS WITH CHRONIC RENAL FAILURE IN A TERTIARY CARE HOSPITAL

Krishna Upadhye*[1], Dr. Uttam Kumar Aggarwal

[1]Research Scholar, Department of Pharmacology, Sunrise University, Alwar, Rajasthan, India.
[2]Associate Professor and Research Supervisor, Department of Pharmacology, Sunrise University, Alwar, Rajasthan, India.

*Corresponding Author

ABSTRACT

Background: Chronic kidney disease (CKD) is a significant health burden in developing countries like India, leading to high morbidity and mortality rates. The study aimed to determine the incidence of anemia among patients with CKD and examine its potential association with other predictive markers.

Methods: A cross-sectional observational research was undertaken within a tertiary hospital setting to examine the incidence of hematological abnormalities and explore the association between anemia and its many manifestations in patients with stages 3-5 chronic kidney disease (CKD). The markers for anemia encompassed measurements of hemoglobin percentage (Hb%), mean corpuscular volume (MCV), and examination of peripheral smears. The investigation also examined the correlation between stages of chronic kidney disease (CKD) and red cell distribution width (RDW), thrombocytopenia, leucocyte count, and differential count.

Result: The study found that 96.8% of participants displayed symptoms of anemia, characterized by normocytic and normochromic observations on peripheral measures. A significant number of patients (57.3% of them) had a higher total leucocyte count (TLC), but there was no statistically significant link between a higher TLC and the worsening stages of CKD. The mean corpuscular volume (MCV) and platelet levels exhibited a predominantly normal range, with relatively few observed fluctuations. However, there is a positive link between the advancement of CKD and an increase in red cell distribution width (RDW).

Conclusion: The study highlights the changes in blood parameters observed in individuals with CKD, with particular attention given to the high occurrence of anemia. The findings underscore the importance of comprehensive iron investigations and the timely identification and intervention of anemia. Adopting a comprehensive strategy that includes regular monitoring of blood parameters, specifically focusing on anemia and iron levels, is crucial for effectively managing and enhancing the overall health of individuals with CKD

KEY WORDS- Anemia in CKD, Chronic kidney disease, Iron deficiency anemia

INTRODUCTION

Chronic kidney disease (CKD) is when the kidneys don't work or look right, and the glomerular filtration rate (GFR) drops to less than 60 ml/min/1.73 m2. This happens for at least three months, no matter what disease is causing it. The condition characterized by a decline in the normal functioning of the kidneys is commonly known as renal insufficiency. The user's text is already academic and does not require any rewriting.

The prevailing risk factors encompass diabetes mellitus, hypertension, glomerulonephritis, polycystic kidney disease, and interstitial fibrosis. According to recent prospective research conducted on a cohort of over 300,000 individuals who underwent screening for the Multiple Risk Factor Intervention Trial (MRFIT), it was projected that around 3% of those diagnosed with diabetes mellitus will experience the development

of Stage 5 chronic kidney disease (CKD) throughout the course of their lifetime. Therefore, those diagnosed with diabetes mellitus have a much higher relative risk, approximately 12 times larger, of having stage 5 chronic kidney disease (CKD) compared to those without diabetes.

Glomerular diseases are another vital category of riskfactors for CKD.[2]Other conditions, such as IgA nephropathy, membranous nephropathy, focal segmental glomerulosclerosis, lupus nephritis, and others, are considered causes of CKD.[3,4]
The National kidney foundation's kidney dialysis outcomes and quality initiative (KDOQI) group classifiedCKD based on the presence of structural or functional kidney damage for ≥three months, with or without decreased GFR from average values of ~120 ml/min.[5] CKD is further categorized by the level of kidney function (as defined by GFR) into stages 1 to 5 as follows: stage

1 with normal or high GFR (GFR >90ml/min), stage 2 mild CKD (GFR=60-89 ml/min),stage 3A moderate CKD (GFR=45-59 ml/min), stage 3B moderate CKD (GFR=30-44ml/min),stage 4severe CKD (GFR=15-29 ml/min), stage 5 end stage CKD (GFR <15 ml/min).

Complications of CKD
Progressive CKD is associated with various consequences and complications. These complications contribute to high morbidity and mortality as well as poorquality of life (QOL). A number of these complications (cardiovascular disease, hypertension, anemia, bone disorder, volume overload, electric electrolytes, and acid- base abnormalities) can be easily defined and quantified and require a specific management approach, such as prescribing erythropoietic stimulants to correct anemia. Anorexia, fatigue, pruritus, nausea, and sexual dysfunction are examples of minor, well-definedcomplications with less distinct pathogenesis.[6-8]

Anemia of Chronic Diseases in CKD
Anemia is a common complication of CKD. It has been linked to many adverse clinical outcomes and has a significant impact on the QOL of people with CKD. Patients on dialysis typically required blood transfusions before the availability of recombinant humanerythropoietin (rHuEPO, or epoetin), exposing them tothe hazards of iron overload, viral hepatitis transmission, and sensitization. The introduction of rHuEPO in the late 1980s completely changed the scenario. Even though there is a solid argument for treating anemia in CKDpatients, the best therapeutic options are yet unknown. In addition to ESA therapy, iron replacement is necessaryfor anemia treatment. Importantly, to guarantee an appropriate count of red cell production, CKD patients require target thresholds of iron parameters that differ from those of healthy individuals. The expense of anemiatherapy is substantial; it is thus necessary to assess the risks and benefits rationally and carefully.[9]

The anemia caused by CKD is hypoproliferative. The circulating reticulocyte count is low, and a bone marrow examination usually reveals no increase in progenitor cells, as reported in anemic patients without CKD. There is also a superimposed iron, folate, or vitamin B12 shortage, but red blood cells (RBCs) are usually normochromic and normocytic.[10]

The regulatory hormone erythropoietin, which stimulates the release of RBCs from the bone marrow into the circulation, is the most critical factor governing RBC synthesis in the bone marrow. Although other variables may play a role, the fundamental cause of CKD anemia isa relative deficiency of erythropoietin. Factors involved in the anemia of CKD are represented in (Table 1).

Table 1: Factors involved in the anemia of CKD.

Factors
Most Important/Common Factors
Decreased Erythropoietin Synthesis
Relative Erythropoietin Deficiency
Important, common
Iron Deficiency (Absolute)
Iron Deficiency (Functional)
Chronic blood loss, including from phlebotomy
Infection/inflammation-"anemia of chronic disease".
Less Critical, Less Common, Or of UncertainSignificance
Vitamin B12 and folate deficiency
"Uremic toxins"
Reduced red blood cell life span
Increased red blood cell fragility
Carnitine deficiency
Aluminum toxicity
Severe hyperparathyroidism
ACEIs/ARBs

Anemia is defined by the world health organization as a hemoglobin level of less than 13.0 g/dl in men and less than 12.0 g/dl in women. The same was adopted in our study. Apart from this, hemoglobin of less than 8.0 g/dl was referred to as severe anemia, as shown in the results section.

Chronic Kidney Disease (CKD) is one of the major health problems worldwide. The morbidity and mortality related to Chronic Kidney Disease is alwaysof great concern in developing nation like India. It is estimated to affect 10% of the general population and affects 50% of the high risk population which comprises of elderly who already suffer from spectrum ofnon communicable diseases like type-2 Diabetes Mellitus and Hypertension [(11)].

Haematological parameters have shown various changes particularly red blood cell (RBC) indices, are most commonly affected,[12] giving rise to anemia.

MATERIALS AND METHODS

The objective of this study is to identify and analyse haematological abnormalities, including anaemia, thrombocytopenia, and leukocytosis, in patients undergoing hemodialysis. Additionally, the study aims to explore the correlation of these abnormalities with the respective stages of chronic kidney disease (CKD) 130 cases are studied, and all the patients taken in the study have had ESRD for at least the past 3 months and have been seeking hemodialysis at a tertiary care hospital. All age groups are taken into account. Patients' creatinine and urea levels are obtained. Through patients creatinine and other details, eGFR is calculated and they are categorized into CKD stages. Stage1 with GFR of>90ml/min/1.73m^2 and Stage 5 with GFR of<15 ml/min/1.73m^2.

The CBC sample of the patient is run on a 6-part Sysmex XN-1000 haematology analyzer. The haematological parameters that are taken in our study are haemoglobin levels, total count, differential count, platelet count, red cell distribution width (RDW), and mean corpuscular volume (MCV). The peripheral smear examination of the CBC samples was done on ON slides, which are stained with Fields and Leishman stains and observed under the microscope.

RESULTS

The results indicate that among the 130 cases undergoing hemodialysis, the distribution based on the stage of Chronic Kidney Disease (CKD) is as follows: 97 cases (74.4%) were classified in stage 5, 28 cases (21.7%) in stage 4, and 5 cases (3.9%) in stage 3.

Age and Sex

In terms of age, the cases examined spanned from 18 to 86 years. The distribution of Chronic Kidney Disease (CKD) showed a higher prevalence among males; out of the 130 cases, 94 (71.8%) were males, while 36 (28.2%) were females. This suggests a greater susceptibility to CKD among the male gender in the studied population.

Anemia

Anemia emerges as the most prevalent complication of Chronic Kidney Disease (CKD). In alignment with the KIDGO 2012 guidelines, the diagnosis of anemia in adults and children under 15 years with CKD is established when the Hemoglobin (Hb) concentration falls below 13.0 g/dl (130 g/l) in males and 12.0 g/dl (120 g/l) in females.

In the current study, an overwhelming 96.8% of patients exhibited anemia. The severity of anemia was assessed in relation to the stages of CKD, with a categorization based on Hemoglobin levels: 7 gm% was considered severe, 7-11 gm% was classified as moderate, and levels exceeding 11 gm% were indicative of mild anemia (refer to Table-2). This comprehensive evaluation sheds light on the significant prevalence and varying degrees of anemia among CKD patients in the study cohort.

Table-2 Distribution of Hemoglobin

Hb(gm%)	CKD Stage 3	CKD Stage 4	CKD Stage5
< 7	2 (40%)	16 (57.14%)	61 (62.11%)
7-11	2 (40%)	11 (39.29%)	32 (33.68%)
>11/<13	0	0	1 (1.05%)
>13	1 (20%)	1 (3.57%)	3 (3.16%)

The study findings reveal a substantial prevalence of severe anemia among CKD patients, particularly in Stage-5, where 62.1% of patients were identified with severe anemia. In Stage 4 CKD, 57.1% of patients exhibited severe anemia, while in Stage 3, a lower proportion of 3.16% was observed. These results underscore the escalating severity of anemia with the progression of CKD, emphasizing the need for targeted interventions, especially in advanced stages of the disease.

Among Stage 4 patients, 3.57% exhibited Hemoglobin levels exceeding 11 gm%. The mean Hemoglobin (Hb) value across all CKD patients was 7.49. Notably, the mean Hb was highest in Stage 3, suggesting a positive relationship between the degree of anemia and the stage of Chronic Kidney Disease (CKD). The probability value (p value) for the presence of anemia in CKD patients was found to be <0.5%, indicating a statistically significant positive correlation. These statistical insights strengthen the understanding of the association between anemia and the advancing stages of CKD in the study cohort.

The analysis of Stage 5 Chronic Kidney Disease (CKD) patients revealed a statistically significant association with anemia, particularly with Hemoglobin levels less than 9 gm% (p<0.05), as indicated in Table-3. This finding emphasizes the clinical significance of anemia in the advanced stage of CKD, underlining the need for targeted interventions and vigilant management strategies in this specific patient population.

Table-3 –Mean and Standard of deviation of Hemoglobin

Stage	Mean(Hb-gm%)	Standard of Deviation
III	8.98	3.62
IV	7.27	2.05
V	7.48	6.05

Peripheral Smear Examination

Peripheral examination was conducted for all patients, and anemia typing was performed for individuals with Hemoglobin levels less than 13 g/dl. The results revealed that Normocytic Normochromic Anemia was prevalent in 91.1% of the patients, with a notable 76% of these cases found in Stage-5 CKD.

Microcytic Anemia was identified in 5.6% of the patients, while Macrocytic and Dimorphic anemias were each present in only 1.56% of cases, as outlined in Table-4. These findings offer valuable insights into the specific types of anemia associated with different stages of Chronic Kidney Disease in the study population.

Table-4: RBC morphology in Anemias - Stagewise

Morphology	Stage-3	Stage-4	Stage-5	Total
Normocytic Normochromic	4	23	85	112
Microcytic Hypochromic	0	1	6	7
Macrocytic	0	1	1	2
Dimorphic	0	2	0	2

Total Leucocyte count

The study encompassed 130 patients, with 57.3% (75 patients) displaying a normal Total Leucocyte Count (TLC), 27.1% (35 patients) exhibiting Leucocytosis, and 15.5% (20 patients) presenting with Leucopenia. Notably, a significant majority of

Stage-5 CKD patients demonstrated High TLC, with almost all of them (95.9%) exhibiting this pattern, except for three cases, as detailed in Table-5. These findings underscore the prevalence of leucocytic abnormalities, particularly elevated TLC, in the context of advanced CKD.

Table-5: Stage wise Total Leucocyte Distribution.

WBC count	Stage-3	Stage-4	Stage-5	Total
Leucocytosis	3	7	25	35
Normal Count	2	19	54	75
Leucocpenia	0	2	18	20
Total	5	28	96	130
Mean	17522	11104	9803	10389
Standard Deviation	**9941.2**	**7985.61**	**7437.68**	**7745.15**

Mean Corpuscular Volume

The mean Mean Corpuscular Volume (MCV) for CKD patients was calculated to be 87.50. The p-value associated with MCV concerning the stage of Chronic Kidney Disease (CKD) was found to be >0.05, indicating that the relationship between

MCV and CKD stage was not statistically significant, as outlined in Table-6. This suggests that there may not be a substantial association between MCV values and the progression of CKD in the studied patient population.

Table-6: Stage wise MCV Distribution.

MCV	Stage-3	Stage-4	Stage-5
<83	0	4 (14.29%)	24(24.11%)
83-100	4(80%)	23(82.14%)	67(70.53%)
>100	1(20%)	1(3.57%)	6(5.26%)
Mean	92.44	86.84	87.43
Std Deviation	9.86	9.45	9.79

Platelets

The study determined that the mean platelet count for the 130 Chronic Kidney Disease (CKD) patients was 1.87 Lakhs/cumm. This falls within the normal range for platelet

count, which is typically between 1.5 and 4.5 Lakhs/cumm, as indicated in Table-7. These results suggest that, on average, the platelet counts in the CKD patient population studied were within the expected and healthy range.

Table-7: Stage wise Mean Platelet Distribution.

Platelet	Stage-3	Stage-4	Stage-5
Mean	1.74	2.20	1.78
Std Dev	0.60	2.06	1.06

Table-8: Stage wise RDW Distribution

RDW	Stage-3	Stage-4	Stage-5
<15	80%	78.5%	60%
>=15	20%	21.5%	40%
Mean	16.22	17.33	16.09
Std.Dev	2.04	4.72	2.02

DISCUSSION

The discussion highlights key findings from the hospital-based study focusing on hematological parameters in Chronic Kidney Disease (CKD) patients with a low glomerular filtration rate (GFR) of less than 60 ml/min/m². The majority of CKD patients in the study were male, consistent with findings from other studies by Pandurang et al[13], Chakravarti et al[14], and Arun et al[15]. The mean age of the CKD patients was not provided in the excerpt.

One noteworthy observation was the high prevalence of anemia among CKD patients, with 96.8% of the study population exhibiting this complication. This aligns with similar findings in studies conducted by Chinwuba et al[16], Islam et al[17], and Bhattacharjee et al[18]. The distribution of hemoglobin levels was categorized into mild, moderate, and severe anemia, revealing statistically significant anemia in Stage 5 CKD patients with hemoglobin levels below 9 gm%, consistent with studies by Chakravarti et al[14] and Dewan et al[19].

The discussion delves into the potential causes of anemia in CKD patients, attributing it to the lack of erythropoietin (EPO) synthesis in damaged or injured peritubular cells in the kidneys. This results in low EPO levels, contributing to anemia. The nuanced discussion on the types of anemia observed in CKD patients, such as normocytic and normochromic types due to low EPO levels, as well as microcytic hypochromic, macrocytic, or dimorphic anemias resulting from declining nutritional status due to repeated dialysis and inadequate intake, provides a comprehensive understanding of the multifactorial nature of anemia in CKD.

The study references the 2012 Kidney Disease Improving Global Outcomes (KDIGO) guidelines, which recommend maintaining hemoglobin concentrations ≥10 g/dL in CKD-5D patients. Individualized therapy is suggested for patients with Hb <10 g/dL, taking into account factors such as the rate of fall in Hb concentration, response to iron therapy, transfusion risk, risks associated with erythropoietic stimulating agent (ESA) therapy, and the presence of symptoms.

Overall, the discussion provides a thorough analysis of the study's findings, contextualizing them within existing literature and clinical guidelines. It effectively highlights the significance of anemia in CKD patients, emphasizing the need for individualized management strategies in accordance with established guidelines.

The discussion further emphasizes the importance of establishing an adequate hemoglobin (Hb) target in the management of anemia, emphasizing its positive impact on physiological and clinical parameters, as well as the overall quality of life. The text highlights the crucial role of adequate iron stores in optimizing the effects of erythropoiesis-stimulating agents (ESA), such as recombinant human erythropoietin (EPO) or darbepoetin alfa. Notably, decreased iron stores or reduced iron availability is identified as a common cause of resistance to the effects of these agents.

The discussion underscores the significance of two key tests, serum ferritin and transferrin saturation (TSAT), in assessing iron status. These parameters are crucial for guiding and monitoring ESA therapy, ensuring that patients receive optimal treatment. Peripheral smear analysis revealed that the predominant morphology of anemia in the studied population was Normocytic Normochromic (91.1%). This finding aligns with the observations of other studies, including those by Chakravarti A et al[14], Mudiyammanarava NR et al[20], Dewan P et al[21], Reza et al[22], Arun S et al[15]. Additionally, macrocytosis has been associated with increased mortality in hemodialysis CKD patients, as demonstrated by Tennakore KK et al[23]. Neutrophilic leukocytosis has been linked to an elevated risk of mortality, according to the study by Redden et al[24]

The Mean Corpuscular Volume (MCV) is long being used diagnostic approach of anemia in clinical practise. The mean MCV was 87.3 and it was within the normal range. 5.25% of Stage 5 Patients showed MCV >100.

The discussion appropriately highlights the elevated mean Red Cell Distribution Width (RDW) observed in the study, noting its statistical significance. RDW is emphasized as a quantitative marker reflecting the variability in the size of erythrocytes. An increased RDW is explained as indicative of heightened size variations in red blood cells, suggesting altered erythrocyte life span or dysfunction.

The text introduces a critical hypothesis proposed by various authors, linking the size variations of erythrocytes to functional iron status and bone marrow functions. This insight underscores the potential clinical significance of RDW as a marker not only for erythrocyte abnormalities but also as a reflection of broader

aspects of hematological health, including iron status and bone marrow functionality[25-26].

The discussion extends to explore additional factors associated with Chronic Kidney Disease (CKD), including endothelial dysfunction, microalbuminuria (a marker of cardiovascular risk), inflammation, and increased oxidative stress, all of which have been suggested as potential contributors to increased mortality[27]. It is acknowledged that these mechanisms are still controversial, indicating a need for further research and clarification.

The text proposes the undertaking of prospective multicentric studies to delve deeper into the underlying pathophysiology of the elevated Red Cell Distribution Width (RDW) in CKD patients. This recommendation highlights the complexity of factors influencing RDW in CKD and emphasizes the necessity for comprehensive, multicenter investigations to elucidate the intricate relationships between RDW and various physiological and pathological processes in these patients.

CONCLUSION
The conclusion of the study succinctly summarizes key findings and implications:

Prevalence of Anemia: The study reveals a high prevalence of anemia, affecting 96.8% of the cases. The suspected cause is low erythropoietin levels, although specific data on this aspect is not available in the current study.

Statistical Significance of Low Hemoglobin: Hemoglobin levels less than 9 gm% were found to be statistically significant in Chronic Kidney Disease (CKD) patients, highlighting the clinical importance of monitoring and addressing anemia in this population.

Morphology of Anemia: Normocytic normochromic morphology was predominant in the majority of anemia cases, providing insights into the types of anemia observed in the study population.

Leucocytosis and Infective Etiology: Neutrophilic leucocytosis was observed in 27.3% of cases, suggesting a potential underlying infective etiology in these CKD patients. This emphasizes the importance of considering infectious factors in the clinical management of CKD.

Platelet Count: Approximately 43.7% of cases exhibited a lower platelet count, indicating a potential need for further platelet function and coagulation studies to understand the underlying cause.

MCV within Normal Limits: Mean Corpuscular Volume (MCV) was found to be within normal limits, providing insight into the size of red blood cells in the study population.

Raised RDW and Further Workup: Red Cell Distribution Width (RDW) was elevated and statistically significant, suggesting the need for further investigations to understand the underlying pathophysiology associated with this finding.

The conclusion emphasizes the clinical relevance of the study's hematological parameters in hemodialysis patients, highlighting their potential impact on prognosis and subsequent management. Additionally, the need for further research and understanding of underlying mechanisms is emphasized, pointing towards the importance of ongoing investigation and prospective studies in this patient population.

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GUNSHOT RESIDUE IN A NON-FIREARM DETAINEE POPULATION

Avinash Singh[1], Shivshankar Joshi[2]
[1]SRM Institute of science and technology, Ghaziabad
[2] SRM Institute of science and technology, Ghaziabad

ABSTRACT

Gunshot Residue (GSR) analysis cannot be overemphasized in firearm shooting investigation, hence gaining popularity in forensic ballistics recently. This article critically reviews the study conducted to ascertain possible presence of GSR on population not directly involved in the discharging of the weapon. The study sampled detainees at Police station whose criminal charge was not connected to firearms. It employed GSR analysis technique to determine presence of particles. From the findings, it was concluded that GSR is unlikely to get transferred to different surfaces. This article therefore scrutinizes the whole study to validate its findings. It discusses the strength that would make finding worth adopted and shortcomings that would not necessitate the adoption [1].

INTRODUCTION

Gunshot residue is the combustion products (burnt and unburnt) of the primer, propellant and in some cases debris from the bullet surfaces. (Martinez, 2019). According to the paper under review, GSR is forensic sub-discipline in Trace Evidence, whose forensic utility is to provide information as to whether there is a primary association of a person or surface with the discharge of a weapon or subsequent handling of a discharged weapon since after the firing GSR sneaks out onto different surfaces [2]. Various techniques are used for determination of its existence for instance, Walker's test, Harrison and Gilroy's test, dermal nitrate test, Scanning Electron Microscopy, Graphite Atomic Absorption Spectroscopy etc.

Basing on its (GSR) significance in linking the shooter to the weapon, the researcher's curiosity was to find out if indeed the deposition of these residues are restricted to the shooter only and not otherwise [3].

The study involved examination of presence of GSR in the hands of non-firearm detainee of Harris County Jail, Pre-trial Services Division who were not charged with any offence relating to discharging of firearm. It used the Scanning Electron Microscope (SEM) to count number of GSR particles. It was concluded from the Study that GSR is not transferred to other surfaces [4].

In the spirit of validating findings of the study for its applicability in the criminal justice system and society as a whole, the review is taking stock of the methodology used and procedures followed. In the course of the review, it will talk about its strong and grey areas, and will put forward suggestions.

EXECUTIVE SUMMARY OF THE RESEARCH PAPER

"Gunshot Residue in Non-Firearm Detainee Population" was a study done to establish the existence of Gunshot Residue on different surfaces more especially to the people who were not in close to the shooting area [5].

It sampled detainee at the Harris County Jail, Pre-trial Services Division, (they were not charged with any offences related to the discharge of a weapon).The use of these detainees was sanctioned by an institutional review board. The study examined hands of these detainees using Scanning Electron Microscope. Of the 175 samples obtained and tested during the grant period, not one characteristic GSR particle was captured [6].

From the findings, it was concluded that GSR is not likely to be transferred to unintended surfaces.

STRENGTH OF THE STUDY

It is worth mentioning that the study followed scientific research ethics and procedures to the extent that participants did it voluntarily. The strongest point with the study is the use of modern techniques of detecting GSR, for example, to analyze residues in detainees' hands, it used Scanning Electron Microscopy/Energy Dispersive X-ray spectroscopy (SEM/EDX). To date the SEM remains reliable technique in the determination of GSR due to its capacity of scrutinizing materials in simple and interpretable way [7]. As argued by (Zeiss, 2010) SEM has an ability to analyze the elemental composition of even the smallest features on specimens. This makes SEM standing tall amongst other techniques for it becomes possible to make conclusive identifications of the origin of some materials and thus contribute to the chain of evidence. With the use of such an instrument the study was assured to get accurate results. The assertion of SEM being indispensable is echoed by (Nanakoudis A, 2019) who alluded to the fact that it being a versatile tool for material characterization [8]. With usage of such machine, the probability of the results to be rejected/disputed is less. Putting other factors constant the study was likely to bring true findings, basing on the technique used in identifying the GSR on different surfaces.

SHORTFALL OF THE STUDY

Much as the study used the relevant technique, it over generalized its findings to the wholetheory of GSR deposition. It cloudily concluded that GSR cannot be transferred from Police officers or their restraining devices in the routine course of business. It did not specify as to which transfer of GSR it refers to, whether primary transfer, which entails the residue fusing straight from the weapon in times of shooting or secondary transfer, that happens in times of handshake with shooter. It could be better if it came clear on this [9].

Whatever the case would be, the study would have considered other confounding factors that could influence the results because in either of the scenarios, transferring of GSR happens. For instance in the secondary scenario where GSR is transferred to a person who was not present during the time of shooting, residue particles do migrate by means of hand shaking etc. Collaborating with this assertion, (French, 2013) argued that secondary transfer of GSR is possible, he said; particles may be transferred to the hands of a second individual via an interpersonal (hand-to-hand) contact and also via a contact with a recently discharged firearm [10].

As for the deposition of GSR on the shooter, in the primary scenario, it is a known fact that remnants of the chemicals in the primer and propellant either burnt or unburnt escape the firearm through any available opening i.e. the muzzle, breech end end etc., that means the GSR can be present on any nearby surface including body of the shooter and any material in between the muzzle and target [11].

The same argument was shared by (Heard 2008) who contended that about the mass migration of GSR from the discharged firearm. He cited an example of handgun whose GSR particles exit at a great velocity through the muzzle, while in self-loading pistols the particles fuses from the ejection port. On the other hand, revolvers releases its gases from the gap between the rear of the barrel and the front of the cylinder [12].

The other challenge is that the study was done on one police formation. It is difficult to extrapolate such results to the whole issue of GSR deposition.

With the above arguments it shows that the study could have done more good in considering other factors before rushing to a conclusion. It is not mentioned in the paper the last time the Police area experienced the shooting, and what was the weather like to wash away the GSR and what happened to these detainees before being tested it may have happened that they did not put on the clothes they wore during the time of GSR transferring.

CONCLUSION AND WAY FORWARD

The review has shown the need to seriously consider all factors that would affect the presence of GSR on unintended surfaces and consider the use of different to complement the findings. Application of relevant methods only on the detection of GSR does not suffice the bold conclusion as in this research.

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THE PSYCHOLOGY OF ADDICTION AND FACTORS CONTRIBUTING TO SUBSTANCE ABUSE

Ishpreet Singh Mokha
Student, M.A Clinical Psychology, Uttaranchal University, Dehradun

ABSTRACT
The psychology of addiction and the elements that contribute to substance abuse have been major research areas in the discipline of psychology. Understanding the psychological processes that underpin addiction, as well as identifying the many factors that lead to substance usage, is critical for effective early detection, intervention, and therapeutic techniques. This abstract summarizes the important results and developments in this field of research. The present research looks at the many facets of addiction, examining all interpersonal and environmental elements which impact its formation and maintenance. It includes a thorough review of the existing literature, including studies on genetics and heritability, adolescent risk factors, the influence of peer pressure, childhood trauma, co-occurring mental health disorders, cognitive processes, motivational factors, prevention strategies, neurobiology, and cultural influences.

KEYWORDS- *addiction, prevention, drug abuse, substance abuse.*

INTRODUCTION

For ages, drugs have been a component of human culture, providing a variety of functions such as medical treatment, leisure, and religious ceremonies. While drugs can be useful when taken safely and under medical supervision, their misuse and abuse can have serious effects for individuals, families, and society as a whole. Understanding what a drug is and what drug misuse includes is critical for grasping the complexity of substance addiction and devising successful preventive and intervention techniques. A drug, in the widest definition, is any chemical that, when taken into the system, changes the functioning of the body and mind. Drugs are classified into many kinds based on their pharmacological effects. Some medications have therapeutic characteristics and are given by doctors to treat symptoms, manage medical problems, or promote healing. When taken correctly and as intended, these medications lead to improved health outcomes and general well-being. Drug abuse, on the other hand, happens when a person takes drugs in a way that diverges from medical or legal restrictions, resulting in adverse consequences for their physical health, emotional well-being, associations, and general functioning. Drug abuse is defined as the extensive or chronic use of drugs for purposes other than their intended purpose or in a way that endangers the individual and those around them. Alcohol and other drug use among young people is on the rise all across the world. According to studies, drug addiction behaviors often begin around adolescence and have serious public health repercussions. Drug usage was insignificant among 10-13 year olds, but moderate among 14-15 year olds, and highest among 16-19 year olds. Tobacco, alcohol, opiates, heroin, and prescription pharmaceuticals were among the substances of choice among the young in India. Gender variations in the amount of substance

consumption but not in the choice of substances were found among users. since a result, it is critical that we target the young population, since drug misuse is connected with a number of psychological, social, physical, legal, and economic consequences. A number of psychological issues have been linked to drug misuse. Peer pressure, media representation of celebrity substance use lucrative marketing, appealing packaging, and promises of delight are all regularly related with the dangerous use of drugs by the young. In general, it is commonly believed that peers, social environment, family, and subjective variables all have a significant impact in young people's substance misuse behaviors.

BACK GROUD AND LITERATURE REVIEW

1. The World Drug Report states that Cannabis is still the most extensively used narcotic in the world, with an anticipated 209 million users in 2020, accounting for 4% of the worldwide population. Cannabis consumption has climbed by 23% in the last decade. With 16.6% of individuals reporting cannabis usage, North America possesses the greatest prevalence. Cannabis is the leading substance of concern among those in treatment in Africa. Women's use of cannabis varies by geography, varying from 9% in Asia to 42% in North America. Also Opioids were used by roughly 61 million people in 2020, accounting for 1.2% of the world population. Half of these users were from South and South-West Asia. An estimated 31 million Opioids users mostly utilized opiates, with heroin becoming among the most common. In 2020, the level of Opioids usage stayed constant. The expected number of people using opiates in 2020 has more than quadrupled since 2010, thanks in part to more accurate data from major population nations. In 2020, almost 40% of those in drug treatment said Opioids were their main drug of choice. Opioids provide the

highest risk of mortality of any drug class, accounting for around two-thirds of all drug-related deaths, largely due to overdoses. Cocaine was taken by an estimated 21.5 million people in 2020, accounting for 0.4% of the world population. Cocaine's primary consumption markets are North America and Europe. Cocaine demand has increased across Africa and Asia over the last two decades, but regional variances and inadequate data prevent a thorough knowledge of its degree of usage. Cocaine production hit a new peak in 2020, with 1,982 tones of pure cocaine. Seizures are progressively being done closer to manufacturing sites in South America, where the total amount confiscated is now three times that of North America. Maritime trafficking has been a common way of shipping cocaine, accounting for over 90% of all intercepted amounts. Cocaine production has a considerable carbon footprint, far more than comparable crops commonly employed in alternative development projects. Coca bush farming leads to deforestation, especially because it enables other economic activity along the agricultural border. The worldwide cocaine market is growing, with increased consumption and a surge in both manufacture and seizures during the last decade. Cocaine markets are spreading outside of traditional regions such as North America and Western Europe, with increases seen in Africa and Asia. Significant amounts of cocaine are smuggled from Latin America to Europe via West and North Africa. Amphetamines were used by approximately 34 million people in 2020, accounting for 0.7% of the world population. According to qualitative evaluations, amphetamine usage increased throughout that year. Though North America has the highest incidence of amphetamine usage, East and South-East Asia have the biggest number of users. Around 20 million persons used "ecstasy"-type drugs in 2020, accounting for 0.4% of the world population. Movement limitations enforced during the COVID-19 epidemic had a significant impact on "ecstasy" use.

Amphetamine-Type Stimulants (ATS) were captured in record amounts in 2020, with methamphetamine dominating on a worldwide scale. ATS trafficking, notably methamphetamine trafficking has extended geographically. The market for "captagon" in the near and Middle East is thriving, with seizures expected to hit a new peak in 2020. Seizures suggest a change in methamphetamine production towards P-2-P precursors and away from ephedrine and pseudoephedrine; however the latter two remain commonly utilized. Traffickers continue to seek non-controlled compounds as precursors, pre-precursors, and "designer precursors" in ATS synthesis to avoid restrictions and international authorities. Methamphetamine is the most dangerous drug in East and South-East Asia, opium and heroin are prominent in South-West Asia and South Asia, and "captagon" (amphetamine) is common in the Near and Middle East. According to recent reports, methamphetamine usage is increasing in Afghanistan, as is the use of methamphetamine and "captagon" pills across South-West Asia and the Gulf, however current numbers are unavailable. South-East Asia has a thriving ketamine market. Asia had the greatest gender disparity in drug usage, with just 9 out of 100 women reporting cannabis use in the previous year. Asia has the most People Who Inject Drugs

(PWID) in the world, with 5.2 million people, and the greatest incidence of hepatitis C (2.8 million). South-West Asia has the highest HIV prevalence among PWID. Opium production surged in South-West Asia and South-East Asia in 2020, accounting for more than 90% of world output in these two sub regions. Methamphetamine production in Afghanistan has expanded, and the substance is being transported across the area into South-West Asia. Seizures in the Gulf point to the creation of a methamphetamine market. The market for "captagon" in the Near and Middle East is thriving, with record seizures expected in 2020. South-East Asia has a major methamphetamine production business, with seizure growth expected to accelerate by 2020. Seizures in East Asia, on the other hand, have marginally decreased. Cocaine seizures suggest that the trade in cocaine is expanding throughout Asia, with major large-scale seizures in the area between 2020 and 2021.

2. There are various factors contributing substance abuse out of which affect majorly and a generally considered a basic of maximum substance abuse case, Substance misuse is influenced by biological as well as genetic variables. Multiple studies have found a genetic propensity to addiction, implying that certain people are predisposed to developing drug misuse disorders owing to hereditary features. The way the human body reacts to substances such as alcohol or drugs might be influenced by genetics. Mutations in individual genes can influence how chemicals are metabolized as well as how the reward mechanism in the brain functions. Certain genetic variants, for instance, may make a person more susceptible to the rewarding effects of drugs, raising the chance of repeated use and addiction. Furthermore, family and twin studies have revealed a genetic component to drug dependence. People with a family record of addiction are more likely to acquire addiction. The existence of certain genes linked to addiction, such as those connected to dopamine receptors and neurotransmitter systems, lends credence to the hereditary effect on substance misuse. While genetics have a role, it is crucial to highlight that they are not the only factor that influences substance misuse. Environmental variables and personal experiences both play a vital role in the formation of addiction. Other variables interact with genetics to form an individual's risk. Genetic factors simply raise an individual's sensitivity and vulnerability to drug misuse. Identifying the genetic and biochemical variables that contribute to drug misuse is essential for establishing effective prevention and treatment measures. It enables focused interventions, personalized therapies, and early detection of those who may be at danger. Furthermore, research in this field has the potential to identify novel therapeutic targets and ways for addiction therapy. It is critical to address the issue of hereditary aspects in drug dependence with caution and avoid stigma. Individuals with a genetic susceptibility can still make decisions that reduce their risk by living in a supportive environment, receiving education, and receiving early intervention. Numerous research on the involvement of genetic and biological variables in drug misuse have been undertaken. A 2003 research in America looked at the role of genetic and environmental variables in male twin drug

dependence. According to the findings, both genetic and environmental variables play a major role in the risk of drug misuse, with hereditary factors explaining a considerable percentage of the variance. a research carried out in 2004 The purpose of this study was to investigate the reliability of genetic studies on brain function and drug misuse. The researchers discovered that the initial results about the genetic effect on response inhibition were likely overestimated by re-analyzing data from two twin studies. The study highlights the importance of caution and reproducibility in genetic research. Environmental variables are important in the development of drug misuse. These elements include many aspects of a person's surroundings, such as their social, cultural, and physical environment. Understanding how environmental variables affect preventive and intervention is critical for designing successful preventative and intervention techniques. Peers, family, and social networks may all have a significant impact on a person's substance use behavior. Peer pressure can have a crucial role in developing and maintaining drug usage, particularly throughout adolescence. Furthermore, family variables, such as parental substance usage and a lack of parental monitoring or support, might raise the likelihood of substance dependence. Cultural norms and social attitudes regarding substance use can impact people's views and behaviors. Certain drugs may be more acceptable or even promoted in particular cultures, leading to greater rates of substance misuse. Cultural influences influence the availability, accessibility, and social acceptability of drugs, which can have an impact on usage patterns. Drug availability and accessibility are important variables in drug misuse. The ease, with which drugs or alcohol may be obtained, whether legally or illegally, increases the risk of experimenting and regular usage. Substance availability and consumption rates can be influenced by factors such as the proximity of alcohol or drug stores, promotion, and pricing. Adverse childhood events, such as physical or sexual abuse, neglect, or witnessing violence, can dramatically raise the likelihood of substance misuse. Individuals may turn to narcotics to cope with the emotional and psychological consequences of trauma. Adverse childhood circumstances, such as unstable home situations, poverty, or parental substance usage, all increase the chance of later-life substance dependence. An individual's drug usage can be influenced by perceived standards and the behavior of others within a social group. Individuals may be more prone to participate in such behaviors to fit in or acquire social approval if drug use is viewed as typical within a specific social group or community. Stressful life events, such as divorce, the loss of a loved one, financial troubles, or scholastic pressure, can all lead to drug misuse because people may resort to substances to escape or cope with stress. Media representation of substance use, as well as advertising, can impact attitudes and behaviors connected to substance misuse. The glamorization or normalization of substance use in films, music, and ads has the potential to affect public opinion. Substance addiction and mental health illnesses are inextricably linked, and their interaction is complicated and bidirectional. Substance misuse and mental health illnesses commonly coexist, with persons suffering both symptoms at the same time. This comorbidity is caused by common risk factors such as genetic predisposition, neurobiological variables, and environmental effects. Depression, anxiety disorders, post-traumatic stress disorder (PTSD), bipolar disorder, and attention-deficit/hyperactivity disorder (ADHD) are all common mental health diseases related with substance addiction. Many people who suffer from mental illnesses use drugs or alcohol as a sort of self-medication or coping method. Substance abuse may give a temporary relief from painful symptoms or a way to escape from emotional agony or burdensome thoughts. Self-medication, on the other hand, can lead to a cycle of reliance and aggravate mental health problems over time. The presence of both a drug use problem and a mental health issue is referred to as dual diagnosis. The interaction between the two illnesses hampers diagnosis, treatment planning, and total recovery in dual diagnosis situations. Integrated treatment techniques that address both drug misuse and mental health illnesses at the same time are the most successful in promoting long-term recovery. Substance misuse and mental health issues share basic neurobiological pathways that make them vulnerable. Neurotransmitter dysregulation, such as dopamine, serotonin, and nor epinephrine, is typically linked in both diseases. Furthermore, those who have particular genetic predispositions or changes in brain circuitry may be more prone to developing both drug misuse and mental health issues. Traumatic events, such as physical or sexual abuse, neglect, or other types of trauma, have been shown to be highly connected to both mental health illnesses and substance misuse. Trauma can raise the chance of developing mental health illnesses such as post-traumatic stress disorder (PTSD), as well as contribute to drug misuse since people may resort to substances to cope with unpleasant memories or dull emotional anguish. Affiliation with a gang-A gang, according to the law, is a group of three or more persons who engage in illegal behavior. According to the research, there is a considerable positive relationship between gang involvement and drug use, which has been demonstrated to outweigh the impact of normal deviant peer groups. Specifically, gang members had greater rates of alcohol and marijuana usage than those who are linked with a group of deviant peers. The attractiveness of criminal behavior can entice teenagers to gangs, and once membership is established, involvement in the gang can stimulate more deviant behaviors and drug use. Familial issues have also been demonstrated to impact gang membership. Positive parent-child interactions and assertive behavioral parenting have been demonstrated to reduce the risk of drug use as facilitated by gang membership Positive familial environment is frequently mentioned in the research as a protective factor that moderates teenage drug use through gang membership. There is some evidence that unique ethnic group cultural values might operate as moderators or risk factors for teenage drug use.

3. Substance misuse can lead to or worsen the development of a variety of mental health conditions. Substance misuse can cause or impact the following mental health disorders:
Substance-Induced Psychotic Disorders: Substance abuse, especially methamphetamine, cocaine, or hallucinogens, can cause psychotic symptoms such as hallucinations, delusions, and

disorganized thinking. These symptoms usually go away once the drug is removed from the body.

Substance-Induced Mood Disorders: Substance misuse can cause mood disorders such as depression or manic episodes. Prolonged alcohol or sedative use, for example, might depress the central nervous system and cause depressive symptoms. Stimulant abuse, such as cocaine or amphetamines, can cause euphoria and manic symptoms.

Substance-Induced Anxiety Disorders: Substance misuse, particularly with benzodiazepines or alcohol, can cause or intensify anxiety disorder symptoms. While drugs may give momentary relief from anxiety, long-term usage can lead to increased anxiety and panic symptoms.

Substance-induced sleep disorders: Certain chemicals, such as stimulants or sedatives, can disturb normal sleep patterns and contribute to the development of sleep disorders such as insomnia or hyper somia.

Substance-Induced Cognitive Disorders: Long-term substance misuse, particularly with inhalants or alcohol, can cause cognitive impairment, memory problems, and general cognitive dysfunction. These effects may last long after the drug has been discontinued.

Substance-Induced Personality problems: Substance misuse can cause personality changes or worsen existing personality problems. Chronic amphetamine misuse, for example, may result in increased impulsivity, violence, or antisocial behavior.

Fetal Alcohol Syndrome (FAS) is a disorder that develops when a pregnant woman consumes alcohol, and it can cause substantial physical, cognitive, and behavioral problems in the growing fetus. FAS are regarded as one of the most severe effects of prenatal alcohol consumption.

4. Depending on the drug consumed, substance misuse can cause a variety of physical health issues. The following are some of the most frequent physical health concerns related with substance abuse:

Alcohol and some substances, such as Opioids and some prescription medicines, can harm the liver. Long-term drug misuse can result in alcoholic hepatitis, liver cirrhosis, and liver failure. Certain narcotics, such as cocaine and amphetamines, can have a negative influence on the circulatory system. High blood pressure, abnormal heart rhythms, heart attacks, and other cardiovascular problems can result. Inhalation of drugs such as cigarettes, marijuana, and some chemicals can harm the respiratory system. Chronic drug usage can lead to respiratory disorders such as chronic bronchitis, emphysema, lung cancer, and others. Substance misuse impairs the immune system, rendering people more susceptible to illnesses such as pneumonia, TB, and sexually transmitted infections. The use of injection drugs, in particular, raises the risk of blood-borne illnesses such as HIV and hepatitis. Substance misuse, particularly alcohol and Opioids usage, can result in

gastrointestinal disorders such as gastritis, ulcers, pancreatitis, and gastrointestinal haemorrhage. These disorders can cause excruciating pain, malnutrition, and digestive system malfunction. Substance addiction can result in poor eating habits, a loss of appetite, and inadequate nutritional absorption. This can lead to malnutrition, vitamin shortages, and other health problems. Substance addiction can have a detrimental impact on sexual and reproductive health. It may contribute to sexual dysfunction, infertility, monthly abnormalities, and pregnancy problems, resulting in negative effects for both the mother and the child. Substance misuse, particularly with substances such as methamphetamine and cocaine, can result in significant tooth issues. These compounds can cause tooth decay, gum disease, tooth loss, and other problems with your oral health

5. Depending on the drug consumed, substance misuse can cause a variety of social/societal issues which include,

Family Dysfunction: Substance misuse frequently affects family connections, resulting in disagreements, a loss of trust, and emotional pain. It can disturb family rhythms, jeopardize children's well-being, and lead to domestic violence.

Financial Difficulties: Substance misuse may be costly, causing people to choose drug use above basic necessities like shelter, food, and education. This can lead to financial insecurity, hardship, and an increasing dependency on government support programmes.

Legal Concerns: Substance misuse is commonly linked to criminal conduct, such as drug possession, delivery, and driving while intoxicated. Arrests, jail, fines, and a criminal record can all result in legal ramifications that hinder future career opportunities.

Reduced job Productivity: Substance misuse can cause absenteeism, poor job performance, and an increase in workplace accidents. This has an influence not just on people, but also on the general productivity and economic stability of communities.

Individuals with drug misuse issues may withdraw from social activities and interactions, resulting in isolation, loneliness, and a reduction in support networks. This might aggravate mental health difficulties and make rehabilitation more difficult.

MEASURES
It is critical to take preventative steps and make healthy choices to avoid substance usage. Here are some tactics and measures that may be of assistance:

Education and Advocacy: Inform yourself and others on the dangers and effects of drug usage. Understand the possible physical, emotional, and societal consequences of certain drugs. Stay informed by using trustworthy sources such as medical experts, educational programmes, and credible websites.

Build a strong support network of friends and family who share your commitment to a substance-free living. Surround yourself

with good influences and indulge in non-drug-related hobbies. In difficult circumstances, peer and family support may give encouragement, accountability, and aid.

Develop good coping mechanisms to deal with stress, anxiety, and emotional issues. Exercise, hobbies, mindfulness, meditation, and spending time with loved ones are all activities that improve physical and mental well-being. Seek professional assistance if necessary to properly treat underlying mental health concerns.

Setting limits: Establish clear limits and convey them assertively to peers and acquaintances. Learn to say no to circumstances or people who could expose you to drugs. Surround yourself with people who support your decisions and promote a drug-free lifestyle.
Responsible Prescription medicine Use: If you have been prescribed medicine, make sure to completely adhere to the authorized dosage and administration guidelines. Discuss any concerns or possible hazards linked with the recommended drug with your healthcare physician.

Avoid High-Risk areas: Limit your exposure to areas where substance misuse is common, such as parties, clubs, or locations where drugs are commonly used. Attend social events with caution and make conscious decisions to avoid circumstances where substance use is promoted or normalized.

Maintain open and honest contact with your friends, family members, and loved ones. Discuss honestly your worries about substance usage, get help when necessary, and urge loved ones to do the same. Make a safe environment for discussions regarding substance use and its possible repercussions.

Seek Professional treatment: Seek professional treatment if you are battling with drug misuse or have a history of addiction. There are several options accessible, including therapists, counsellors, support groups, and treatment programmes.

CONCLUSION
Finally, a mix of biological, genetic, and social variables influences drug misuse. A person's vulnerability to addiction is influenced by genetic predisposition, as some genes can impact how the body metabolizes drugs and how the brain's reward system operates. However, genetics alone do not influence substance misuse; environmental circumstances and personal experiences are equally important. Peer pressure, familial dynamics, cultural norms, the availability of drugs, and trauma exposure can all lead to substance misuse. Peer pressure, a family history of addiction, and traumatic childhood events all raise the risk of developing drug use problems. Stressful life situations and media portrayals of substance usage can also impact an individual's views and behaviors towards substance abuse. Substance addiction frequently coexists with mental health issues, and the two have a bidirectional link. Substance abuse can exacerbate or precipitate mental health problems, and people with mental diseases may turn to substances as a form of self-

medication. Integrated treatment techniques that address both drug abuse and mental health disorders at the same time are essential for successful recovery. Substance addiction can have serious medical repercussions, such as liver damage, cardiovascular difficulties, respiratory illnesses, a weaker immune system, gastrointestinal troubles, dietary inadequacies, and sexual/reproductive health concerns. Furthermore, drug abuse can cause societal challenges such as family discord, financial difficulties, legal troubles, decreased job productivity, and social isolation. Addiction requires a multifaceted strategy that includes education, prevention, early intervention, treatment, and support. It is critical to promote knowledge about the genetic and environmental variables that contribute to drug misuse without stigmatizing those who have a hereditary predisposition. Understanding the underlying causes and risk factors allows for the development of effective preventative methods and focused treatments to reduce the effects of drug misuse and promote healthier lifestyles.

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ROLE OF FOOD AND BEVERAGE INDUSTRIES IN INCREASING JOB POSSIBILITIES

Dr. Rubina Shahnaz[1], Dr. Tabassum Qamar[2]

[1]Principal, Al-Barkaat Institute of Education, Aligarh
[2]Assistant Professor, Al-Barkaat Institute of Education, Aligarh

ABSTRACT

In the dynamic landscape of India's evolving economy, the food services sector has not only become a thriving industry but has also played a key role in promoting job opportunities. This industry, which encompasses cafés, restaurants, food delivery services, and catering, is broad and multifaceted, plays a crucial role in providing a wide array of employment opportunities. This paper explores the pivotal role of the food services industry in India as a catalyst for increasing job possibilities. As India undergoes economic transformation, the food services sector has emerged as a dynamic force, creating diverse employment avenues. The industry provides a wide range of occupations, from entrepreneurial to culinary roles, and it supports employment in both urban and rural areas. This paper presents the Food and Beverage industries as a key player in India's changing economic landscape by highlighting its diverse effects on enhancing job possibilities.

KEYWORDS: *Food Services Sector, Job Opportunities, Thriving Industry, Entrepreneurial, Economic landscape*

INTRODUCTION

"If India grows from 7.5 per cent to 9-10 per cent, the restaurant industry will be very critical drivers of growth. Food services industry will be main drivers of India's growth," says Niti CEO Amitabh Kant at an event organised by the National Restaurant Association of India (NRAI, May 2019)

India's economy has undergone a dramatic upheaval in the last several years, with the service sector being a key engine of expansion. The Food and Beverage Industries is one of the many subsectors of the service industry that has grown to be important for both employment generation and the economy. This industry, which includes cafés, restaurants, food delivery services, and catering, is a dynamic industry that has grown to be a significant job creator in the nation. A vast range of employment options are available in the food industries sector, from front-of-house professions like waiters, hosts, and managers to culinary roles like chefs, cooks, and kitchen personnel. Furthermore, there is a surge in entrepreneurship as more small and medium-sized enterprises (SMEs) enter the market, and there is a growing demand for professionals in fields like food safety, nutrition, marketing, and hospitality management. These developments create a variety of career paths for people with a range of skills and interests. Aspiring entrepreneurs can easily launch their own businesses in this sector because to the comparatively low entry barriers, which promotes competition and innovation in addition to job creation. The food industries affect rural communities in addition to metropolitan ones. Fresh produce, dairy, and other food products are in high demand, which boosts agriculture and allied sectors and creates jobs in both urban and rural areas.

The relationship between the food services industry and rural employment is further strengthened by initiatives like farm-to-table methods and local sourcing. New job responsibilities in data analysis, digital marketing, and IT support have been brought about by online meal delivery platforms, digital marketing, and restaurant management software. The integration of technology with conventional food industries not only improves productivity but also opens up job prospects in developing industries. Through a variety of culinary schools and vocational training programmes, people can learn the skills they need to get employment.

This commitment to skill development not only increases people's employability but also meets the requirement for qualified and skilled workers in the business. In India, the food industries is a major driver of job growth, providing a wide range of jobs in different skill levels and fields. The industry's contribution to employment growth and India's economic progress is expected to intensify as it continues to change and adapt to shifting customer tastes and technology advancements. The Indian food market is massive. As of 2019, the organized food market that includes restaurants was worth $22 billion, of which online food delivery only made up about 15%. That shows the huge growth potential of the food delivery sector in the country. In 2020, India's online food delivery market was valued at approximately $5 billion. The COVID-19 pandemic helped grow the sector, and it's expected

to reach about $21 billion by 2026 at a CAGR (compound annual growth rate) of nearly 30%. Growth is mainly concentrated in large cities such as Mumbai, Delhi, and Bangalore (GLG Remote Roundtable, 2021). There has been a noticeable shift in population towards smaller cities, and as individuals become less reluctant to buy takeaway online, the number of smaller cities is growing quickly. In these regions, people are far more aware that they may order food delivery rather than dining out. Orders are beginning to come in from older parents, who were not the intended target demographic. More delivery-oriented brands are seeing opportunities to open.

Less than a decade ago, the country had a very different food consumption pattern. The market was highly segmented back then, and we had not yet used the term "ordering in" for meals. When it came to ordering meals, there were just a few restaurants that offered home delivery or a trusty pizza chain to call. Eating out was mostly determined by the occasion. A window of opportunity existed, leading to the creation of marketplaces and aggregators that provided a certain level of convenience to clients by listing eateries in metropolitan regions. But looking back, there were a lot of problems with the marketplace approach.

The problem of inconsistent delivery was rampant, which when combined with the long waiting period and exorbitant minimum order conditions, failed to address the customer gap and consequently limited adoption among consumers. Due to their failure to adjust to the digital era, restaurants were finding it difficult to grow while maintaining profit margins. To put it plainly, the ecosystem as a whole would profit greatly from the creation of a scalable, sustainable platform with a robust back end for logistics and a personalized user experience.

This investigation explores the ways in which the food services sector in India has emerged as a job creator, looking at how it affects employment, entrepreneurship, technology integration, and the ongoing focus on skill development. We may obtain important insights into the revolutionary role that the food and beverage industry plays in reshaping India's employment environment by providing employment possibilities.

REVIEW OF THE STUDIES
Number of studies has been conducted so far on the expansion of Food Beverage Industries, few are quoted here related to the topic.
Alalwan, A. A. (2020), Belanche, D., Flavián, M., & Pérez-Rueda, A. (2020), Boyer, K. K., &Hult, G. T. M. (2005), Iyer, P., Davari, A., & Mukherjee, A. (2018) and Kapoor, A. P., &Vij, M. (2018) highlighted the use of Mobile App for ordering food among the customers. While, Girija, T., Asokumar, B., &Meena, S. (2019) investigated the expansion of Online Food Delivery Services and consumer satisfaction for these services.

Dospinescu, N., Dospinescu, O., & Tatarusanu, M. (2020) studied the factors influencing the reputation of Food Delivery Companies. A survey was also conducted by Economic times in 2020 to study the Food Delivery Services with hygienic point of view.

Researchers do not find any study conducted so far focusing the growth and role of these Food Delivery Services in increasing job opportunities to other sectors.

RESEARCH QUESTIONS
- How the growth of Food and Beverage Industry is taking place?
- How the Food and Beverage Industries contributing in increasing the job possibilities to others?

OBJECTIVES
1. To study the expansion of Food and Beverage Industry.
2. To highlight the mode of payment preferred by the people.
3. To study the people's preferred ordering mode.
4. To research the contribution of Food and Beverage Industries to more employment prospects.

METHODS
Sample
The sample consists of 89 people living in Aligarh City of Uttar Pradesh, India. The data has been collected from both male and female respondents belonging to various age groups: Below 30, 30-40, 40-50 and above 50 and various professions: teacher, students and others.

Tools
For the present study an online survey was carried out using a self prepared questionnaire on Google form.
The questionnaire consists of various questions based on gender, age, educational level, occupation, purpose for using online meal delivery services, payment method, ordering frequency, and other topics.

The questions based on gender, age, educational level of respondents, occupation, purpose of availing food services and frequency of ordering food are included to evaluate the growth of food services marketing.

The question based on payment mode indicates the growing career opportunities in the payment services, while the question based on preferred ordering mode shows work prospects for home delivery services.

Statistical Techniques
The researcher computed the respondents' frequency and percentage in order to analyze the current data.
Pie charts and bar graphs are used to display the data.

DELIMITATIONS OF THE STUDY

- The study is conducted on a small sample size of 89 (who responded back). It can be carried out by gathering a sizable sample.
- The sample included the teachers, home makers, students and others. It can include in the sample people of other professions too.
- The survey was conducted in Aligarh City to collect the data. It can be conducted at state or National Level for more reliable results.
- More questions about potential causes of the growth of food services marketing, such as people's changing lifestyles, increased reliance on technology, lack of time for home cooking, women's propensity for working outside the home, etc., may be included in the survey questionnaire.

INTERPRETATION OF THE DATA
Objective 1: To study the growth of Food Services marketing.

An online survey was conducted to collect the data for the present study on the people living in Aligarh City via Google form. About 89 people gave their responses. None of them chose to respond negatively when asked if they use any food services. This demonstrates that every research participant uses meal services for a variety of reasons. This demonstrates how food service marketing is expanding and becoming more prevalent in people's lives.

Figure 1: Gender wise preference of availing Food services
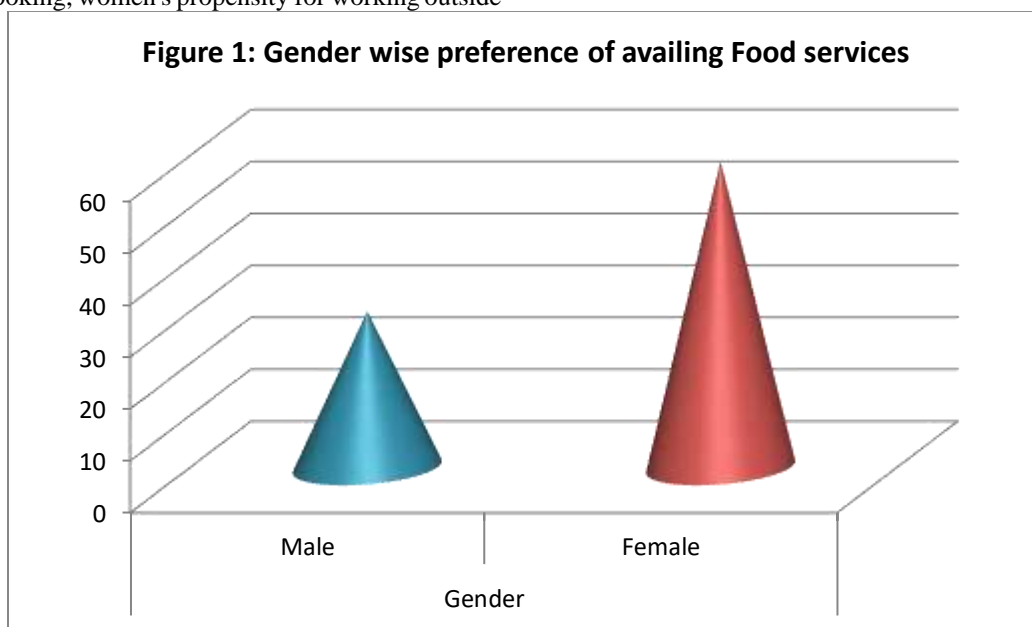
The gender preference for using food services is displayed in the above graph (Figure 1). The female rate is greater than the male rate. Out of 89 respondents, more women (59) than men (30) said they preferred ordering takeaway to cooking at home.

Figure 2: Age wise preference of availing Food Services
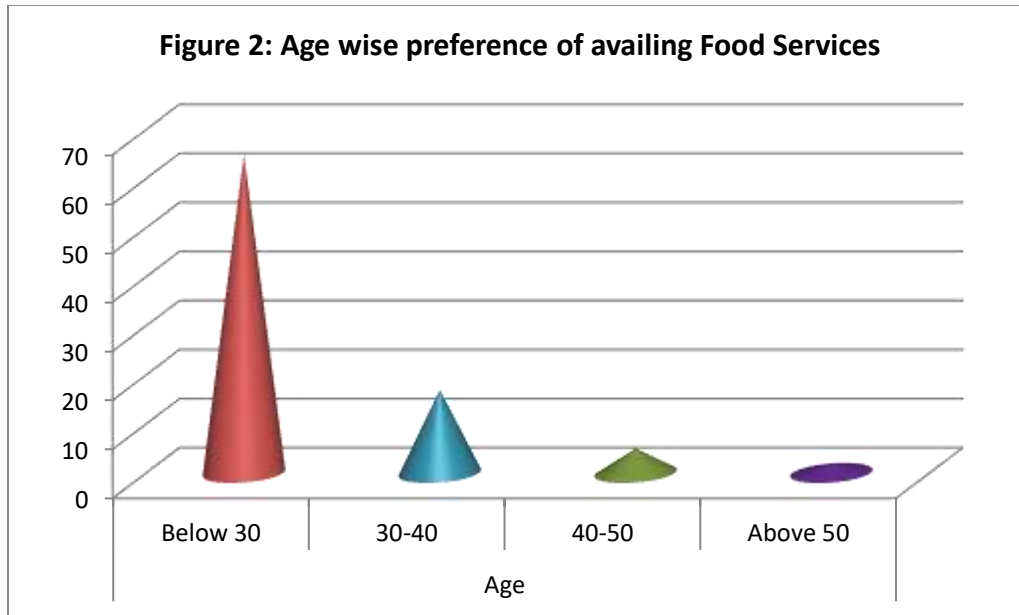
When the data was examined to determine which age group preferred these readily available food services the most, it was discovered that (Figure 2), respondents in the age group under 30 preferred more (65 out of 89), while respondents in the age group over 50 showed less preference.

Figure 3: Educational level wise preferences of availing Food Services
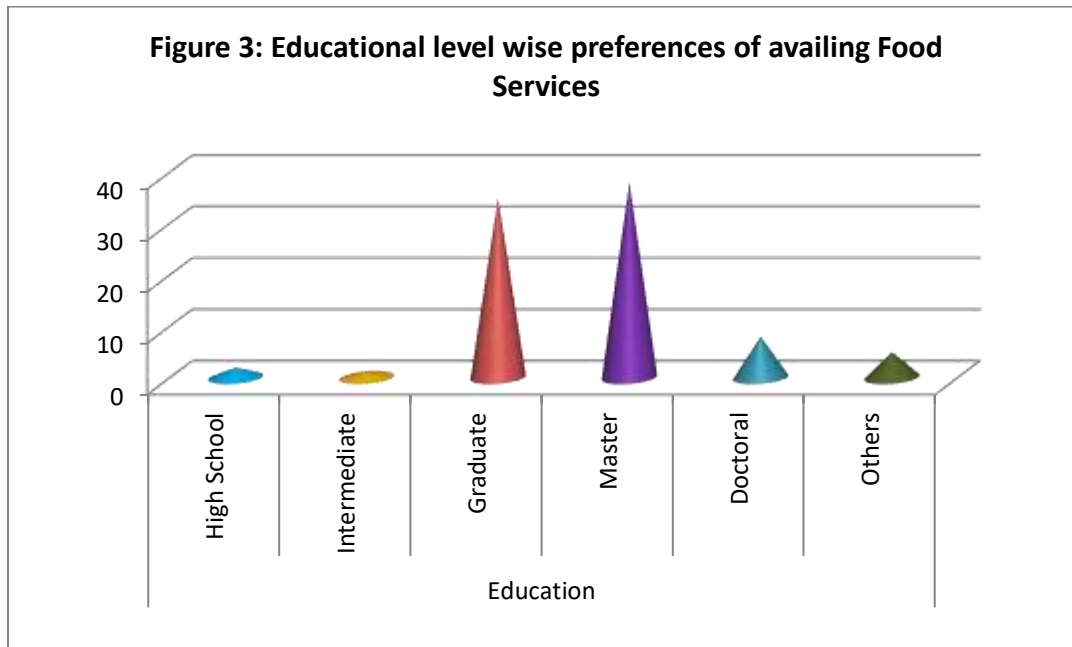
The aforementioned figure 3 demonstrates that individuals with graduate degrees (35 out of 89) and master's degrees (38 out of 89) prefer to use food services more than those with high school diplomas, intermediate degrees, doctorates, and other qualifications.

Figure 4: Ocuupation wise preference of availing Food Services
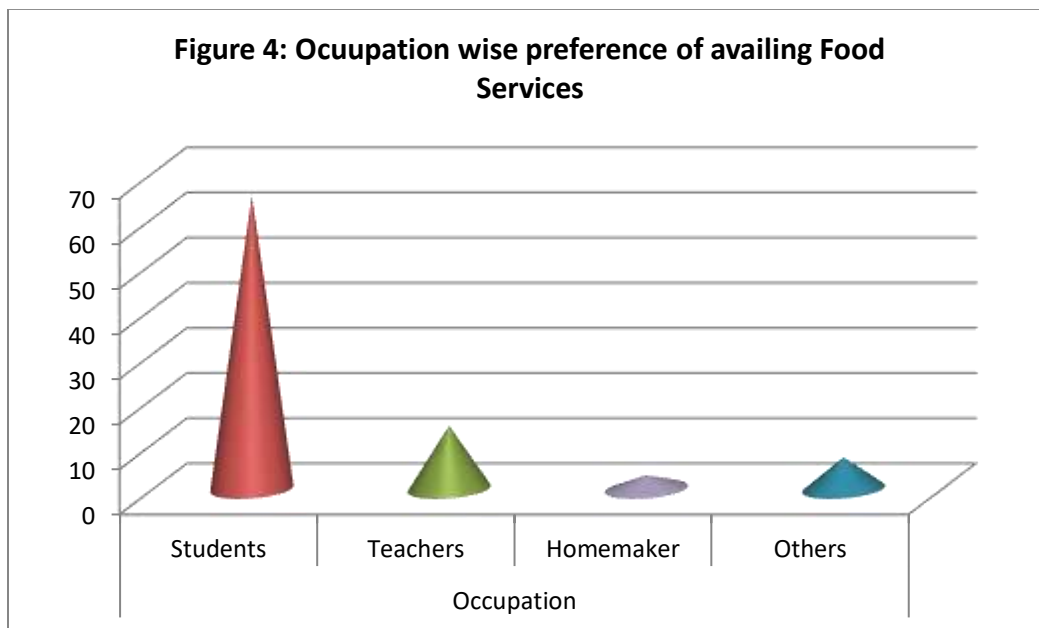
According to the data gathered, students (65 out of 89) in the whole survey group (Figure 4) choose to use these meal services more than persons in other professions, such as teachers, stay-at-home moms, and others.

Figure 5: Purpose of availing Food Services
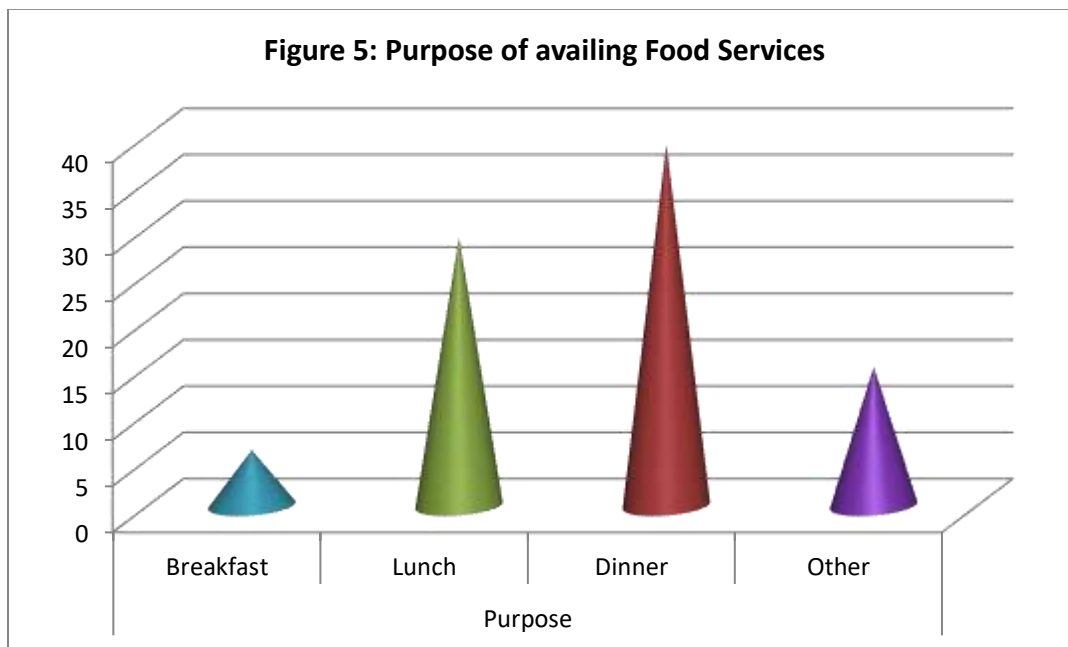
The current data also demonstrated why these meal services were used (Figure 5). The majority of respondents choose to use these services for lunch (29 out of 89) and dinner (39 out of 89). Very few people want to order snacks and breakfast.

Figure 6: Frequency of availing Food Services
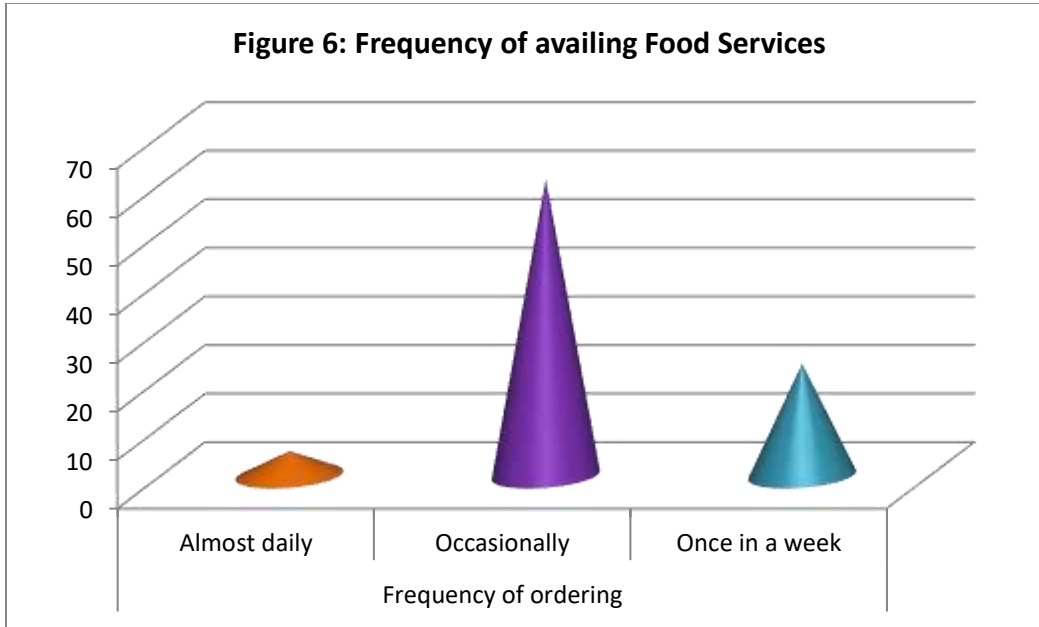
The frequency of using food services is the final important component of the data that is currently available regarding the expansion of food services marketing (Figure 6). It was discovered that 61 out of 89 respondents preferred ordering food infrequently, 23 preferred doing so once a week, and only 5 preferred doing it every day.

Objective 2: To highlight the mode of payment preferred by the people.

Figure 7: Mode of Payment preferred by the People
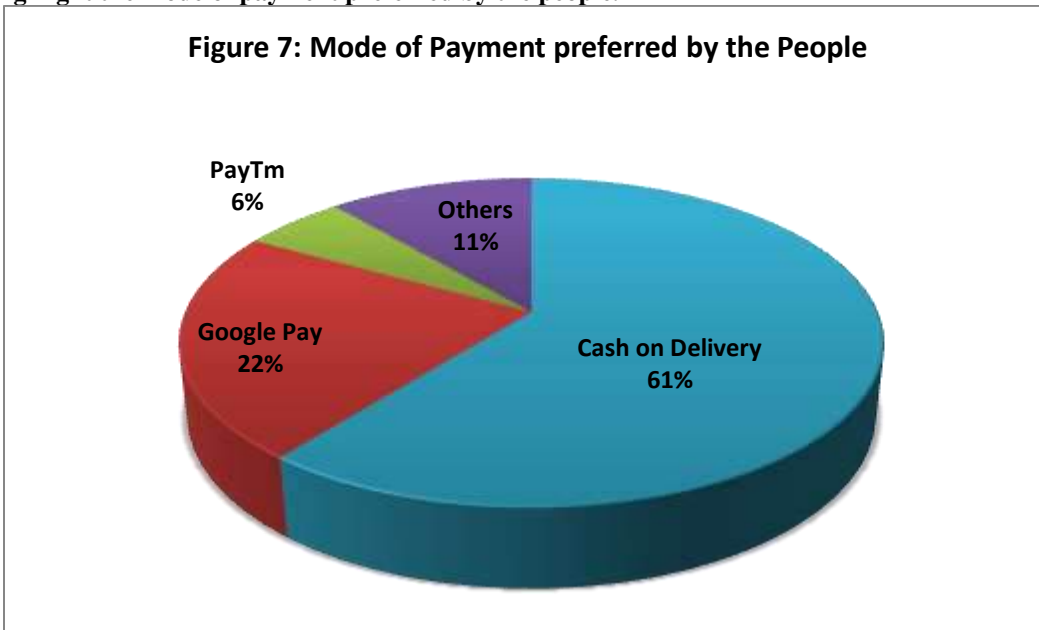
The data in Figure 7 illustrates the preferred mode of payment that individuals now use. Although the above figure indicates that 61% of respondents preferred to order food with cash on delivery, the proportion of respondents who relied on available payment options is not insignificant. Approximately 39% of individuals utilise different payment services, such as Google Pay, Pay TM, and others.

Objective 3: To study mode of ordering preferred by the people.

Figure 8: Mode of Delivery preferred for ordering Food
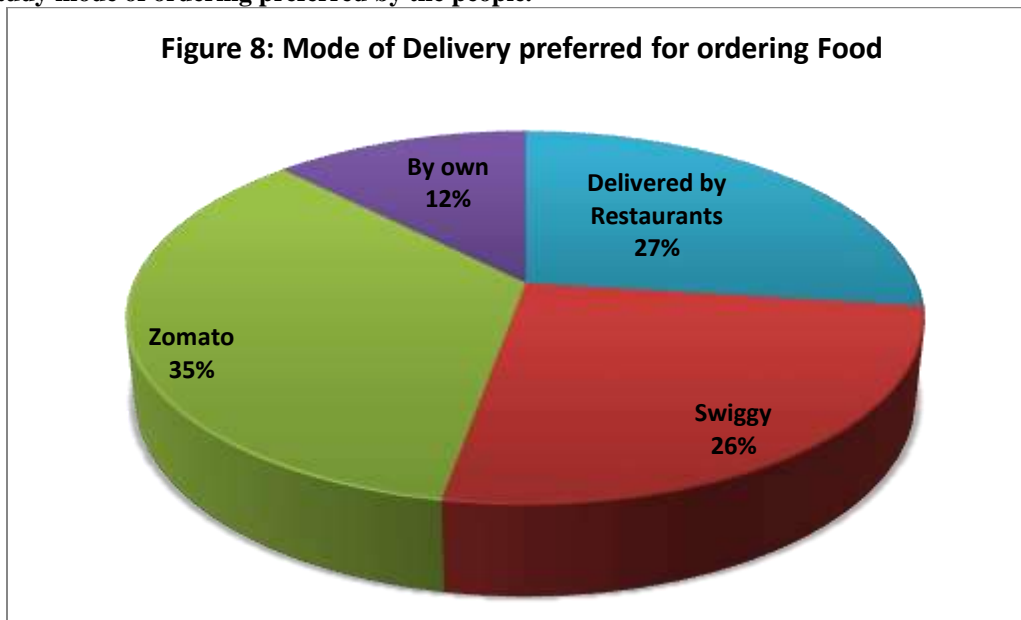
The information displayed in Figure 8 above satisfies the study's second objective. Just 12% of respondents said they would rather carry their own food, but 88% said they would rather buy food from a variety of delivery services, such as Zomato (35%), Swiggy (26%), and restaurant delivery services (27%). People's preferences are contributing to the expansion of the delivery services industry.

Objective 4: To study the role of Food Services in increasing job opportunities.

The researcher satisfies this 4th objective in the light of 2nd and 3rd objective. The preferred method of Payment and mode of Delivery by the people in ordering food from the available services indicates contribution of these Food Services to the growth of employment opportunities in the payment and delivery services. Thus, it can be concluded that Food Service marketing is playing a significant role to the growth of employment opportunities to in one way or another.

RESULT AND DISCUSSION

People's increasing preference for placing meal orders from the various dining services that are accessible is a sign that this marketing is expanding. According to the report, consumers are inclined to order food from these services regardless of their gender, age, occupation, or level of education. The expansion of food services marketing is also influenced by the frequency and purpose of food orders.

The current study was carried out with the intention of highlighting the expansion of food services marketing and its contribution to the creation of more job possibilities. The people's preference for home delivery services and online payment options points to the employment chances that Food Services Marketing offers in other industries.

CONCLUSION

By 2030, India will have the biggest working-age population globally; however obtaining gainful employment presents a significant obstacle for general stream students. Enhancing students' employability necessitates a fresh approach supported by curriculum. According to the NEP-2020, vocational education programmes need to be gradually included into regular education in all educational institutions. For this vocational courses should be made available to students participating in four-year multidisciplinary bachelor's programmes, as well as all other bachelor's degree programmes.

In the present paper the researchers explore the employment possibilities generated by one of the vocational courses i.e. Food and Beverage Industries. These industries are increasing the job possibilities in other sectors like Home delivery and Online Payment services. Thus, it can be concluded that these vocational courses also contribute in the growth of economic development of the country.

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REVITALIZING THE SCHOOL LIBRARY: EMBRACING TECHNOLOGY AND INNOVATION

Mariel Kristine M. Cortez
Don Manuel Rivera Memorial Integrated National High School

ABSTRACT

This innovation revolves in the relaunching of the new library with the aid of modern technology. Installation of new library facilities such as the multimedia corner, educational board games corner and printing corner motivated learners to visit the school library that made them more excited in learning, reading and discovering things around them. This innovation was made possible through the unwavering support from various stakeholders extending their assistance by providing the financial needs of this project.

KEYWORDS: *Library, Innovation, Technology*

1. BACKGROUND

Libraries play a crucial role in revitalizing civic engagement and community cohesion, Kranich (2024). Additionally, Joing (2023) also mentioned on his article the significance of school libraries, particularly in the context of middle-school students. The study underscores the library's role as a sanctuary for marginalized youth and avid readers alike, providing refuge from the chaos of the playground and promoting student well-being. Similarly, Merga (2023) addresses the burgeoning need for health literacy skills, especially among young people facing the challenges of the digital age and the COVID-19 pandemic.

Between these perspectives, it becomes evident that libraries, both in the community and school settings, play diverse roles in promoting civic engagement, student well-being, and health literacy. By embracing evolving responsibilities and leveraging their expertise, libraries stand as invaluable resources in nurturing informed and empowered individuals within society.

This project has been brought up due to the decline of the utilization of the school library at Don Manuel Rivera Memorial Integrated National High School. The number of students visiting the school library is not so high; this is why the researcher created a plan to transform the school library into a place where students could do their learning tasks, projects, or research with an inviting ambiance – where there is a combined use of traditional and modern way of learning.

2. OBJECTIVES

This innovation aims to elevate the students' library experience through the use of multimedia in their learning. This innovation also aims to increase the number of students who visits the school library for their research and other learning tasks matter. And with the new library, as learners visit, they will be able to enjoy playing educational games while they are learning.

3. BENEFICIARIES

The beneficiaries of this innovation are the learners, teachers and other library visitors of Don Manuel Rivera Memorial Integrated National High School for a better and more inviting library experience.

4. METHODOLOGY

This research uses a design-based research where the focus is on iterative design, implementation, and evaluation of innovations in real-world contexts. This research methodology suits well the objective of this research since the aim of this research is to elevate the learners' library experience through redesigning library spaces and implementing new technologies.

Table 1. Activities

Renovation and Installation	Time Frame
Repainting of bookshelves	1 week
Repainting of study tables	1 week
Installation of multimedia corners	1 week
Installation of educational games corner	1 week

5. RESULTS

This research evidently created impact to the following:

a. **Learners** have gained access to a wider range of resources and learning opportunities, potentially improving their academic performance and digital literacy skills.
b. **Teachers** benefit from enhanced library resources which can help in the preparation of their teaching materials and technology integration in lessons, leading to more engaging and effective instruction.
c. **Librarian**'s role may evolve to include technology management and instruction, requiring ongoing professional development.

d. **School Administrators** see the increased student engagement and achievement, as well as potential cost savings through digitization and streamlined library operations.

e. **Parents and Community Members** have access to digital resources and opportunities for involvement in their children's education through online platforms and virtual events hosted by the library.

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CLIMATE CHANGE AND ADAPTIVE STRATEGIES IN PADDY CULTIVATION -WITH SPECIAL EMPHASIS ON KUTTANAD

Mohamed Naseef k
Research Scholar, Malayalam University

ABSTRACT

Climate change is a significant threat to sustainable development, affecting food security and agriculture livelihoods globally. South Asia has the highest proportion of vulnerable sectors. Climate change will negatively impact agricultural production and economics, with declining wheat yields and temperature inconsistencies causing significant yield declines. Adaptation and mitigation strategies are lacking, and South Asia faces challenges in doubling production by 2050. This paper examines the impact of climatic and non-climatic factors on agriculture, focusing on adaptation strategies like shifting planting dates, water-saving techniques, and strategic nutrient management. It highlights that many farmers are unaware of climate-resilient technologies. The study documented indigenous practices of paddy-growers in kuttanad, Kerala, India, to address the climate crisis using a cross-sectional and questionnaire-based survey, with 120 respondents selected for analysis using descriptive statistics. Data was analysed using descriptive statistics, and farmers were classified based on adoption scores using mean – S.D., mean ± S.D., and mean + S.D., using Microsoft Excel and SPSS Version 22.0. The main findings of the study includes that farmers in the study region are adopting different adaptation strategies due to their knowledge, expertise, resources, and lack of institutional frameworks. Interventions like improved technologies, training programs, research activities, and institutional frameworks can address these gaps. Education, outreach, and extension services can strengthen human capital and decision-making capacity. Paddy-growing farmers should adopt integrated farming systems for sustainable income and productivity. Crop insurance is crucial for coping with climate change. Data was analysed by making use of Garrett's conversion table.The result revealed that weed problem is the most important problem among the cultivators which are caused due to climatic variations.

KEYWORDS: *highly vulnerable, climatic variation,*

INTRODUCTION

Climate change is a significant threat to sustainable development, affecting food security and agriculture livelihoods globally. South Asia has the highest proportion of vulnerable sectors. Climate change will negatively impact agricultural production and economics, with declining wheat yields and temperature inconsistencies causing significant yield declines. Adaptation and mitigation strategies are lacking, and South Asia faces challenges in doubling production by 2050.The IPCC panel report 2007 postulates that South Asia is the region with the highest number of "highly vulnerable" sectors among the Asia sub-regions. Rao et al., 2014 and Prasad *et al.*, 2000; Teixeira *et al.*, 2013 in their study postulates that temperature inconsistency has led to a significant decrease in yields, particularly in primary food crops, as high temperatures can significantly reduce production. Eckstein et al., 2019 adheres that India faces additional stresses from climate change due to rapid urbanization, industrialization, and economic development, making it the fifth most vulnerable country to its effects.

Kerala is a unique state with mountains, valleys, forests, waterfalls, and palm-roofed lagoons. The state's unique climatic conditions are influenced by the Western Ghats and Arabian Sea, which create a unique wind system. The state experiences heavy rainfall on the windward side, influenced by altitude, current strength, and slope steepness. Summers last from April to June, with temperatures ranging from 33 degrees centigrade

to 20 degrees centigrade. The South West Monsoon starts in June and continues until September, with maximum rainfall in the Vaithiri-Kuttiyadi range in Malabar and Peerumedu in Idukki. The North East Monsoon begins in October and ends in December. Winters in Kerala are enjoyable, lasting from November to January or February, with occasional very little rainfall in the northern region. Highest rainfall is received by Kottayam during this winter season.

India faces additional stresses from climate change due to rapid urbanization, industrialization, and economic development. It is the fifth most vulnerable country to climate change effects, with its poorest being most at risk. India's inadequate arable land, higher population, dependence on agriculture, and limited technological and financial development contribute to its vulnerability. Adaptation strategies involve farmers altering their farming practices to cope with climate change. These strategies include crop production, soil and water management, flood management, land use, labor use, livestock management, financial management, and family management. While most farmers are unfamiliar with climate-resilient production technologies, adopting these practices can reduce vulnerability and improve their socio-economic status and well-being. To effectively address climate change, it is crucial to document indigenous practices, quantify the capabilities of existing best practices, and develop a long-term strategic research plan. This study aims to document these practices in the kuttanad region.

Kerala has experienced a decline in annual and monsoon rainfall and an increase in temperature over the past decades, with the mean annual maximum temperature rising by 0.8 degrees Celsius between 1961 and 2003. The warmest year was 1987. Kerala's climate is characterized by significant rainfall variations, with significant inter-annual variability in the onset, withdrawal, and activity of the monsoon. The region experiences dry spells during the monsoon season and heavy rains in summer, which are part of global climate changes.

OBJECTIVES OF THE STUDY
1. To study about the factors affecting climate change
2. To understand about the paddy cultivation in kerala
3. To analyse the impact caused by climatic change factor on paddy cultivation
4. To formulate suitable policies to overcome the problems caused by the climatic change factors in kerala

Hypothesis
1. The climate change has no impact on paddy cultivation in kuttanad
2. There occurs no significant impact of adaptive strategies on paddy cultivation in kuttanad

FACTORS AFFECTING CLIMATE CHANGE
India's climate change is influenced by various factors, both natural and human-induced.
Some key factors affecting climate change in India include:
Greenhouse Gas Emissions: The emission of greenhouse gases from human activities like burning fossil fuels, industrial processes, and deforestation contributes significantly to global warming and climate change.

Industrialization and Urbanization: Rapid industrial growth and urban development lead to increased emissions of pollutants, altering local climates and contributing to air and water pollution.

Deforestation and Land Use Change: Deforestation for agriculture, urban expansion, and infrastructure development reduces carbon sinks, disrupts ecosystems, and contributes to climate change by reducing the planet's ability to absorb CO2.

Agricultural Practices: Certain agricultural practices, such as methane emissions from livestock and rice paddies, use of fertilizers, and crop burning, release potent greenhouse gases, affecting the climate.

Water Resources: Changes in precipitation patterns, melting glaciers, and changes in river flows impact water availability and can lead to severe droughts or floods, impacting agriculture and livelihoods.

Global Climate Patterns: India's climate is also influenced by global phenomena like El Niño and La Niña, which can affect monsoon patterns and temperature variations.

Air Pollution: The presence of high levels of air pollutants, such as particulate matter and ozone, can impact climate change by altering atmospheric composition and influencing temperature patterns.

Geographical Factors: India's diverse geographical features like the Himalayas, coastline, and varied landscapes contribute to localized climate patterns, influencing regional climates differently.

Policy and Adaptation Measures: Government policies, initiatives, and adaptation measures play a significant role in mitigating or exacerbating the impacts of climate change. Efforts in renewable energy, afforestation, and sustainability practices can influence the trajectory of climate change.

KUTTANAD

MAP 1: https://lakesofindia.com/2022/02/12/kuttanad-the-rice-bowl-of-kerala/
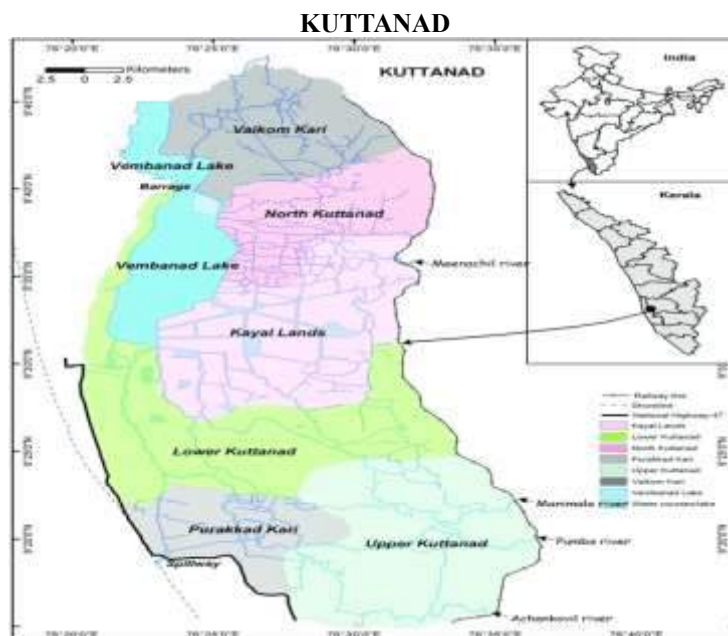
Kuttanad is a picturesque region located in the state of Kerala, India. Known as the "Rice Bowl of Kerala," it's characterized by its unique geographical features, being largely below sea level and surrounded by waterways, including rivers, canals, and lakes.

Here are some key points about Kuttanad:

Geography: It's one of the few places in the world where farming is carried out below sea level. The region is primarily made up of low-lying paddy fields, interspersed with backwaters and water bodies.

Agriculture: Rice cultivation is the primary occupation here, with paddy fields spread across the landscape. The method of cultivation involves cultivating below sea level, making it a unique and challenging agricultural practice.

Backwaters: Kuttanad is famous for its scenic backwaters, which are a network of interconnected canals, rivers, lakes, and lagoons. Houseboats are a popular attraction, offering tourists a chance to experience the serene beauty of the region while cruising along these backwaters.

Culture: The region has a rich cultural heritage, with a predominantly agrarian society. The lifestyle, cuisine, and traditions of the people in Kuttanad reflect the influence of its geographical setting and agricultural practices.

Challenges: While the unique geography of Kuttanad provides fertile land for farming, it also faces challenges such as flooding during heavy monsoons and issues related to land subsidence due to the continuous cultivation below sea level.

Kuttanad attracts tourists not only for its natural beauty but also for its distinct agricultural practices and cultural richness, offering visitors a glimpse into a lifestyle shaped by the coexistence of land and water.

REVIEW OF PADDY CULTIVATION IN KERALA
Kerala, with a population of 16.9 million in 1961, accounted for 3.85% of the country's total population. In 1960-61, the state contributed 2.5% of rice production. However, growth declined in the 1970s, with a decline in area under paddy and rice production. In 1991, Kerala's population increased to 29.1 million, but its share in total rice production dropped to 1.46 percent. In 1999, Kerala's population was projected at 31.98 million, but relative shares of rice production and area were 0.79 and 0.85 percent respectively.

The state of Kerala has a higher per hectare productivity of rice than the national average, with an average productivity of 1371 kg per hectare in 1960-61. However, this advantage has been gradually narrowing down, with the difference decreasing to 18.79% in 1980-81 and further decreasing to 6.79% by 1998-99. Despite being higher than the national average, Kerala still lags behind major rice-producing states like Punjab, Tamil Nadu, and West Bengal.

The area under the crop and its per hectare productivity can be considered as the two pure components of rice production. The post-formation era of Kerala can be divided into two distinct periods: the period before the mid-70s and the period after the mid-70s. During the first period, both the area and yield effects had been positive, leading to positive growth trends in rice production. However, the negative area effect became more prominent during the second period, causing negative growth rates in the state since the mid-70s.

Over the last four decades, per hectare rice productivity in Kerala has shown positive annual growth rates, with an overall increase of 68.55 percent between 1960-61 and 1999-2000. However, the annual growth rate in productivity is higher during the second period (1974-75 to 1999-2000), with the corresponding growth rate being 1.51 percent.

The Kuttanad region, consisting of ten taluks in the three districts of Alapuzha, Kottayam, and Pathanamthitta, has a fertile loamy soil suitable for paddy cultivation. The region has been the principal economic activity of the local population since early days, with 11.3 percent of the total workforce being paddy cultivators and 57.13 percent being agricultural laborers.

During 1986-87, the total area under paddy crop in the Kuttanad region was 112.43 thousand hectares, accounting for 16.58 percent of the total area under crop in Kerala. The region produced 210.17 thousand tonnes of rice production, helping the state retain its better position in rice productivity in all India levels.

The per hectare productivity of the crop in the Kuttanad region was 7.38 percent higher than the state level average productivity. However, both the area and production of paddy at the state level showed negative growth rates during the second half of the eighties. The Kuttanad region accounted for more than 18 percent of the paddy growing areas in 1990-91, but the average productivity of rice in the region had been significantly higher than the state level average.

The comparison analysis regarding the paddy farm sector of Kuttanad region and Kerala shows that the performance of the former had been comparatively better till the end of the eighties. However, since the beginning of the nineties, the performance of the region in terms of area and production of paddy has begun to deteriorate at unprecedented levels.

TABLE 1: AREA AND PRODUCTIVITY OF RICE

Sl. No	year	Area of rice in Kerala (Hectare)	Area of rice in Tamil Nadu (hectare)	Productivity of rice in kerala (Kg/Ha)	Productivity of rice in Tamil Nadu (Kg/Ha)
1	2005-06	275742	2050455	2285	2541
2	2006-07	263529	1931397	2435	3423
3	2007-08	228938	1789170	2308	2817
4	2008-09	234265	1931603	2520	2682
5	2009-10	234013	1845553	2557	3070
6	2010-11	213187	1905728	2452	3039
7	2011-12	208160	1903772	2733	3918
8	2012-13	197277	1493276	2577	2712
9	2013-14	199611	1725730	2719	4123
10	2014-15	198159	2132521	2837	4381

Source: Department of Economics and Statistics, Kerala, Tamil Nadu

Source:[1]
The table depicted above reveals the area of rice in Kerala has declined from 275742 to 198159 where as in the case of Tamil Nadu it had increased from 2050455 to 2132521.However in case of productivity in rice4 cultivation both in Kerala and Tamil Nadu it had shown an increasing trend with positive signs for development.

METHODOLOGY
STUDY REGION
Kuttanad region of Kerala state, India covers the realm of 19,500 acres of kayal land, 12,000 acres were reclaimed between 1913 and 1920. Kuttanad, a region in Kerala, India, is known for its vast paddy fields and unique geography. With the lowest altitude in India, it is a major rice producer and has been declared a Globally Important Agricultural Heritage System by the Food and Agriculture Organization in 2013. The Kuttanad region is divided into Lower Kuttanad, Upper Kuttanad, and North Kuttanad. Lower Kuttanadu includes taluks in Alappuzha district, Upper Kuttanad includes villages in Karthikapally, Chennithala, Mannar, Chengannur, Pathanamthitta, and Vaikom, while North Kuttanad includes parts of Kottayam. Kuttanad, often referred to as the "Rice Bowl of Kerala," has a unique and distinct climate due to its geographical features.

Tropical Climate: Kuttanad experiences a tropical climate, typical of Kerala. It's characterized by high temperatures, abundant rainfall, and high humidity throughout the year.

Monsoons: The region receives heavy rainfall, primarily from the Southwest monsoon (June to September) and the Northeast monsoon (October to November). These monsoons contribute significantly to the agricultural fertility of Kuttanad but can also lead to occasional flooding.

Temperature: The temperatures in Kuttanad generally range from warm to hot throughout the year. The summer months (March to May) can be particularly hot and humid, with temperatures often exceeding 30°C (86°F). Winters (December to February) are relatively cooler, with temperatures averaging around 25°C (77°F).

Humidity: The region tends to have high humidity levels, especially during the monsoon seasons and the summer months. Humidity levels can sometimes make the heat feel more intense.

Agricultural Impact: The climate of Kuttanad is crucial for its agricultural significance, especially for rice cultivation. The regular rainfall and fertile soil make it ideal for paddy cultivation, and the traditional farming methods here are adapted to this climate.

Seasonal Variations: There are distinct wet and dry seasons in Kuttanad, primarily dictated by the monsoon patterns. These seasons significantly influence the farming practices and livelihoods of the local population. Overall, Kuttanad's climate is conducive to its predominant agricultural activities, but the region also faces challenges related to flooding during heavy monsoons, requiring appropriate infrastructure and management strategies to mitigate these issues.

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1 A Comparative Study of Trend in Area, Production and Productivity of Rice in Kerala and Tamil Nadu
P. Maneesh, R. Sankaranarayanan

Year	Area	Area Growth	Production	Production Growth	Productivity	Productivity Growth
2009-2010	41.92	-7.94	89.09	-10.17	21.25	-2.43
2010-11	42.86	2.24	95.98	7.73	22.39	5.36
2011-12	44.01	2.68	105.3	9.71	23.93	6.88
2012-13	42.75	-2.86	105.23	-0.07	24.61	2.84
2013-14	44.14	3.25	106.65	1.35	24.16	-1.83
2014-15	44.11	-0.07	105.48	-1.1	23.91	-1.03
2015-16	43.5	-1.38	104.41	-1.01	24	0.38
2016-17	43.99	1.13	109.7	5.07	24.94	3.92
2017-18	43.77	-0.5	112.76	2.79	25.76	3.29
2018-19	43.79	0.05	116.42	3.25	26.59	3.22

TABLE 2: All India Area, Production and Productivity of Paddy over the years from 2009-10 to 2018-19
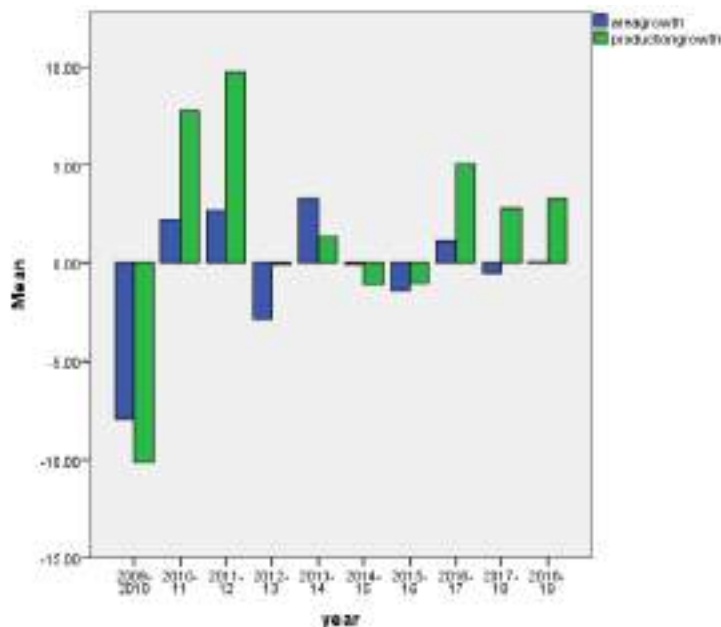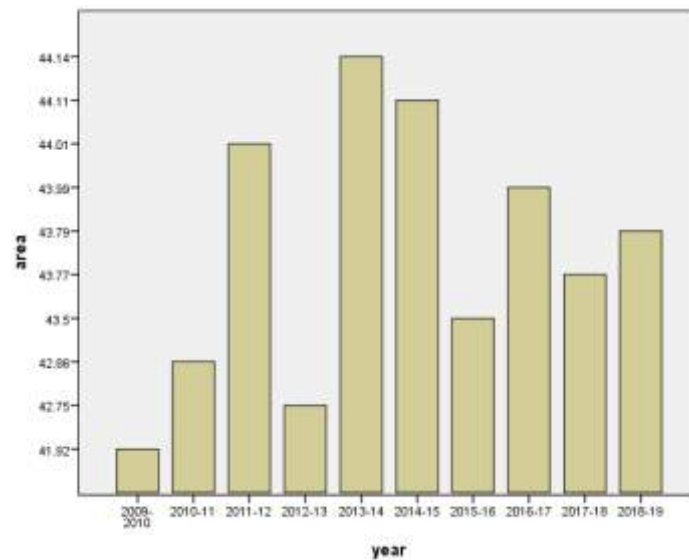
The annual growth of paddy production in Kerala has been declining since 2010-11, with significant declines in 2016-17. However, in 2017-18 and 2018-19, there was significant improvement in paddy production. The productivity of paddy in Kerala has improved over the last ten years, from 2557 kg. /ha in 2009-10 to 2920 kg. /ha in 2018-19. The productivity of paddy cultivation in Kerala is greater than the Indian average, but still lower than other states.

Year	Area (Hectares)			Production (Tonnes)			Productivity (Kg/ha)		
	Pathanamthitta	Alappuzha	Kottayam	Pathanamthitta	Alappuzha	Kottayam	Pathanamthitta	Alappuzha	Kottayam
2008-09	2681	34143	10951	7399	104250	32154	2760	3053	2936
2009-10	2996	33440	15474	7738	97976	39413	2583	2930	2547
2010-11	2986	37060	14775	6627	91325	40969	2219	2464	2773
2011-12	2802	36251	21410	8989	111980	63579	3208	3089	2970
2012-13	2280	36195	17571	6041	104593	51019	2650	2890	2904
2013-14	2468	37402	15746	7554	106866	50729	3061	2857	3222
2014-15	2592	34415	17295	7573	103095	49393	2922	2996	2856
2015-16	2534	31724	16272	8396	89335	49506	3313	2816	3042
2016-17	2640	32453	17216	8837	102439	48030	3347	3157	2790
2017-18	3087	36325	17426	8843	105676	49509	2865	2909	2841
2018-19	3168.77	38623.02	22172.05	11675.81	128560.20	61917.15	3685	3329	2793

TABLE 3:GROWTH OF PADDY CULTIVATION DISTRICTS BASED- YEAR WISE

Kuttanad is a unique deltaic region in India, divided into Upper Kuttanad, Lower Kuttand, and Kayal Lands. It comprises 31 villages spread over Kottayam, Pathanamthitta, and Alappuzha. The Kuttanad system consists of fragmented agricultural landscapes, including wetlands for paddy cultivation, garden lands for coconut, tubers, and food crops, and water areas for inland fishing and shells. The region faces challenges such as flooding, saline water intrusion, and monsoon flooding, making it a single punja crop region. The three districts of Kuttanad, Pathanamthitta, Alappuzha, and Kottayam, in Kerala, accounted for 32.30% of the total area under paddy cultivation in 2018-19, with their individual shares at 1.60%, 19%, and 11.20%, respectively. In 2018-19, the Kuttanad region recorded a record level of paddy production, with Pathanamthitta, Alappuzha, and Kottayam contributing 34.96% of the total. Palakkad district ranked first with 37.23% rice production, while Idukki district had the lowest at 0.27%. Paddy productivity improved slightly compared to 2017-18.
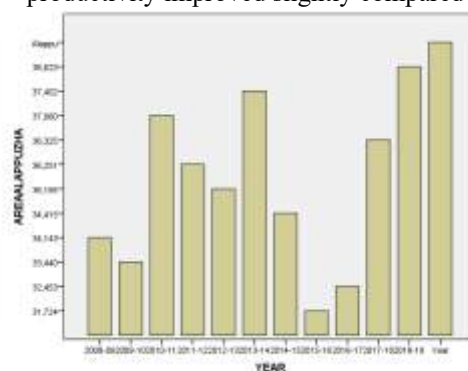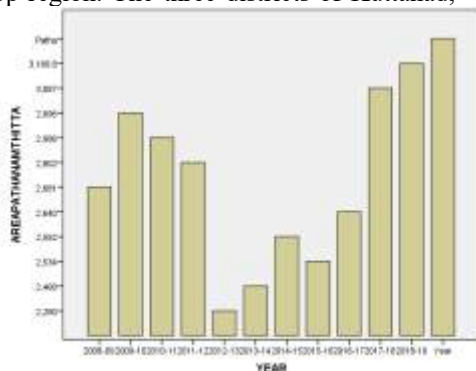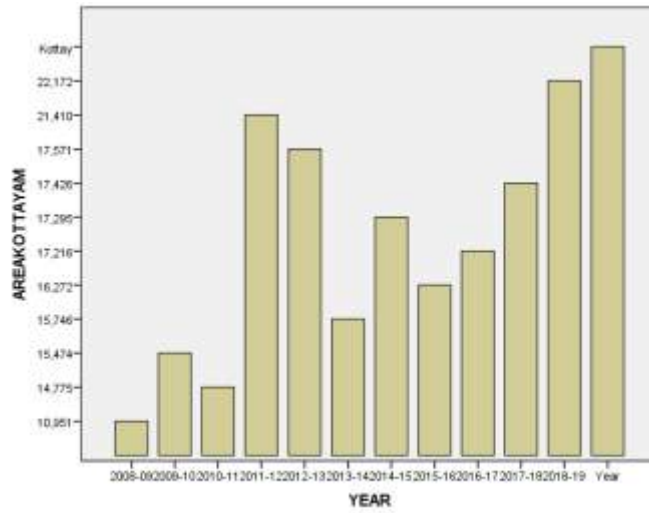
PRODUCTION OF PADDY CULTIVATION DISTRICTS BASED- YEAR WISE
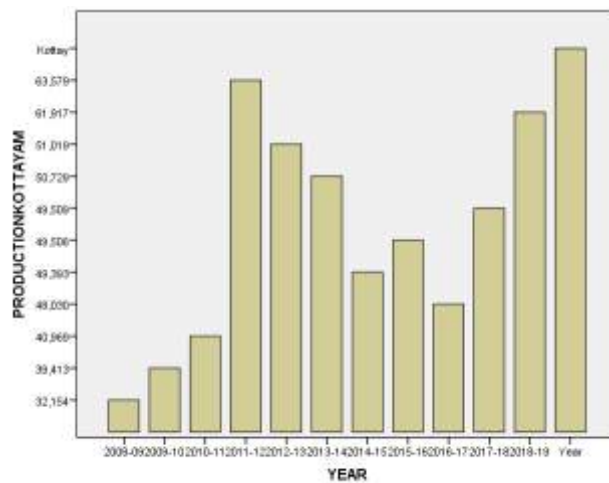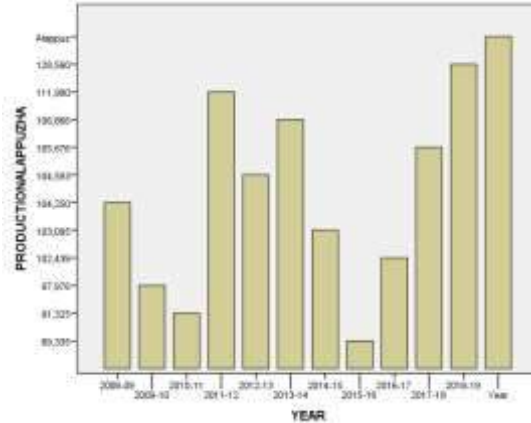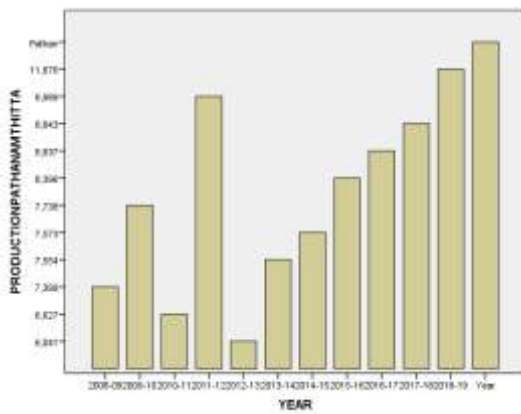
PRODUCTIVITY OF PADDY CULTIVATION DISTRICTS BASED- YEAR WISE
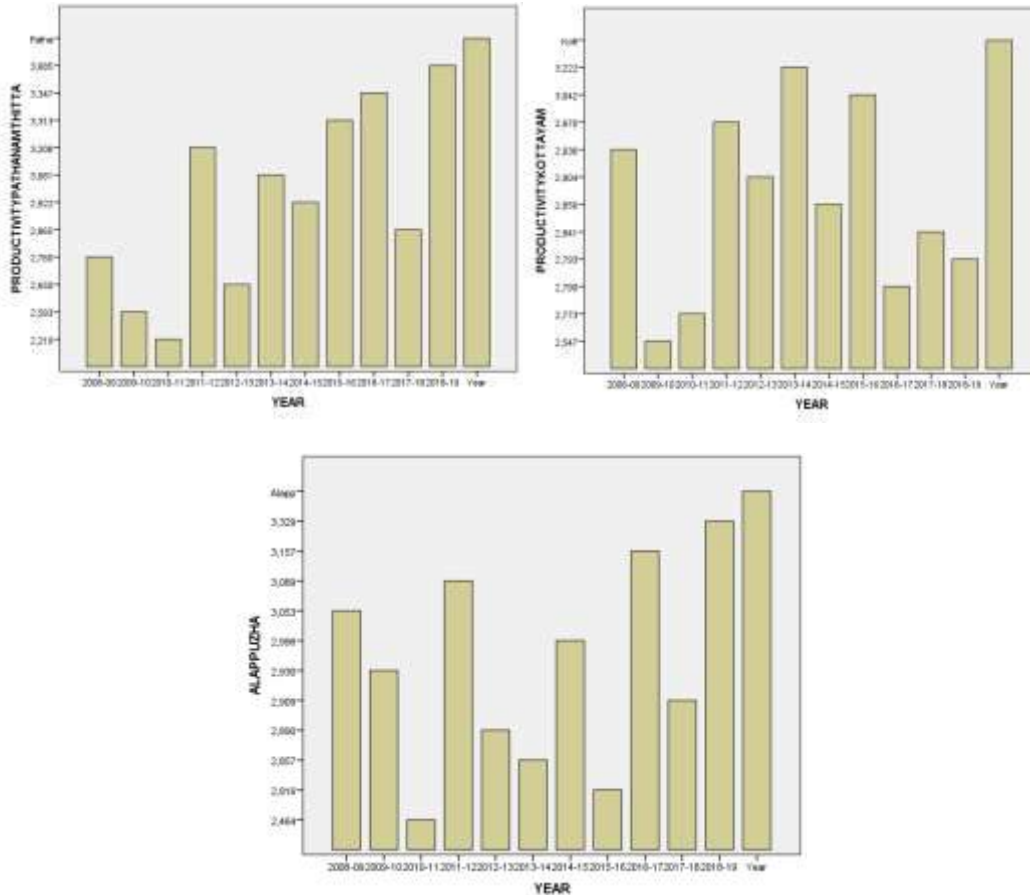
Several studies postulates that in 2009-10, Kottayam saw a 41.30 percent annual growth in paddy production area, while other districts reported negative growth. In 2012-13, all three districts experienced a decline in paddy area, with Pathanamthitta experiencing the highest decline at -18.63 percent. However, in 2016-17, 2017-18, and 2018-19, all three districts reported positive growth in paddy area. During 2012-13, all three districts experienced negative growth in paddy production, with Pathanamthitta experiencing the highest fall at -32.80 percent. The productivity of paddy fluctuated, with Pathanamthitta experiencing the highest growth at 44.57 percent in 2011-12 and 28.62 percent in 2018-19.

SAMPLE DESIGN
This research paper examines the challenges faced by paddy farmers in haripad village, Kuttanad, analyzing government policies, climate change, and flood impacts, and suggests improvements for cultivation. This study uses primary and secondary data from questionnaires, interviews, and various sources, analyzing them using percentages, graphs, and software like Excel and SPSS.

SAMPLE GROUP AND INTERVIEW
The sample study basically concentrates around the chempupuram hamlet in nedumudy village of kuttanad. It has a population of 14,601. Agriculture is the main occupation, with 5690 workers engaged in main work activities. The hamlet comes under Nedumudy Krishi Bhavan and has 3668

households. There are 6 registered padashekara samitis, which are associations of paddy farmers in each village. The village relies heavily on paddy farming, which depends on factors like climatic conditions, attitudes, irrigation, seeds, fertilizers, pesticides, and insecticides. Other activities include duck farming, livestock, and banana cultivation. Chempumpuram has a public health center, two schools, a Reverse Osmosis Plant for potable drinking water, and a rice research station near the village. The study focuses on 50 farmers in Chempumpuram, Kuttanad taluk, Alappuzha district. Interviews were conducted with 25 farmers in ward 15 and 25 in ward 16. Both primary and secondary data were used, with primary data collected through questionnaires and personal interviews, and secondary data from various sources. The study uses percentages, graphs, and software like Excel and spss to analyze the primary data.1014 is the total population of the agricultural farmers in the area and hence by applying Cochrane formula is 120.

$$ n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} $$

DATA ANALYSIS AND INTERPRETATION
A sample of 120 farmers was collected using questionnaire and personal interviews. Data processing involved editing, classification, and analysis using charts and graphs, with interpretation provided after graphical representation.

1.CULITVATION AREA OF FARMERS

AREA	NO OF RESPONDENTS	PERCENTAGE
BELOW 5	76	63.33
5-10	25	20.84
10-20	14	11.67
20-25	5	4.16
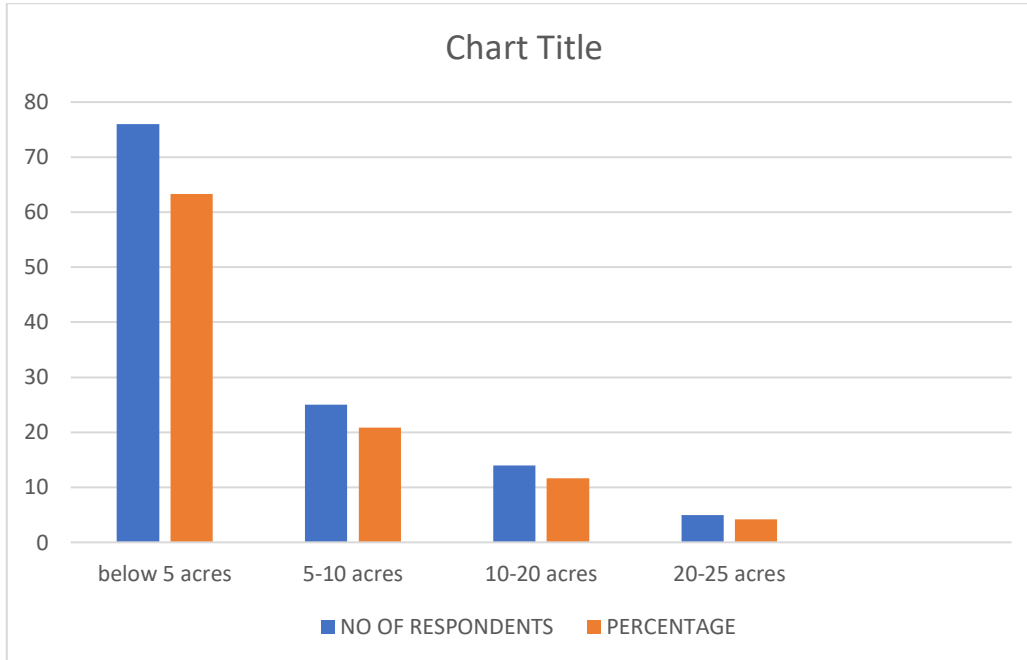
The table shows that there are only 5 farmers who are cultivating paddy between 20 and 25 acres and there are only 14 farmers who having cultivating paddy between 10 to20 acres of land. 25 farmers are doing paddy farming in 5 to 10 acres. There are 76 farmers who having cultivating paddy below 5 acres.

2.NATURE OF OWNERSHIP

Own/ Lease	No. of Respondents	Percentage
Own	77	64.16
Own &lease	41	34.17
Lease	2	1.67
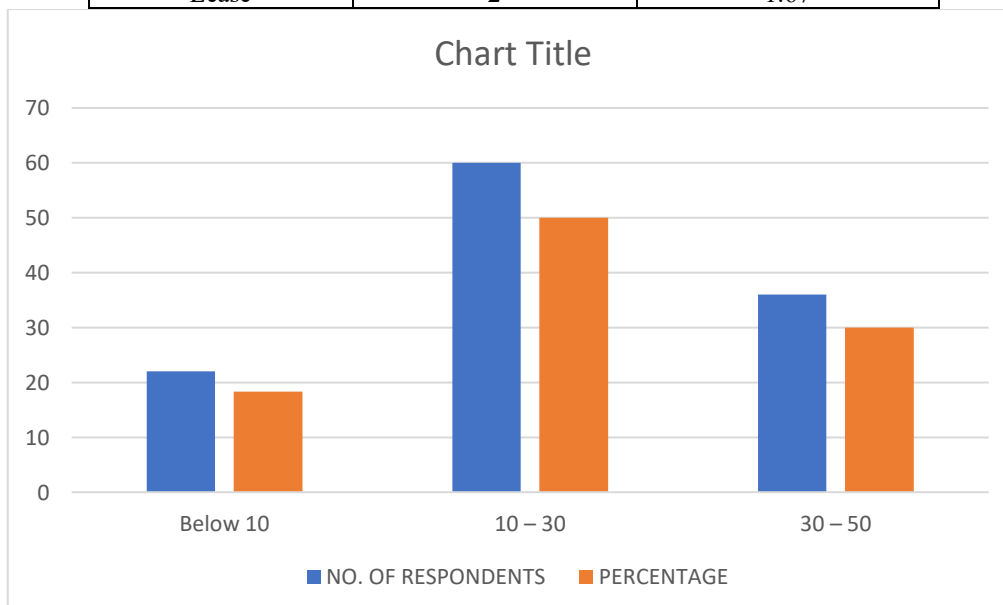
3. AGE

AGE	NO. OF RESPONDENTS	PERCENTAGE
35 – 50	35	29.17
50 – 65	46	38.33
65 – 80	27	22.5
80 – 95	12	10
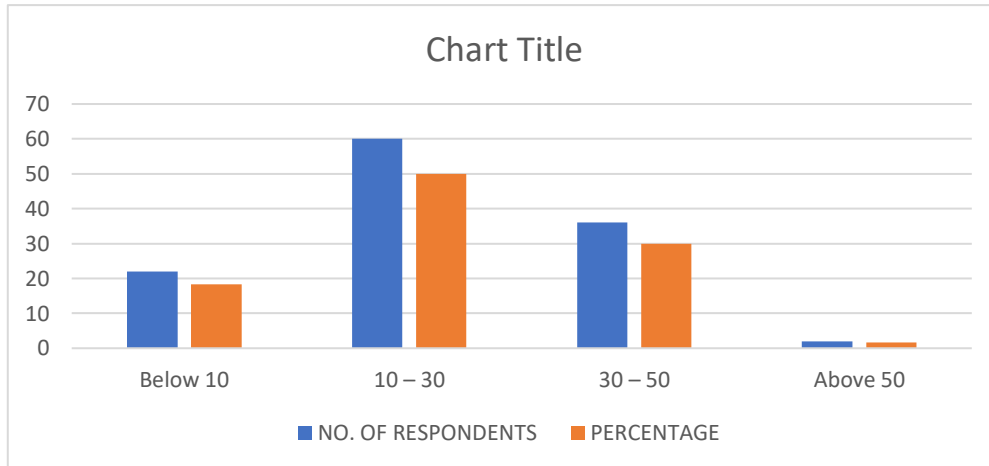
4.EDUCATION

EDUCATION	NO. OF PARTICIPANTS	PERCENTAGE
Primary	22	18.34
Upper primary	18	15
High school	50	41.67
High secondary	18	15
Degree	0	0
Above degree	12	10
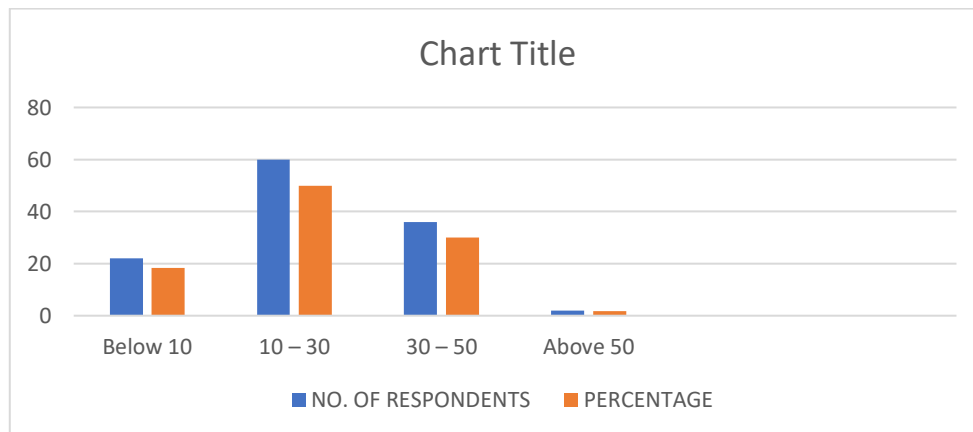
5. VARIETIES OF PADDY CULTIVATED

Varieties	No. of respondents	Percentage
Jyothi	0	0%
Uma	50	41.67
Jaya	40	33.33
Pokkali	30	25
Triveni	0	0%
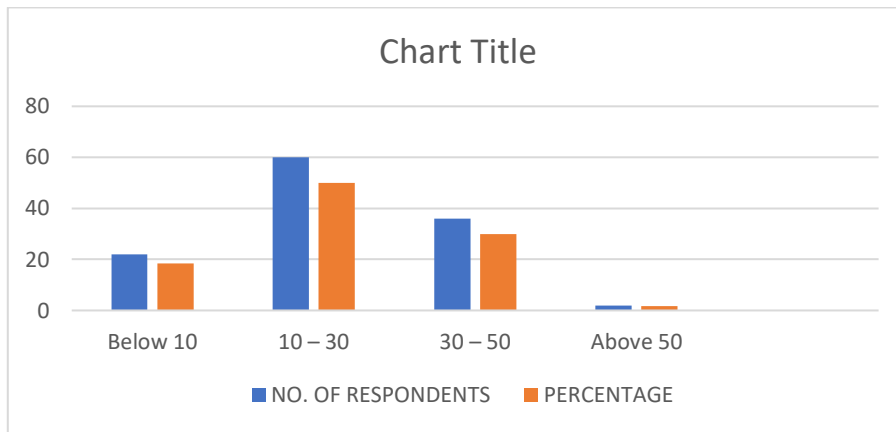
6. WHETHER FERTILIZERS USED

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE
Yes	70	58.33
No	50	41.67
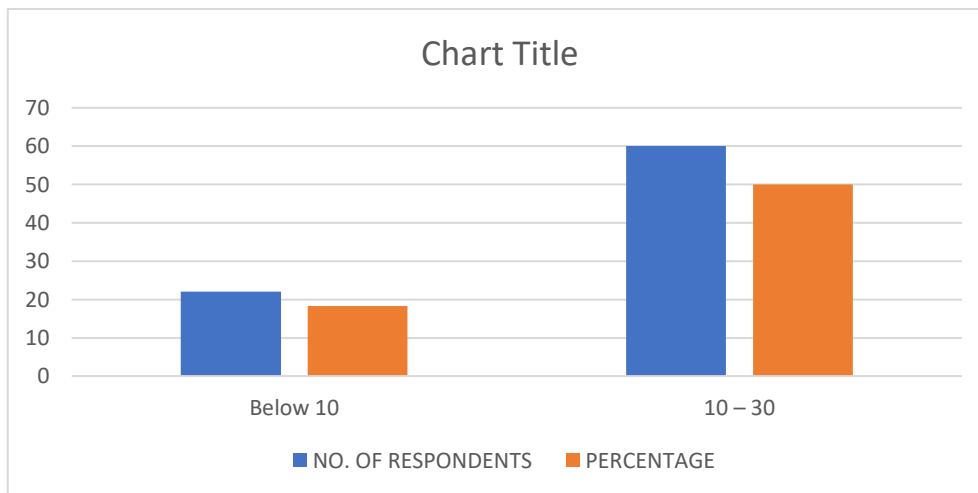
7. NUMBER OF HARVEST

No. Of Times Harvest	No. Of Respondents	Percentage
1	40	33.33
2	50	41.67
3	30	25
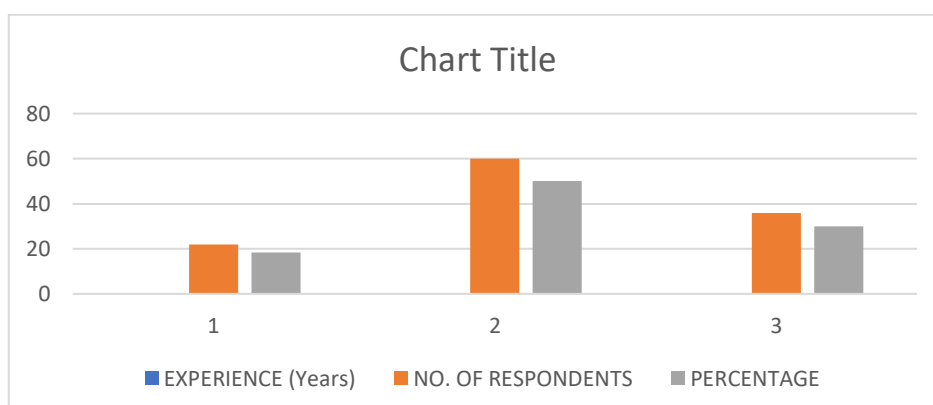
8. YIELD FROM A HARVEST

YEILD	NO. OF PARTICIPANTS	PERCENTAGE
Below 30	48	40
30 – 70	32	26.67
70 – 100	25	20.83
Above 100	15	12.5
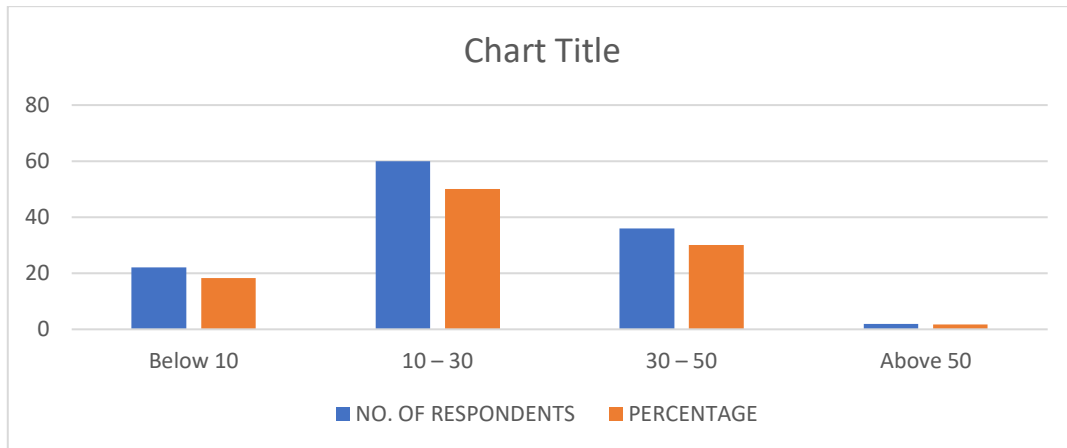
9. BENEFITS OF GOVERNMENT

RESPONSE	NO. OF PARTICIPANTS	PERCENTAGE
Yes	75	62.5
No	45	37.5
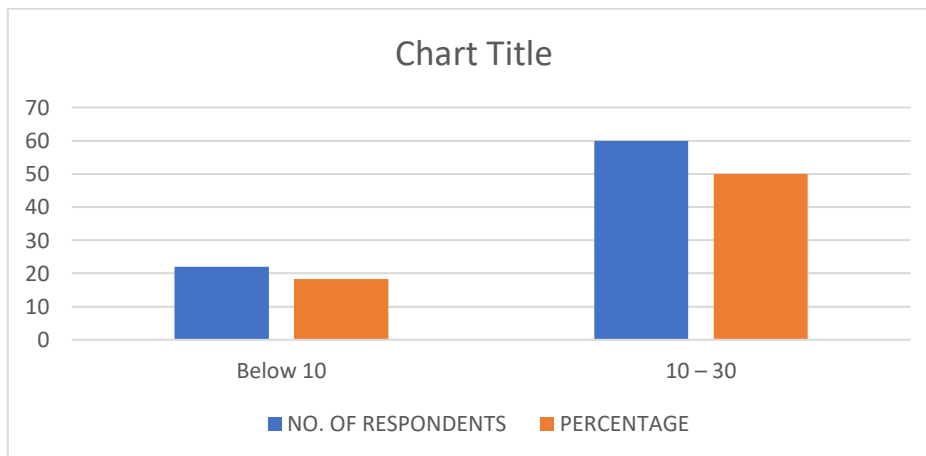
10. EXPERIENCE OF FARMERS

EXPERIENCE (Years)	NO. OF RESPONDENTS	PERCENTAGE
Below 10	22	18.33
10 – 30	60	50
30 – 50	36	30
Above 50	2	1.67

Chart Title — NO. OF RESPONDENTS, PERCENTAGE across categories Below 10, 10–30, 30–50, Above 50
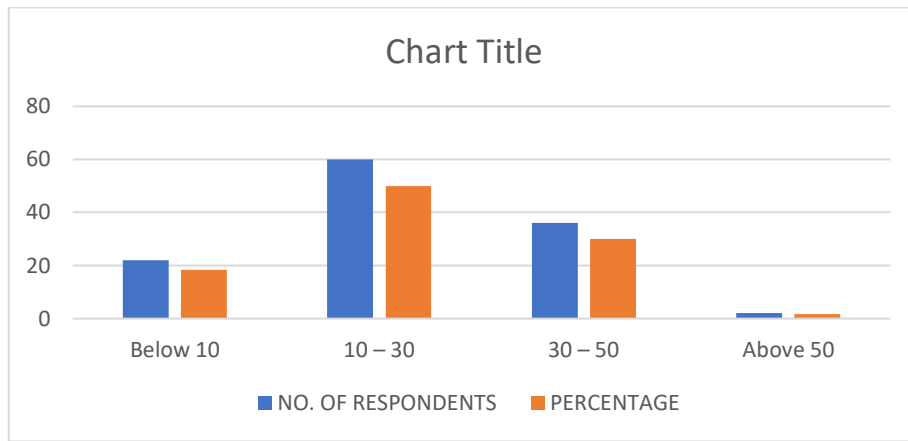
The study, conducted in chempupuram hamlet in nedumudy village of kuttanad, analyzed salt water intrusion in paddy fields. Data was collected from 120 farmers, focusing on their constraints and potential solutions to improve productivity and income, as well as policy implications. Henry Garrett's ranking technique was used to analyze constraints faced by paddy farmers in salt water affected areas. Constraints were ranked without bias, and their ranks were converted to percentages using a formula.

Per cent position = $100 \times (RIJ-0.5)/ Nj$

Where, Rij = Rank given for the ith factor by jth person. Nj = No. of constraints ranked by the jth person. (Garrett and Woodworth, 1969)

Garrett's conversion table was used to convert percentage positions to Garrett scores, with the highest mean score indicating a serious problem faced by paddy farmers in a specific area.

SL NO	CONSTRAINTS	GARETT SCORE	RANK
1	QUALITY OF WEED	96.68	1
2	LABOUR TIME DEVOTED	66.73	2
3	PRICE OF INPUTS	64.09	3
4	PROBLEM RELATED WITH PEST	63.17	4
5	RAINFALL DISTRIBUTION	59.85	5
6	HARVESTING ISSUES	57.53	6
7	NUTRIENT DEFICIENCIES	56.81	7
8	PRICE CHANGE OF PADDY	54.81	8
9	ATTACK OF BIRDS	52.49	9
10	BUND CONSTRUCTION	51.89	10

The findings from the table reveals that quality of weeds are highly influenced by the climatic changes and the condition of temperature that exists in a particular locality. Garrett's ranking method was used for constraint analysis, revealing that weed problem is the most severe constraint faced by farmers from salt water unaffected areas. Salt water intrusion is the major constraint, followed by decreased produce quality. Improper construction and maintenance of bunds are the main reasons for salt water intrusion. Farmers perceive increased costs, machinery usage, market price, seeds availability, labor wages, and weed emergence as factors affecting salt water intrusion. Addressing these issues can make paddy farming in Kuttand more profitable.

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EVALUATING PRESCRIPTION PATTERNS IN SURGICAL WARD: A CROSS-SECTIONAL ANALYSIS OF A RESEARCH CONDUCTED AT A SINGLE MEDICAL CENTER

Roy R[1], Vivek B[2], Krishna Upadhye*[3]

[1]Department of Surgery, K. J. Somaiya Medical College, Hospital and Research Centre, Mumbai, India.
[2]Department of Surgery, K. J. Somaiya Medical College, Hospital and Research Centre, Mumbai, India.
[3]Department of Surgery, K. J. Somaiya Medical College, Hospital and Research Centre, Mumbai, India.

*Corresponding Author

ABSTRACT

Background: Typically, surgical procedures require the administration of antibacterial and analgesic medications in order to be successfully carried out. Prescribing medication without a valid reason may result in serious consequences after surgery. ***Materials and Methods:*** *This investigation was conducted retrospectively, using a random selection of 50 cases. investigated case information to determine the trend in prescriptions..* ***Results;*** *The majority of the patients were between the age range of 21 to 50 years, accounting for 18 cases (36%). The most frequent reason for hospitalization was kidney stone. A total of 255 medication instances were administered, The intravenous route was the most commonly selected method, accounting for 174 medications or 68.2%. The category of medications known as antimicrobials was the most prevalent, accounting for 97 cases (38.0%). This was followed by analgesic/antipyretics, which accounted for 50 cases (19.6%). Ciprofloxacin was the most prevalent antibiotic, accounting for 22.7% of the cases. The dosage of 83 medications (32.6%) was deemed incorrect.* ***Conclusion:*** *Immediate measures such as the implementation of explicit instructions, SOP, guidelines, comprehensive training, and vigilant monitoring of drug usage are necessary to rectify certain erroneous attitudes.*

KEY WORDS- *Surgery, Antimicrobials, Antihistamines, NSAIDs, Ampicillin, Ciprofloxacin,*

INTRODUCTION

The utilization of antibacterial and analgesic medications is imperative for the successful execution of surgical procedures, since surgical site infections are a prevalent factor contributing to postoperative morbidity and death[1]. Improper prescription during surgical treatment of illnesses can result in serious consequences in both pre and postoperative care, perhaps leading to fatalities[2].

Irrational prescribing include the practice of polypharmacy, the administration of medically inefficient and unsuitable medications that are not relevant to the disease, the utilization of costly medications, the preference for branded prescriptions over generic alternatives, and the excessive and improper use of antimicrobials[3].

The prevalence of polypharmacy and the inclination towards expensive medications is not limited to underdeveloped nations, but is also observed in industrialized countries. The illogical utilization of medication leads to a higher occurrence of negative drug reactions, delayed alleviation, prolonged hospital stays, increased illness and death rates, and financial losses. This is also a contributing factor to the growing resistance to antimicrobial drugs[4].

The retrospective evaluation of drug prescription trends can be conducted by analyzing the clinical data of a certain region or institution[5], Drug use studies, a method for evaluating healthcare systems, give statistics on the incidence of irrational medicine in certain regions[6].

Materials and Methods

The study was conducted at the Department of Surgery, K. J. Somaiya Medical College, Hospital And Research Centre in Mumbai, India, from July 19, 2010 to January 2011. This research was a retrospective analysis that comprised 50 patients from the Department of General Surgery. The case papers were obtained from the medical record division of the institute. Only the cases that required hospitalization were included, eliminating tose who were treated as outpatients. From this group, a total of 50 cases were chosen at random for the research. The case sheets were thoroughly reviewed and data was collected

regarding gender disparities, average patient age, diagnoses, number of diseases, drug administration routes, types of drugs consumed, antimicrobial usage, prevalence of common and uncommon antimicrobials, utilization of single and multiple antimicrobials, culture and sensitivity testing, generic and branded drug usage, fixed-dose combinations, appropriateness of dosage, and frequency of drug and non-pharmacological interventions. The study received the requisite authorization from the institutional authorities. The data was analyzed with Microsoft Office Excel 2007, and the findings were presented in a descriptive manner.

RESULTS

Among the 50 cases, there were an equal number of girls and males, with 25 instances (50%) each. The majority of instances (18 cases, 36%) occurred in individuals aged between 21 and 40 years. This was followed by 7 cases (14%) in individuals aged 11 to 20 years, while the fewest number of cases (3 cases, 6%) were seen in individuals aged 60 years or older.
[Table 1].

Table 1: Demographic characteristics of surgical patients in a rural hospital, including their age and gender distribution.			
Age group	Male (%)	Female (%)	Total (%)
Up to 10 years	01 (2)	04 (8)	05 (10)
11–20 years	03 (18)	04 (8)	07 (14)
21–30 years	05 (10)	04 (8)	09 (18)
31–40 years	04 (8)	05 (10)	09 (18)
41–50 years	07 (14)	05 (10)	12 (24)
51–60 years	02 (4)	03 (6)	05 (10)
>60 years	03 (6)	00 (0)	03 (6)
Total	25 (50)	25 (50)	50 (100)
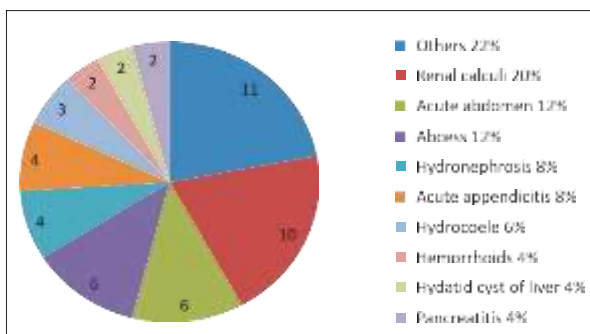
Figure 1: Frequent Diagnosis (N = 50)

The most frequent reason for hospitalization was Kidney stones, followed by acute abdomen and others of the disorders accounted for the remaining diagnoses, with each individual disease comprising less than 1% of the total [Figure 1]. Out of the total number of patients, 45 individuals (90%) were admitted to the hospital for a single ailment, while the remaining 5 patients (10%) had several diseases or complications related with their primary disease. [Figure 1]

Based of the 50 instances, a total of 255 medications were prescribed, resulting in an average of 5.1 pills per prescription (with a median of 5). The intravenous route was the most often favored method of medication administration, accounting for 68.2% of the pharmaceuticals studied. This was followed by the oral route, which accounted for 21.9% of the drugs, and the intramuscular route, which accounted for 9.0% of the drugs. [Figure 2].
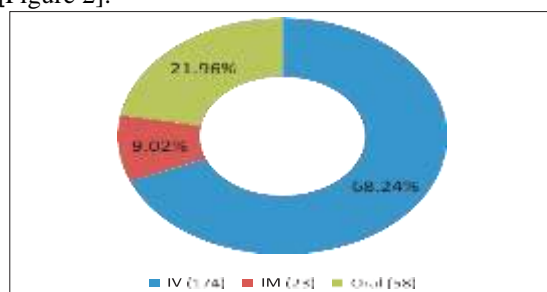
Figure 2: Route of Drug Administration (*n* = 50)

Antimicrobials accounted for the majority of prescription medications (97 or 38.0%), followed by non-steroidal anti-inflammatory medicines (NSAIDs) at 50 (19.6%). Within other medication categories, several groupings were employed, with each group accounting for less than 5% of the total pharmaceuticals, Ciprofloxacin was the most often utilized antimicrobial out of a total of 97, accounting for 22.7% of the usage. Metronidazole followed closely behind with a usage rate of 21.6%. On the other hand, amikacin was the least utilized antibiotic, with a usage rate of only 2.0%.
[Figure 3].
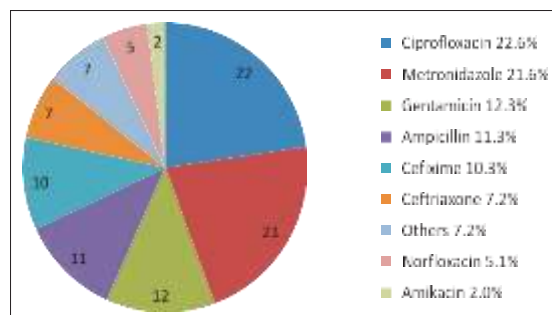
Figure 3: Frequently Used Antimicrobials (*n* = 50)

Among the total of 255 prescription medications, the majority (182, equivalent to 74.5%) were prescribed using their brand names. Empirical therapy was used to address all the cases. Out of the total pharmaceuticals, 83 (32.6%) had an incorrect dosage, while 26 (10.2%) had an incorrect frequency of administration. Two instances (4%) were administered a fixed-dose combination. Cold sponging, a non-pharmacological intervention, was employed in 1 out of 50 patients (2%). Out of the total patients, 20 (40%) were prescribed two separate antimicrobials, whereas 18 (36%) instances received just one antimicrobial medication

DISCUSSION

The predominant age range in this sample was 21 to 50 years. This is a common pattern, since the age group that is actively engaged in socioeconomic activities, known as the productive age group, is more susceptible to disorders that may require surgical procedures[7].

The hospitalizations primarily resulted from renal kidney stone, abscesses, and acute abdomen.

In the population under investigation, a significant prevalence of polypharmacy was discovered, with an average of 5.1 medicines per prescription. The majority of these prescriptions contained antimicrobials (38%), followed by NSAIDs (19.6%). Additionally, antihistamines were commonly prescribed, and the preferred mode of administration was intravenous. Both studies observed the occurrence of polypharmacy in their respective locations. Occasionally, certain illnesses need the use of a greater quantity of medications, however our research indicates that polypharmacy is often practiced in the region. Possible factors may encompass obtaining prompt alleviation from illnesses[8-9].

The most favored antimicrobial agents were ciprofloxacin (22.65%), metronidazole (21.65%), third-generation cephalosporins, gentamicin, and ampicillin. The majority of medications were branded and administered without conducting culture and sensitivity testing. The utilization of two antimicrobial drugs was also prevalent. In their study done in Italian hospitals[10], discovered that 18% of antimicrobial use involved the combination of penicillin with β-lactamase inhibitors. Additionally, the use of fluoroquinolones and third-generation cephalosporins was also prevalent. Additionally, they noted a greater utilization of antimicrobials in surgical units as opposed to medical units, as well as a higher prevalence of 3rd generation cephalosporins for surgical prophylaxis.

Antimicrobial coverage is important during surgical operations to prevent postoperative infective problems[11]. However, it is also commonly noted that antimicrobials are used unnecessarily. International recommendations recommend the use of 1st or 2nd generation cephalosporins for surgical prophylaxis, rather than 3rd and 4th generation cephalosporins or other stronger antimicrobials, which are also often used for this reason.[12] There are several factors contributing to this trend, including the motivation to prevent complications after surgery, the need for immediate relief, limited time for conducting investigations, inadequate infrastructure for microbiological laboratory testing, and the surgeon's personal beliefs and experience with various antimicrobial treatments[13-14].

CONCLUSION

It is necessary to review the prescription trend in the surgical department of the respective hospitals. The utilization of elevated antimicrobials and proprietary medications is prevalent. Immediate action is required to fix unreasonable practices, including the implementation of particular SOP, guidelines protocols, training programs, and drug usage monitoring.

DECLARATIONS

Financial Disclosure: Nothing to declare.

Conflicts of interest/Competing interests: No competing interests for this work.

Ethics approval: Ethical clearance was obtained from the Ethics Committee For Research On Human Subjects (Ethics Committee\IRB at K. J. Somaiya Medical College, Hospital and Research Centre, Mumbai on 03 September 2010.

Consent to participate: Written informed consent was obtained from all participants.

Consent for publication: Not applicable.

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PROGRAM FOR SELECTION OF TREATMENT TACTICS AND CALCULATION OF SURVIVAL IN PATIENTS WITH BREAST CANCER

Urmanbaeva Dilbaroy Abdulkosimovna

Candidate of Medical Sciences, Associate Professor of the Department of Oncology, Andijan State Medical Institute

SUMMARY

Information is presented on the creation and selection of treatment tactics programs based on the main criteria of risk categories: T, N, tumor receptor status (ER, PR), Her-2/neu status. Prediction of survival depending on the intended method of treatment, taking into account surgery (sectoral resection or mastectomy). Development of a graphical algorithm for the prevalence of the process and the choice of intervention tactics.

KEY WORDS: *breast cancer, relevance, histogenesis, morphology, clinical symptoms, treatment, prognosis.*

RELEVANCE

Breast cancer (BC) is a heterogeneous disease with various variants clinical course of the tumor process. In this regard, there is a need to choose treatment tactics taking into account not only the stage of the disease, but also the main prognostic factors factors. Surgery is the leading treatment for breast cancer. The result of surgical treatment of breast cancer largely depends on the choice of tactics. Maximum radicalism (mastectomy) with removal of the mammary gland, adjacent tissues and lymph nodes, was initially considered reasonable and guaranteed results.

However, over time, sectoral resection, preserving most of the mammary gland in combination with adjuvant chemotherapy (CT), hormonal therapy (HT) and radiation therapy (RT) gave no less encouraging results. However, currently no final opinion in favor of one or another tactic.

TARGET

Creation of a program for choosing treatment tactics based on basic criteria risk categories: T, N, tumor receptor status (ER, PR), Her–2/neu status. Prediction of survival depending on the intended treatment method, taking into account operations (sectoral resection or mastectomy). Development of a graphical algorithm prevalence of the process and choice of intervention tactics.

MATERIALS AND METHODS

375 case histories of patients operated on from 2021 to 2023 in the conditions of the Andijan branch of the Republican Specialized Scientific-Practical Medical Center for Oncology and Radiology . The stage of the process according to the TNM classification, tumor localization, and results were assessed. immunohistochemical analysis (ER, PR, Her-2neu), surgical tactics, type of adjuvant therapy, relapses, metastases and mortality.

The studied criteria were entered into a database and analyzed using logistic regression. The application is developed based on Microsoft Visual Studio using C programming language.

RESULTS

A computer program has been developed based on an algorithm with using logistic regression to predict 5-year survival among women after surgical treatment for breast cancer.

Surgical treatment options included radical resection and Madden mastectomy with lymphadenectomy, regardless of the type of intervention. The purpose of the program is forecasting 5-year survival rate and choice of surgical treatment tactics based on criteria risk.

CONCLUSIONS

The program we have developed allows you not only to control the process and predict the outcome of the disease, but, most importantly, helps make decisions on regarding the surgical treatment used. Our goal is to provide doctors universal application for accurate prediction of clinical outcome, as well as for assessing the impact of different treatment options on subsequent survival. It should be noted, that for the greatest accuracy of this program thousands of new clinical cases included in our database. But this is exactly what our program will ensure the opportunity to improve and produce even more reliable and accurate results.

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EXPLICATING THE NARRATIVES OF ELEMENTARY TEACHERS IN HANDLING GRADE 2 STUDENTS WITHOUT PRIOR IN-PERSON INSTRUCTION

Generoso Jr. P. Makig-Angay*[1], Henry C. Ligan, PhD[2]

[1]Teacher I, Bincungan Elementary School
[2]Full-Time Professor, University of Mindanao Tagum College, Part-Time Professor,
St. Mary's College of Tagum, Inc.

ABSTRACT

The purpose of this qualitative study employing the approach of narratology was to explore the narratives of elementary teachers in dealing with Grade 2 students without prior in-person instruction in the Division of Tagum City. Three elementary teachers were selected through purposive sampling, and they were interviewed to glean the narratives relevant to the research topic of the study. Their narratives were similar which showed the problems that emerged among the Grade 2 learners after the pandemic which include the learning gaps in literacy and numeracy, socio-emotional problems of the pupils, and lack of parental involvement during the pandemic. In response to these perceived challenges, the teachers focused first on the recovery of the expected foundational skills of the learners and exposed them to lots of interactions with their peers. Moreover, remediation as an intervention was made available for the learners to cope with their learning gaps in consonance with asking the learners' parents for their collaboration and support. The elementary teachers realized that the curriculum should be adjusted to accommodate these learners who admittedly had learning loss during the pandemic. Support of teachers, educational leaders, parents, and stakeholders was perceived to be crucial to immediately address this serious problem in the society today.

KEYWORDS: *education, elementary teachers, narrative research, purposive sampling, Division of Tagum City*

INTRODUCTION

The two-year academic interruption of students due to the COVID-19 pandemic has generated challenges among elementary teachers. Due to the fact that elementary schools had been closed for several years, educators could not interact with and instruct their students in person. In return, learners were also unable to receive rich and interactive in-person instruction from their teachers. This spelled tremendous gaps and disadvantages among the affected learners. What is more disadvantageous in this situation are the affected Grade 1 and Grade 2 pupils whose formative years must be spent in the schools so that they will be taught the basic numeracy and literacy skills which will serve as their foundation that they can use for the rest of their learning journey in life. This is the problem that I and my fellow Grade 2 teachers and pupils have been experiencing, now that face-to-face class has returned in full swing.

In China, second-grade students who had not received in-person instruction just before distance learning during the COVID-19 pandemic exhibited a probable decline in academic performance, prompting elementary school educators to express challenges in managing these students. This was due to the classes held for both the end-of-year assessment and the internal examination, as well as the shortened interaction hours for students and the scarcity of

collaboration with teachers when confronting learning/understanding problems (Sintema, 2020). Moreover, in Thailand, Dorn et al. (2020) reported that there was an alarming learning gap among Grade 2 students who have not experienced prior in-person instruction giving their teachers a hard time in handling them.

Meanwhile, in the Philippine education sector, a number of research studies have identified how teachers struggle in handling students who do not have experience with in-person instruction. Research in the United States (Dorn et al., 2020) revealed that online learning is only about 52% efficient, and modular learning is even less efficient, at only about 37%. As a result of the observed learning deficits, when pupils returned to face-to-face classes, this issue became more common (Chua, 2022).

Furthermore, teachers in the locality of the Division of Tagum City reported how they struggled in dealing with the learning gaps among their Grade 2 students who do not have prior in-person instruction experiences, especially with their reading abilities. It has been observed that students' performances in the different subject areas have been detrimentally affected because of their poor comprehension of the lessons. Apparently, teachers attribute these poor performances to the learning gaps caused by their

ineffective modular learning from the previous school years. In fact, Arroyo et al. (2022) mentioned that remediation and other intervention programs were done by educators to improve the achievements of the students.

Seemingly, there have been few research studies conducted related to learning gaps among students without prior in-person instruction caused by the COVID-19 pandemic. These international studies include the study of Middleton (2020) about "The longer-term impact of COVID-19 on K–12 student learning and assessment"; the research of Rahm et al. (2021) about "Effects of realistic e-learning cases on students' learning motivation during COVID-19"; and the study of Gore et al. (2021) on "The impact of COVID-19 on student learning in New South Wales primary schools: an empirical study". These studies captured the realities of primary schoolers abroad who were affected by the transition in learning setup as a result of COVID-19 emergence. However, no studies have been conducted yet in the locality of Tagum City Division that focused on the experiences of elementary teachers in handling Grade 2 students without prior in-person instruction. To fill this gap, I will conduct this qualitative research using the narratology approach to explore the educational problem faced by elementary teachers.

Apparently, this study implies a great sense of urgency as it would help reveal empirical and substantial information about the reality of learning gaps among Grade 2 students without prior in-person instruction caused by the COVID-19 pandemic educational setup. It has the potential to further unveil both negative and positive experiences of teachers in dealing with such issues in the educational status of the learners. This study merits urgent attention because Grade 2 learners have lost a wealth of face-to-face learning and interaction opportunities to acquire foundational skills that are vital for their learning in the later stages.

Moreover, the results of this study would be disseminated through school-based activities such as Learning Action Cells, trainings, seminars, workshops, and the like. Teachers are the primary recipients of these pieces of information to be spearheaded by their master teachers. By doing so, teachers would be equipped with research-based data that can serve as their basis for action plans with programs and activities geared towards reversing the phenomena stipulated in this study.

Purpose of the Study
The purpose of this narratological study was to explore the narratives of elementary teachers in dealing with Grade 2 students without prior in-person instruction in the Division of Tagum City.

At this stage in research, the narratives of elementary teachers were generally defined as the narratives of the elementary teachers as they handle and deliver face-to-face instruction to Grade 2 pupils who did not receive any in-person instruction from any teacher in formal settings which was caused by the pandemic.

Research Questions
1. What are the experiences of elementary teachers in handling Grade 2 students without prior in-person instruction?
2. How did elementary teachers cope with the challenges encountered in handling Grade 2 students without prior in-person instruction?
3. What are the insights drawn from the experiences of elementary teachers in handling Grade 2 students without prior in-person instruction that can be shared to others?

METHODS
Employing the qualitative research design, this narrative approach of study aimed to highlight the stories of elementary teachers as they handled Grade 2 learners without in-person instruction in public schools in the Department of Education – Division of Davao del Norte. Narrative approach was utilized, in this case, as the lens of this study focused on Grade 2 teachers who experienced the phenomenon. Carless and Douglas (2017) opined that narrative inquiries depict the experiences of people through information-rich narratives and storylines. Using this approach, the purpose of this study was optimally achieved.

Three elementary teachers from Tagum City Division accepted gladly the invitation to become the participants of the study. In participant selection, purposive sampling was applied which is a type of sampling the judges and selects participants based on the richness of information that they can possibly give to answer the research inquiry (Campbell et al., 2020). As such, inclusion and exclusion criteria were adopted in the careful participant recruitment. In selecting the participants, the following criteria were used: (1) they should be an elementary public-school teacher currently working in the Department of Education – Tagum City Division; (2) they should have at least three (3) years of experience as a Grade 2 adviser; and (3) they should be teaching Grade 2 pupils in this school year 2022-2023 who do not have experiences of prior in-person instruction. The exclusion criteria of the study specify that Grade 2 teachers coming from private schools were not included in this study.

In this endeavor, I embraced different roles to ensure the accomplishment of this scholarly work. These roles were: as someone who complied with the requirements for ethics review; as someone who conducted the in-depth interviews; as someone who recorded the interview; as someone who transcribed the participants' response in the interviews; as someone who translated the responses to Standard English; as someone who conducted the member checking to verify the trustworthiness of the responses in the interviews; and as someone who conducted the analysis of the data.

Moreover, the sources of data were the audio recorded interviews with the three mentioned participants. A validated interview guide was utilized in the course of these interviews. Proper permissions and consent were secured beforehand to address confidentiality issues in the data collection procedures. In

addition, the transcripts of these interviews were subjected to thorough thematic analysis following the steps outlined by Boyatzis (1998). Once the analysis of data was finished, presentation of the results followed.

RESULTS

Summary of the Narratives of Teacher Apple

The first participant of this study is denoted with the pseudonym, Teacher Apple. She had four years of experience in teaching Grade 2 learners in one of the big elementary schools in the Department of Education - Division of Tagum City. When asked about her teaching views and philosophies, she believed that eclectic approach is the way to address the multifaceted needs of her learners. Above anything else, she also shared her passion in teaching her kids and she liked the fact when her students learn something new from her class.

After the pandemic, Ma'am Apple's life has turned upside down as she experienced struggles especially in managing her Grade 2 learners without prior in-person instruction. Learning gaps and lack of emotional readiness were the manifestations that the pandemic has greatly affected those kids under her care. She also recognized the lack of parental involvement in her children's education in the midst of pandemic, making the learning loss of her pupils further exacerbated.

Viewing these challenges, she devised means in order to reverse the effect of the pandemic. She fortified her relations with her parents to assist her in helping her students catch up to their expected skill and maturity at their current grade level. She also remediated the foundational skills of her learners in reading, writing, and arithmetic (3Rs). The social skills of her learners were also among her top priorities as full face-to-face classes have resumed.

In retrospection, Teacher Apple made many realizations on the stories she retold during the interview. Given that many of her pupils were highly at a disadvantage during and even after the pandemic, she realized that there is really a need to prioritize first the foundational skills of her learners and to extend one's efforts in doing so. Above all else, she remarked that it would be of the best interest of the basic education sector to be proactive and to rethink the necessary educative measures in every health crisis to make the entire country ready for the other pandemics to come.

Summary of the Narratives of Teacher Strawberry

The second teacher who gladly accepted the invitation for an interview in this study is none other than Teacher Strawberry. She sported her five years of experience in teaching elementary learners and she was also proud to recently earn her master's degree in elementary teaching. When asked about her teaching views and philosophies, she believed that learners must be honed well in their foundational skills because this aspect greatly determines their future direction and leanings. She claimed that helping learners master their foundational skills at a young age

would greatly help them to be prepared for their life ahead, while those who did not would truly suffer at school and in life.

Evidently, she noticed a glaring gap between her Grade 2 learners' age and their expected level of maturity. This was complemented by the apparent literacy and numeracy struggles of those kids under her instruction. Knowing this, she extended individualized support to her pupils, especially those who have seriously been affected by school closures during the pandemic. She also recognized the critical role of intensified parental involvement, collaboration, and communication to enable the resolution of the learning gaps of pupils a success. Ultimately, she viewed resilience as a key aspect in ending this educational crisis among her elementary learners, and she also suggested that the curricular attention should be shifted to honing the pupils' foundational skills in the meantime.

Summary of the Narratives of Teacher Tangerine

The third participant was Teacher Tangerine who qualified in the inclusion and exclusion criteria set in this study. Her rich 14 years of experience with the Department of Education (DepEd) as a permanent elementary school teacher was one of her amazing feats in life as a career woman. At the time of writing this paper, she was an elementary teacher teaching Grade 2 pupils in the wake of post-pandemic setting. As she navigated her way into teaching in this setting, she faced numerous challenges which made her journey a difficult one.

Her narrative takes a similar turn to that of the previous retold stories of Ma'am Apple and Ma'am Strawberry. Skill deficiencies in literacy and numeracy were highly evident, as per her statement. She also noticed the behavior of her learners as similar to those attending kindergarten education. As such, she believed that she had to trace back her teaching to the foundational skills of her pupils. In doing so, she had to match and localize her instruction to the actual identified needs of her pupils. She also had to be patient in leader her learners to knowledge and skill recovery.

As part of her reflection, Teacher Tangerine acknowledged that collaboration and support in these trying times are imperative. The government should be taking action and should see the issue of her Grade 2 and other elementary learners more seriously. With this in mind, she suggested that concerned government agencies should provide teachers with more resources and support in order to reverse the adverse effects of the pandemic to the formative education of her learners.

CONCLUSIONS

Truly, this study reflected my personal experiences in the post-pandemic context. I was never oblivious to the stories that were shared by my participants with me, primarily because I also shared the same sentiments and accounts with all of them in terms of handling Grade 2 learners. Indeed, many learners were at a heavy disadvantage because the school closures hindered the majority of them from encountering enriching interaction and learning experiences which impeded their holistic development.

Pondering upon this fact, there is a mountain of responsibilities that Grade 2 teachers like myself must climb and overcome. Despite the poor conditions and serious aftereffects brought by the pandemic, there is still light for all other teachers, learners, parents, school administrators, and stakeholders once the pandemic subsides. Everyone may contribute to helping our elementary graders recover their learning losses from the unprecedented pandemic. The author hopes that the study will be put to good use, and it is hoped that the message of this study will spur changes that will benefit the basic education of the country.

RECOMMENDATIONS

It was realized after conducting this study that the problems of learning loss and social skills debilitation were never more serious than before. Even as early as Grade 2, problems with the foundational skills of the learners were already too apparent to ignore among the concerned authorities such as the primary school teachers, school administrators, and the department, in general. As such, the following recommendations for teaching practice are offered and addressed to these individuals and agencies to contribute to the resolution of this educational ordeal.

To the elementary teachers, the study only speaks of encouragement to sustain their passion, dedication, and patience to continuously teach elementary learners and help them catch up with the rest of the pupils through a series of remediation programs, social skill enhancement initiatives, and the use of innovative teaching strategies that are tailored to the learners' needs. Also, they are enjoined to involve further the parents in helping learners cope with their learning loss and social skill debilitation that they have acquired during the pandemic. They may ask for updates and seek parents' commitment to help learners be taught the foundational skills at home, while they do their job inside the confines of their classrooms.

For parents, their assistance is much needed today, given the gravity of the situation for their kids attending elementary education. They may seek assistance and guidance from the teachers on how to optimally assist their kids who are now lagging behind in terms of reading, writing, and arithmetic.

More so, school administrators and their teachers need them like never before. Their leadership is indeed essential today to propel the school toward addressing the learning gaps identified in the post-pandemic setting. Their support to the teachers in their teaching initiatives such as but not limited to personalized remediation programs and national learning camps is highly encouraged and appreciated and is instrumental in recovering from the serious learning gaps experienced by elementary pupils today.

For the DepEd officials, there is a need to identify the main focus of the future direction of our educational system. They are encouraged to support the teachers in their initiative to provide remediation and intensified instruction on the foundational skills

of learners, which are obviously inferior to their supposed grade level. They may support the teachers by enhancing the curriculum, shifting teacher focus on instruction for today, and giving them the necessary technical and material support to be empowered to help the learners deal with their experienced learning gaps.

Moreover, the study is still limited in view of the fact that it only focused on the aspect of handling Grade 2 learners who had no in-person instruction during the pandemic. With this in mind, future studies may view the research topic from another angle to affirm and even substantiate what was identified and presented here in the study. Future researchers may opt to use mixed-method approaches to gauge the extent of losses in foundational and social skills to derive a more in-depth description of the problem. Curricular innovations and adjustments may also be focused on by them to check whether these changes may help struggling learners resolve their learning gaps or not.

Classroom and instructional strategies may be explored by other scholars in terms of their efficacy through action research. Grade 2 teachers may take up the responsibility of ideating, devising, implementing, and assessing innovative teaching strategies that may help struggling learners catch up with others in terms of reading, writing, and arithmetic. More importantly, elementary teachers may take the helm in devising classroom strategies that may also incorporate the elements of cooperative learning and interaction to enable learners to overcome their emotional and social difficulties as a result of a couple of years of school closures.

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CHILD LABOUR AND HUMAN RIGHTS VIOLATIONS IN INDIA: AN ANALYSIS

Preety Gupta[1], Dr. Arsheed Ahmad Ganie[2]

[1]Ph.D Research Scholar (Pol.Sc) Department of Humanities and Social Sciences, IEC University, Baddi - HP
[2]Assistant Professor (Pol.Sc) Department of Humanities and Social Sciences, IEC University, Baddi – HP

ABSTRACT

Child labour is a prevalent problem in India, and it is a severe violation of human rights. Millions of children in India are forced to work in hazardous and exploitative conditions, depriving them of their childhood, education, and basic rights. The issue of child labour in India has received widespread attention from international organizations, civil society, and the government. Despite the efforts to combat child labour, the problem persists, and children continue to suffer. This research article aims to provide an analysis of child labour and human rights violations in India. Moreover, this article attempts to provide the strategies for combating child labour and upholding human rights in India.

KEYWORDS: *Child Labour, human rights, violation, exploitation.*

1. INTRODUCTION

Child labour is a widespread issue in India, with an estimated 10.1 million children aged between 5 and 14 years engaged in work that deprives them of their childhood, education, and basic human rights (ILO, 2017). The scope of child labour in India is vast, and children are employed in a range of sectors, including agriculture, domestic work, construction, mining, and manufacturing. The nature of child labour in India is diverse, with some children working in hazardous conditions, exposed to physical, emotional, and psychological abuse, and deprived of their right to education, healthcare, and a safe and healthy environment.

Children from marginalized communities, including Dalits and Adivasis, are particularly vulnerable to child labour. Poverty, illiteracy, and social and economic inequality exacerbate the problem, with many families forced to rely on the income generated by their children to survive. In some cases, children are trafficked and forced to work in exploitative conditions, adding to the complexity of the issue.

The agricultural sector is one of the largest employers of child labour in India, with children engaged in tasks such as sowing, harvesting, and carrying heavy loads. The domestic work sector also employs a large number of children, with many working long hours without any pay or access to education.

In the construction sector, children are often employed as helpers, carrying bricks and other materials. Children in this sector are often exposed to hazardous working conditions, including working at heights and handling heavy machinery. The mining sector also employs children, with many working in unregulated and dangerous mines, exposing them to respiratory illnesses and other health hazards.

Children in the manufacturing sector work in factories and sweatshops, often in appalling conditions, with little or no access to basic amenities such as clean drinking water and sanitation facilities. The garment industry is one of the largest employers of child labour in India, with children working long hours in dangerous conditions, often for very low wages.

Thus, the scope and nature of child labour in India are vast and complex. Children from marginalized communities are particularly vulnerable, and poverty, illiteracy, and social and economic inequality exacerbate the problem. It is essential to address the root causes of child labour and implement effective policies and programs that promote child rights and protect them from exploitation and abuse.

2. THE IMPACT OF CHILD LABOUR ON HUMAN RIGHTS IN INDIA

Child labour has a severe impact on the human rights of children in India. The right to education, health, and a safe and healthy environment is often denied to child labourers. Children engaged in hazardous work are exposed to risks to their health and safety, and their physical and emotional development is compromised. Child labour also perpetuates a cycle of poverty, which deprives children of their basic needs and exposes them to further exploitation and abuse.

Education is a fundamental right of every child, and child labour denies children access to education, perpetuating a cycle of poverty and illiteracy. Many child labourers drop out of school or are never enrolled in the first place, denying them the opportunity to learn and develop skills necessary for a better future. The lack of education and skills also limits their opportunities for employment, leading to a life of poverty and exploitation.

Child labour also exposes children to hazardous and dangerous working conditions, which compromise their health and safety. Children engaged in activities such as mining, construction, and manufacturing are often exposed to toxic chemicals and heavy machinery, leading to respiratory illnesses, physical injuries, and other health hazards. Children working in domestic work are often subjected to physical and emotional abuse, denying them their right to a safe and healthy environment.

Child labour also has a severe impact on the emotional and psychological well-being of children. Children working in exploitative conditions are often subjected to physical and emotional abuse, leading to long-term trauma and mental health issues. Children are often forced to work long hours, depriving them of time for play, rest, and other activities essential for their emotional and psychological development.

Child labour perpetuates a cycle of poverty, depriving children of their basic needs and exposing them to further exploitation and abuse. Children working in exploitative conditions are often paid very low wages, denying them access to basic necessities such as food, shelter, and healthcare. Poverty and deprivation force children into work, perpetuating the cycle of child labour and poverty.

As a result, child labour has severe impacts on the human rights of children in India, denying them access to education, health, safety, and a safe and healthy environment. It is essential to address the root causes of child labour and implement effective policies and programs that promote child rights and protect them from exploitation and abuse. Protecting the human rights of children is not only a moral imperative but also essential for building a just and equitable society.

3. LEGAL FRAMEWORK FOR CHILD LABOUR IN INDIA

Child labour is a widespread issue in India, and it is crucial to examine the legal framework that governs it. The Constitution of India recognizes the right to education and prohibits child labour under the age of 14 years in hazardous occupations. The government has also enacted several laws and regulations to protect children from exploitation and abuse.

The Child Labour (Prohibition and Regulation) Act, 1986, is the primary legislation that governs child labour in India. The act prohibits the employment of children below the age of 14 years in hazardous occupations and processes. The act also regulates the working conditions of children in non-hazardous occupations, limiting the working hours and requiring employers to provide basic amenities such as clean drinking water and sanitation facilities.

The Right to Education Act, 2009, is another significant legislation that promotes the education of children and prohibits child labour. The act mandates the provision of free and compulsory education to all children between the ages of 6 and 14 years. The act also prohibits the employment of children in any occupation that interferes with their education.

The Juvenile Justice (Care and Protection of Children) Act, 2015, is another essential legislation that governs child labour. The act provides for the care and protection of children, including child labourers. The act also provides for the rehabilitation and social reintegration of children who have been subjected to exploitation and abuse.

The government has also enacted several regulations to protect children from exploitation and abuse in specific sectors. For

instance, the Mines Act, 1952, prohibits the employment of children below the age of 18 years in mines. The Factories Act, 1948, regulates the working conditions of children in factories, mandating minimum working hours and providing for rest intervals and holidays.

However, despite the legal framework, child labour remains prevalent in India, particularly in the informal sector. Many children
n are employed in family businesses or small-scale industries, where the laws are not enforced. Moreover, the legal framework is often undermined by social and economic factors such as poverty, illiteracy, and social and economic inequality.

In closing, the legal framework for child labour in India is robust, with several laws and regulations aimed at protecting children from exploitation and abuse. However, the enforcement of these laws is often inadequate, and social and economic factors continue to perpetuate the problem. There is a need for greater awareness, education, and enforcement of the laws to protect the rights of children and eradicate child labour in India.

4. POVERTY AND CHILD LABOUR IN INDIA

Poverty is a significant factor that contributes to child labour in India. Children from poor families are often forced to work to contribute to the family's income, perpetuating a cycle of poverty and exploitation. The link between poverty and child labour is complex, with poverty often leading to child labour, and child labour perpetuating poverty.

India with a large population living below the poverty line. Poverty denies children access to basic necessities such as food, shelter, and healthcare, forcing them into work to survive. Children from poor families are often sent to work in hazardous occupations such as agriculture, construction, and manufacturing, where they are exposed to physical and emotional abuse, exploitation, and long-term health hazards.

The lack of education and skills is also a significant factor that contributes to child labour in India. Children from poor families are often denied access to education, limiting their opportunities for employment and perpetuating the cycle of poverty. Without education and skills, children are forced into low-paying, exploitative work, leading to a life of poverty and deprivation.

Moreover, poverty often leads to social and economic inequality, which further perpetuates the cycle of child labour. Children from marginalized communities such as Dalits, Adivasis, and other backward castes are often subjected to discrimination and social exclusion, denying them opportunities for education and employment. These children are more likely to be engaged in hazardous and exploitative work, perpetuating the cycle of poverty and exploitation.

Therefore, poverty is a significant factor that contributes to child labour in India, perpetuating a cycle of poverty and exploitation. To address the problem of child labour, there is a need for comprehensive policies and programs that promote

access to education, healthcare, and social and economic equality. It is essential to break the cycle of poverty and exploitation and provide children with opportunities for education and employment that respect their human rights and dignity.

5. IMPORTANCE OF EDUCATION IN ERADICATING CHILD LABOUR AND PROTECTING HUMAN RIGHTS IN INDIA

Education is a powerful tool for eradicating child labour and protecting human rights in India. It is widely recognized that education is a fundamental human right and a key to breaking the cycle of poverty and exploitation. Education empowers children to understand and assert their rights, acquire skills and knowledge, and access opportunities for better employment and economic growth.

Education plays a crucial role in eradicating child labour by providing children with alternatives to work. Children who are educated are less likely to engage in hazardous and exploitative work and more likely to access decent employment opportunities. Education can help break the cycle of poverty that perpetuates child labour and provide children with the skills and knowledge they need to live dignified and fulfilling lives.

Moreover, education is crucial for protecting human rights in India. Education empowers individuals to understand and assert their rights and enables them to engage in civic and political life. Education can promote social and economic equality, reducing the likelihood of discrimination and exploitation. Education can also enhance awareness of human rights violations, enabling individuals to demand accountability and justice.

The Right to Education Act, 2009, is an important legislation that promotes education and protects children from child labour. The act mandates the provision of free and compulsory education to all children between the ages of 6 and 14 years. The act also prohibits the employment of children in any occupation that interferes with their education, promoting access to education and protecting children from exploitation and abuse.

In conclusion, education is a powerful tool for eradicating child labour and protecting human rights in India. Education provides children with alternatives to work, breaks the cycle of poverty, and promotes social and economic equality. Education also empowers individuals to understand and assert their rights, promoting awareness of human rights violations, and demand accountability and justice. To protect the human rights of children and eradicate child labour, there is a need for greater investment in education and the promotion of access to education for all children.

6. EFFECTIVENESS OF GOVERNMENT AND NGO INTERVENTIONS TO COMBAT CHILD LABOUR IN INDIA

Child labour is a complex and pervasive issue in India, with an estimated 10 million children engaged in work that deprives them of their childhood and basic human rights. The Indian government and non-governmental organizations (NGOs) have implemented various interventions to combat child labour, including legislative measures, awareness campaigns, rehabilitation programs, and social welfare initiatives. This article examines the effectiveness of government and NGO interventions to combat child labour in India.

The Indian government has implemented various legislative measures to combat child labour, including the Child Labour (Prohibition and Regulation) Act, 1986, which prohibits the employment of children under 14 years in hazardous occupations and regulates the conditions of work for children between 14 and 18 years. The government has also established the National Child Labour Project (NCLP) to identify and rescue child labourers and provide them with education and vocational training.

NGOs have played a significant role in combating child labour in India, working closely with the government to implement interventions at the grassroots level. NGOs have implemented various interventions, including awareness campaigns, rescue and rehabilitation programs, and social welfare initiatives. NGOs have also established schools and vocational training centers for child labourers to provide them with education and skills.

Despite the efforts of the government and NGOs, child labour remains a significant problem in India. The effectiveness of government and NGO interventions to combat child labour is limited by several factors, including weak enforcement mechanisms, inadequate funding, and poor coordination between government agencies and NGOs.

Weak enforcement mechanisms are a significant challenge in combatting child labour in India. The government has failed to effectively enforce the legislative measures to combat child labour, resulting in rampant violations of child labour laws. The lack of adequate funding for government and NGO interventions is another challenge, limiting the scope and effectiveness of interventions. The poor coordination between government agencies and NGOs also hampers the effectiveness of interventions, leading to duplication of efforts and inefficiencies.

Thus , the effectiveness of government and NGO interventions to combat child labour in India is limited by several factors, including weak enforcement mechanisms, inadequate funding, and poor coordination between government agencies and NGOs. To effectively combat child labour, there is a need for stronger enforcement mechanisms, increased funding, and better coordination between government agencies and NGOs. It is essential to ensure that interventions are comprehensive, addressing the root causes of child labour and promoting access to education, healthcare, and social and economic equality.

7. STRATEGIES FOR COMBATING CHILD LABOUR AND UPHOLDING HUMAN RIGHTS IN INDIA

Combating child labour and upholding human rights in India is a complex issue that requires a comprehensive approach. Governments, civil society organizations, and other stakeholders need to implement strategies that address the root causes of child labour and promote access to education, healthcare, and social and economic equality. In this article, we will explore some of the strategies for combating child labour and upholding human rights in India.

- **Strengthening legislative measures:** Legislative measures play a crucial role in combating child labour and upholding human rights in India. The government should strengthen existing laws and regulations to protect children from exploitation and abuse. The government should also ensure the effective enforcement of these laws and regulations, holding violators accountable.
- **Promoting access to education:** Education is a powerful tool for eradicating child labour and upholding human rights in India. The government and NGOs should promote access to education for all children, especially those from marginalized communities. They should also establish schools and vocational training centers for child labourers to provide them with education and skills.
- **Raising awareness:** Awareness campaigns can play a significant role in combating child labour and upholding human rights in India. The government and NGOs should conduct awareness campaigns to educate parents, employers, and the public about the negative effects of child labour and the importance of upholding human rights.
- **Providing social and economic support:** Poverty is a significant driver of child labour in India. Providing social and economic support to families can help reduce the need for children to work. The government and NGOs should provide support to families, including cash transfers, subsidies, and job training programs.
- **Supporting child protection systems:** Child protection systems are essential for combating child labour and upholding human rights in India. The government and NGOs should establish and strengthen child protection systems to identify and rescue child labourers and provide them with rehabilitation and social support.
- **Collaboration and partnerships:** Combating child labour and upholding human rights in India requires collaboration and partnerships among various stakeholders. The government, civil society organizations, international organizations, and the private sector should collaborate to implement comprehensive strategies to combat child labour and uphold human rights.

8. CONCLUSION

Combating child labour and upholding human rights in India requires a comprehensive and collaborative approach. Strengthening legislative measures, promoting access to education, raising awareness, providing social and economic support, supporting child protection systems, and collaboration and partnerships are essential strategies for combatting child labour and upholding human rights in India. it is essential to recognize that eradicating child labour and upholding human rights in India require collaborative efforts from all stakeholders. The government, civil society organizations, international organizations, and the private sector must work together to implement comprehensive strategies to combat child labour and uphold human rights. By doing so, India can ensure that every child has the opportunity to live a dignified and fulfilling life, free from exploitation and abuse.

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SOCIODYNAMICS OF SOCIAL ENTREPRENEURSHIP IN UZBEKISTAN AND INTRODUCING THE SOCIAL ENTREPRENEURSHIP DEVELOPMENT INDEX (SED Index) IN COMMUNITIES

Yo'ldosheva Umida

Scientific Research Institute «Mahalla and Family», PhD Student

ANNOTATION

 Based on sociological researches conducted by the author this article provides a comprehensive analysis of the current state of social entrepreneurship in Uzbekistan, a relatively new and evolving phenomenon within the country. Through a thorough examination of the existing landscape, the author evaluates the level of development, challenges, and opportunities for social entrepreneurship in Uzbekistan. By proposing an algorithmic framework for its future growth and development, the article offers valuable insights and recommendations to foster a flourishing social entrepreneurship ecosystem in Uzbekistan. analyzes some methodologies to quantify the level of social entrepreneurship development within regions, followed by the proposal of a potential Social Entrepreneurship Development Index (SED Index) as an exemplary measurement tool.

KEYWORDS: *social entrepreneurship, sociodynamics of social entrepreneurship in Uzbekistan, resources for the development of social entrepreneurship, algorithm of developing social entrepreneurship in Uzbekistan, measuring the level of social entrepreneurship development within regions, Social Entrepreneurship Development Index (SED Index)*

INTRODUCTION

 Uzbekistan today is at a new stage of its development, where large-scale political, administrative, economic and social reforms are taking place. These circumstances make it necessary to consider a variety of tools for managing social processes and effectively solving social problems.

The problem of integrating the processes of economic and social sustainability is becoming important. Such orientation of socio-economic development and the main tasks are defined in the Strategy "Uzbekistan-2030" [1], in the Development Strategy of New Uzbekistan for 2022-2026[2] and many other regulatory legal acts.

Social entrepreneurship is one of the effective tools for achieving socio-economic stability. As a relatively new and innovative phenomenon, it contributes to the growth of the level and quality of life of the population, increasing the competitiveness and efficiency of the economy, which is very relevant right now in the light of the crisis in the global economy and the slowdown in economic growth due to the pandemic.

In Uzbekistan, great attention has recently been paid to the integration of the processes of economic sustainability and social stability, but there is still a lack of systematic scientific research aimed at formulating proposals for the effective use of social entrepreneurship as one of the most effective tools for achieving socio-economic stability. Socio-economic studies of

the essence, dynamics and prospects for the development of social entrepreneurship are necessary to create an empirical base for forecasting the vectors of development of the national economy and the social sphere.

It should be noted that very few works are devoted to the theory and methodology of social entrepreneurship from the perspective of sociological analysis, not only in Uzbekistan, but also in the CIS countries and abroad.

In Uzbekistan, social entrepreneurship has not been studied in the context of social analysis, but it is still worth noting the works on the study of social and economic processes by such authors as M. Bekmurodov, N. Egamberdiyeva, Sh. Sodikova, the study in the field of entrepreneurship was carried out by such authors as Sh. Abdullaeva, B. Mamatova, J. Isakova, D. Tadjibaeva, I. Rakhmonov, T. Koraliev, G. Yakhshiboev, I. Alimardonova and in the field of the legislative framework of social entrepreneurship the work of such authors such as A. Radjabov, S. Akhrorova, A. Kalandarov.

In the CIS countries, there has recently been an increase in interest in social entrepreneurship on the part of the scientific community, in particular, the history of development, practical aspects and substantive directions for the development of social entrepreneurship. The works of M. Batalina, A. Barkov, I. Mirgaliyev, E. Shmatkova, M. Volkova increasingly effected the development of scientific researches in the sphere.

Among foreign scientists, R. Cantillon, A. Smith, P. Drucker, J. Schumpeter, W. Sombart, F. Knight, and I. Kirzner made a significant contribution to the study of entrepreneurship. The culture of entrepreneurship from the standpoint of the social component is considered by A. Rich and J. Huizing. A significant contribution to the study of the theoretical foundations and practical aspects of social entrepreneurship was made by C. Leadbeater, G. Deese, G. Prabu, J. Boschi, D. Bornstein, S. Johnson, W. Drayton, J. S. Smith, and J. S. Smith. Austin, G. Sullivan Mort, Mair & Martin, R. Martin, S. Osberg.

Mair and Martin argue that "the main difference between entrepreneurship in the business sector and social entrepreneurship is the relative priority given to the creation of social good over the creation of economic good" [5]. Thus, social entrepreneurship is a type of entrepreneurial activity aimed at solving social problems. The difference between social entrepreneurship and non-profit organizations and charity lies in the presence of a dual goal: commercial and social. The business model of social entrepreneurship is a self-sustaining activity that brings profit and profit, in turn, is a means to achieve a social goal.

METHODOLOGY
Within the framework of our research our main objective was to develop algorithm of developing social entrepreneurship in Uzbekistan. Series of empirical sociological researches has been conduted to define the existing ecosystem and sociodynamics of social entrepreneurship in Uzbekistan and prospects of its development. Through

i. statistical analysis of socially oriented entrepreneurship in dynamics for 2018-2022 in Uzbekistan;
ii. structured interviews and focused group discussions with the experts selected based on their expertise, knowledge, and practical understanding of social entrepreneurship ecosystem;
iii. case studies conducted by author in Scandinavian countries (Norway, Sweden, Denmark), which involved studying successful social enterprises, examining their growth trajectories, and identifying the key factors that played a crucial role in their development;
iv. social survey conducted in Tashkent region, Tashkent city, Fergana region, Kashkadarya region and Navoi

region to determine the prospects and opportunities for the implementation of social entrepreneurship in mahallas by assessing the level of public awareness of social entrepreneurship, analyzing the motivation of the population at the beginning of entrepreneurial activity, identifying the main barriers that prevent the population from doing business, studying the gender aspects associated with doing business, assessing the resource potential of mahallas in the selected regions, analyzing the main socio-economic problems of mahallas and the demand of mahallas for various areas of social entrepreneurship, comparison of this demand of mahallas with the choice of the population to open a certain direction of social entrepreneurship, determining the resources necessary for the development of social entrepreneurship in mahallas sociodynamics of social entrepreneurship in Uzbekistan have been analyzed and based on these findings algorithm of developing social entrepreneurship in Uzbekistan has been developed.

RESULTS
As part of our research, we selected socially-oriented enterprises according to the NCEA classifier. To do this, we were guided by the definition given in the previous paragraphs and selected the appropriate NCEAs that correspond to business activities focused on solving social and environmental problems.

In total, as of January 1, 2023, the number of small businesses operating in the field of socially-oriented entrepreneurship in the republic amounted to 15148 entities, in accordance with the National Classifier of Economic Activities NCEA-2, they include: - 36 - Collection, treatment and distribution of water, 38 - Collection, treatment, disposal, disposal of waste, 58.1 - Publication of books, periodicals and other types of publishing activities, 58.11 - Publication Books, 60.1 - Broadcasting, 78 - Employment, 85 - Education, 87 - Provision of Care with Accommodation, 88 - Provision of Social Services without Accommodation, 90 - Activities in the Field of Creativity, Arts and Entertainment, 91 - Activities of Libraries, Archives, Museums and Other Cultural Institutions, 93 - Activities in the Field of Sports, Recreation and Entertainment.

Figure 1 Growth of socially oriented entrepreurship in total number of entrepreneurship
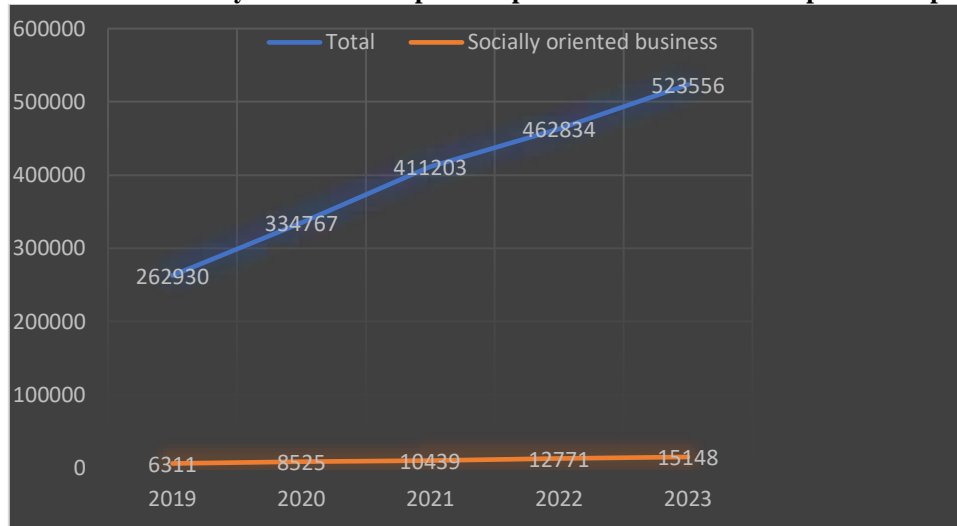
Based on the results of the analysis of socially oriented entrepreneurship over the past five years (fig.1), it can be noted that it has increased. This indicates the growing interest of entrepreneurs in social responsibility and the desire to make positive changes in society. But also, there is a big gap between the regions and between one or another type of socially oriented entrepreneurship. For example, in the areas of activity of libraries, archives, museums and other cultural institutions, which may be due to various factors, including the fact that the activities of state institutions are quite developed in this area. Other factors for the greater or lesser development of certain types of socially oriented business in certain regions include such factors as demographic, economic, socio-cultural and institutional.

The development of socially oriented business in the regions requires an integrated approach and active interaction with society: analysis of the current situation, development of a development strategy, support from the state, the business community and the public. Statistical analysis of the types of socially oriented entrepreneurship in the regions helped to identify trends in the development of social entrepreneurship in the region and identify growth potential. On the basis of statistical data, it is possible to predict the future development of social entrepreneurship and make decisions aimed at supporting and stimulating it. This analysis serves as the basis for the selection of priority areas and development strategies, as well as for the determination of the necessary resources and support measures.

Analyzing the results of case studies and in-depth expert interviews in the Scandinavian countries and Uzbekistan, the following observations can be made regarding the coincidence of answers for each aspect, which experts and respondents noted as important for the development or sustainability of social entrepreneurship (fig. 2):

Enactment of the Law on Social Entrepreneurship
   - In Uzbekistan, this aspect turned out to be more important than in the Nordic countries (92.59 % respondents compared to 65% in the Scandinavian countries), indicating that there is a greater need to create a legislative framework to support social entrepreneurship in Uzbekistan.

Separate Legal Form
   - Both regions attach great importance to this aspect, but the Scandinavian countries noted it slightly more important (95% of respondents compared to 92.59% in Uzbekistan). This indicates that both countries recognize the need for a separate organizational and legal form that takes into account the specifics of social entrepreneurship.

Awareness-Raising
   - In Uzbekistan, this aspect was noted as important by all interviewees (100%), which indicates the need for information and education in the field of social entrepreneurship. In the Scandinavian countries, this aspect was also rated highly (75%), but not as much as in Uzbekistan.

Financial Support
   - Both regions attached great importance to financial support for social entrepreneurs. In Uzbekistan, this aspect was noted by 92.59% of respondents, and in the Scandinavian countries - 90%.

Tax Benefits
   - In Uzbekistan, tax incentives were estimated slightly higher than in the Scandinavian countries (81.48% vs. 60%). This may indicate the need to create more favorable tax conditions for the development of social entrepreneurship in Uzbekistan.

Training
   - Both regions assess training as one of the important aspects for the development of social entrepreneurship. In Uzbekistan, this aspect was noted by all respondents (100%), and in the Scandinavian countries - 85%.

Platform Networking and Motivation
   - Both aspects (platform networking and motivation) were assessed at approximately the same level in both countries. In Uzbekistan, approximately 81.48% of respondents noted the importance of these aspects, and in the Scandinavian countries, 95%.

Public Recognition
- In Uzbekistan, this aspect was rated higher (85.19% of respondents compared to 55% of respondents in the Nordic countries), which may indicate the greater importance of recognition and support of social entrepreneurs by society in Uzbekistan.

Investment
- In Uzbekistan, investments were slightly higher than in the Scandinavian countries (62.96% compared to 60% in the Scandinavian countries).

Figure 2 Categories
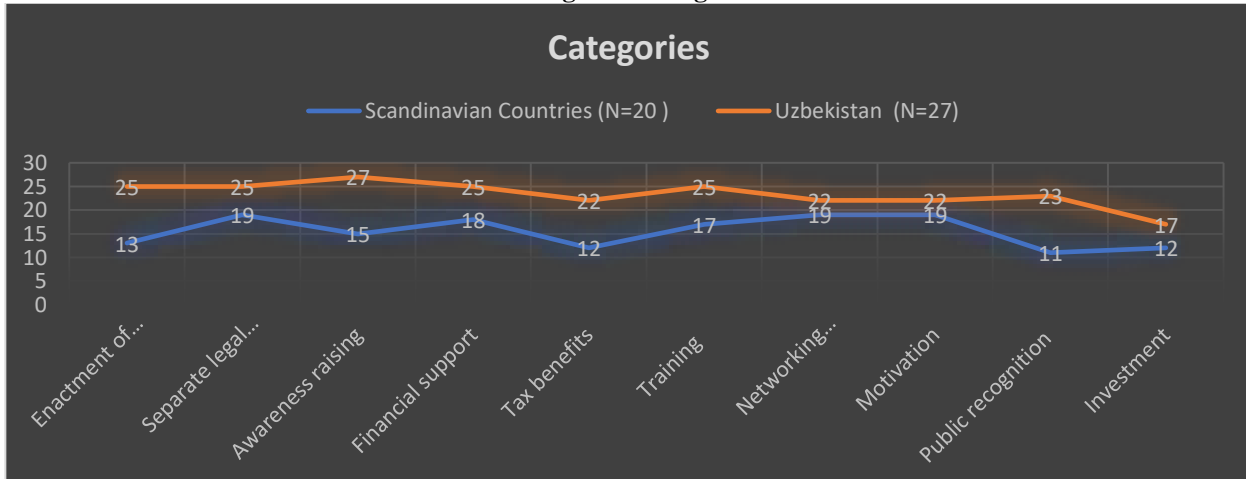
Analyzing the level of public awareness about social entrepreneurship identified in social survey, to the question "Are you familiar with the concept of "social entrepreneurship"?" 40.7% of respondents answered "I've heard something about it", 25.6% "No, it's the first time I've heard about it" and 25/6% "Yes, I know very well what it is and can even give an example" and only 8.1% of respondents found it difficult to answer. (fig.3)

Figure 3. Public awareness about Social Entrepreneurship
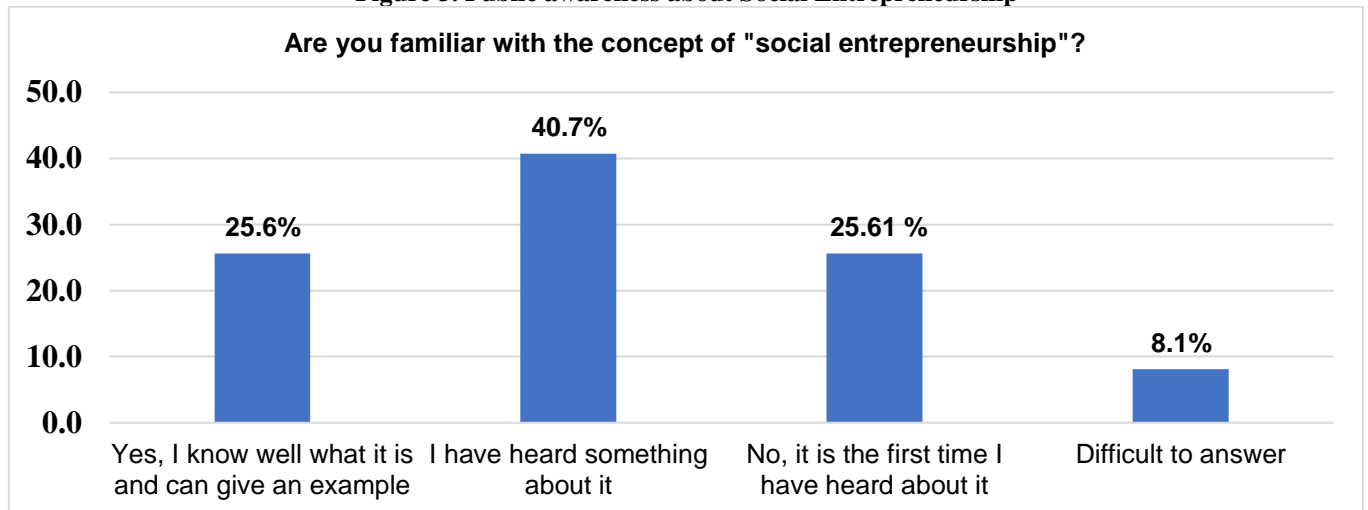
It should be concluded that it is expedient to work in the field of raising public awareness of social entrepreneurship.

To determine the motivation for social entrepreneurship among the population, we asked the question: "What is your main goal to start entrepreneurship or social entrepreneurship?" The answer that defines the motivation of a social entrepreneur "Conducting socially useful activities that at the same time generate income" was chosen by only 11.3% of respondents. The most common answer is "improving my financial situation/earnings", 37.7% of respondents answered this way.

We consider it expedient to educate the population about social entrepreneurship as an opportunity to simultaneously receive financial benefits and make positive changes in society.

In our study, it was important to identify the main barriers that people face or that limit their ability to start a business. The majority of respondents noted such factors as "lack of funds to start a business", "lack of experience", "lack of knowledge and skills", "lack of access to legal and financial advice for registering and conducting business activities".

Based on this, it is important to strengthen and optimize the system of issuing grants, microloans, lending and subsidies to support entrepreneurship, as well as to improve the work of Entrepreneurship Training Centers and the system of pro bono financial and legal services.

DISCUSSIONS

As a result of the findings of all these stages of the study, we have developed an algorithm for the development of social entrepreneurship in Uzbekistan. This algorithm is a comprehensive approach that includes evidence-based recommendations and support mechanisms that contribute to the development and evolution of social entrepreneurial projects. It is based on the establishment of an effective institutional framework, financial support, the promotion of training programmes, raising public awareness and the development of partnerships and networks.

Algorithm for the development of social entrepreneurship in
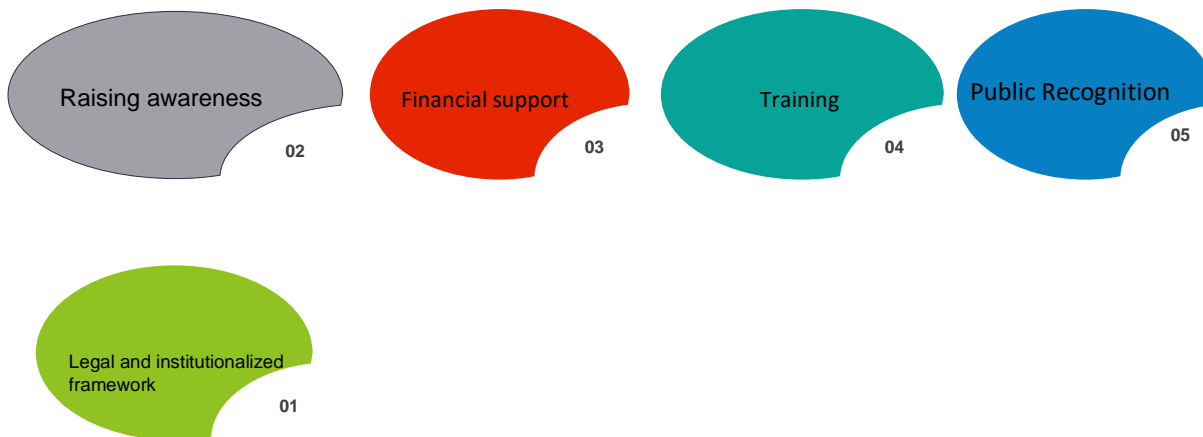
where:

1. Legal and Institutional Framework: adopting Law on social entrepreneurship or introducig ammendments to existing ones, creating a legal framework that allows for the establishment of specific legal entities for social entrepreneurship, such as social enterprises or social cooperatives, developing regulatory mechanisms, such as certification or accreditation processes, to verify and validate social enterprises' social and environmental impact; establishing reporting mechanisms to track the social and environmental impact of social entrepreneurship ventures, ensuring accountability and transparency.

2. Raising Awareness: developing a comprehensive awareness campaign to educate the public about social entrepreneurship's concept, benefits, and potential for positive social impact; organizing workshops, seminars, and conferences to promote understanding and generate interest among entrepreneurs, students, civil society organizations, and potential investors; leveraging various communication channels, such as social media, websites, and traditional media, to disseminate information and success stories of social entrepreneurs.

3. Financial Support: creating a dedicated fund or set up financial mechanisms specifically tailored for social entrepreneurs; establishing partnerships with financial institutions, impact investors, and philanthropic organizations to provide capital, grants, and low-interest loans; developing clear criteria and guidelines for accessing financial support, ensuring transparency and accountability; mentoring and guidance to social entrepreneurs during the financial application process to enhance their chances of securing funding.

4. Training: designing and delivering comprehensive training programs that cover various aspects of social entrepreneurship, including business planning, impact measurement, marketing, and financial management; collaborating with universities, vocational training institutions, and entrepreneurship support organizations to incorporate social entrepreneurship courses into their curriculum; providing mentorship programs where experienced social entrepreneurs can guide and support aspiring entrepreneurs in developing and scaling their ventures.

5. Public Recognition: organizing annual or biennial social entrepreneurship awards to recognize and celebrate outstanding social entrepreneurs, encouraging others to follow suit; developing platforms for social entrepreneurs to share their stories, impact, and lessons learned, creating a supportive network and inspiring others; engaging with the media to showcase successful social entrepreneurship ventures and highlight their positive impact on society.

The implementation of this algorithm, encompassing the establishment of a legal and institutional framework, raising awareness, providing financial support, offering training, and ensuring public recognition, will contribute to the development of social entrepreneurship in Uzbekistan. This, in turn, will foster social and economic sustainability, driving positive social impact and creating a more inclusive and prosperous society for all. Based on these findings and studies several indexes that measure the development of social entrepreneurship in specific regions or countries such as the Global Entrepreneurship Index (GEI), the European Social Entrepreneurship Monitor (ESEM), the Ashoka Social Financial Services Index, the African Social Entrepreneurship Index (ASEI), the SED Index was constructed. The SED Index was constructed by assigning numerical values to each factor based on their relative significance.
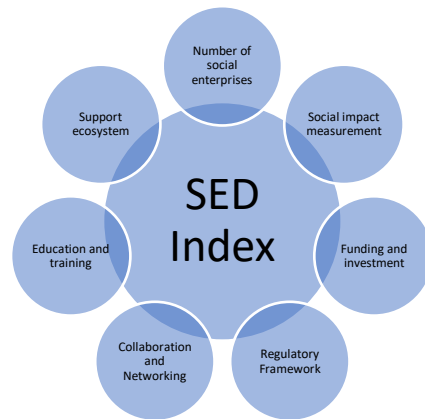
Indicator	1. Number of Social Enterprises:	2. Social Impact Measurement:	3. Funding and Investment:	4. Regulatory Framework:	5. Collaboration and Networking:	6. Education and Training:	7. Support Ecosystem:
Score definition	Score Definition: - 1-3: Very low number of social enterprises in the region, indicating low interest and activity in social entrepreneurship. - 4-6: Moderate number of social enterprises in the region, indicating some level of interest and activity in social entrepreneurship. - 7-10: High number of social enterprises in the region, indicating strong interest and activity in social entrepreneurship.	Score Definition: - 1-3: Limited ability of social enterprises to measure and report their social impact, indicating low transparency and accountability. - 4-6: Some ability of social enterprises to measure and report their social impact, indicating moderate transparency and accountability. - 7-10: Effective ability of social enterprises to measure and report their social impact, indicating high transparency and accountability.	Score Definition: - 1-3: Limited availability of financial resources for social entrepreneurship activities in the region, including few grants, loans, and impact investment opportunities. - 4-6: Moderate availability of financial resources for social entrepreneurship activities in the region, including some grants, loans, and impact investment opportunities. - 7-10: Wide availability of	Score Definition: - 1-3: Weak or non-existent supportive regulatory frameworks for social entrepreneurship in the region, lacking legal structures, tax incentives, and policy measures. - 4-6: Some supportive regulatory frameworks for social entrepreneurship in the region, with limited legal structures, tax incentives, and policy measures. - 7-10: Strong and effective supportive regulatory frameworks for social entrepreneurship in the region, including well-established legal	Score Definition: - 1-3: Low level of collaboration and networking among social enterprises within the region, with minimal presence of networks, associations, and platforms. - 4-6: Moderate level of collaboration and networking among social enterprises within the region, with some presence of networks, associations, and platforms. - 7-10: High level of collaboration and networking among social enterprises within the region, facilitated by well-established networks, associations, and platforms.	Score Definition: - 1-3: Limited provision of education and training opportunities for social entrepreneurs in the region, including few courses, workshops, and mentoring programs. - 4-6: Some provision of education and training opportunities for social entrepreneurs in the region, including a moderate number of courses, workshops, and mentoring programs. - 7-10: Ample provision of education and training opportunities for social entrepreneurs in the region, including a	Score Definition: - 1-3: Weak presence of support organizations and infrastructure for social entrepreneurship in the region, including limited availability of incubators, accelerators, and consultation services. - 4-6: Some presence of support organizations and infrastructure for social entrepreneurship in the region, including a moderate availability of incubators, accelerators, and consultation services. - 7-10: Strong and effective presence of support organizations and infrastructure for social entrepreneurship in the region, including well-established incubators, accelerators, and consultation services.

			financial resources for social entrepreneurship activities in the region, including multiple grants, loans, and impact investment opportunities.	structures, tax incentives, and policy measures.		wide range of courses, workshops, and mentoring programs.	

* Methodology for Index of Social Entrepreneurship Development (ISED)

The development of a Potential Social Entrepreneurship Development Index (SED Index) holds great promise for assessing and quantifying the growth of social entrepreneurship in various regions. The SED Index serves as a valuable tool to measure social entrepreneurship development in a region. By applying the index to various regions, policymakers, researchers, and practitioners can gain insights into the strengths and weaknesses of each area, thereby facilitating targeted interventions and policy formulation. The findings of this study provide a basis for understanding the factors that contribute to the growth of social entrepreneurship, which can guide the design and implementation of support programs and initiatives.

However, it is important to acknowledge the existing limitations that hinder the immediate measurement of social entrepreneurship development. One major challenge is the lack of a regulatory framework and the absence of a recognized legal form for social enterprises in certain regions. Without a standardized definition and structure for social enterprises, it becomes difficult to gather accurate data and measurements. Additionally, the absence of mechanisms for collecting data specifically on social entrepreneurship further complicates the measurement process.

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ABOUT THE AUTHOR

Yo'ldosheva Umida
Scientific Research Institute «Mahalla and Family», PhD Student

THE OBG NURSE'S ROLE IN REPRODUCTIVE JUSTICE: ADVOCATING FOR EQUITABLE ACCESS TO REPRODUCTIVE HEALTHCARE SERVICES

Dr.(Prof) Meenu Paul[1]

[1]Professor, OBG Nursing, Anushree College of Nursing, Jabalpur,MP

ABSTRACT & ABOUT THE AUTHOR

Dr. (Prof.) Meenu Paul is an accomplished professional in the field of nursing, holding a BSc in Nursing and an MSc in Obstetrics and Gynecology Nursing from RGUHS, Bangalore. Her academic journey reached its pinnacle with a Ph.D. in Obstetrics and Gynecology Nursing from Malwanchal University, Indore. With over 15 years of rich and diverse experience, Dr. Meenu Paul has emerged as a leading expert in the realm of women's health. Currently serving as a dedicated faculty member at Anushree College of Nursing in Jabalpur, Madhya Pradesh, she brings a wealth of knowledge and expertise to her role.

Reproductive justice is a fundamental human right that extends beyond mere reproductive rights, encompassing broader social, economic, and political factors that affect individuals' ability to make reproductive choices freely and without coercion. Obstetric and Gynecologic (OBG) nurses are at the forefront of advancing reproductive justice principles within healthcare settings. This review aims to explore the concept of reproductive justice and its implications for OBG nursing practice. It delves into the critical role OBG nurses play in advocating for equitable access to reproductive healthcare services, including contraception and abortion care. By promoting policies, providing education, offering support, and addressing stigma, OBG nurses contribute significantly to healthcare equity and patient autonomy.

KEYWORDS: *Reproductive justice, OBG nursing, healthcare equity, contraception, abortion care, advocacy, patient autonomy.*

INTRODUCTION

Reproductive justice stands as a beacon of fundamental human rights, extending far beyond the realm of basic reproductive freedoms to encompass a broader spectrum of social, economic, and political factors that directly impact an individual's autonomy in making reproductive choices. At its core, reproductive justice advocates for equitable access to comprehensive reproductive healthcare services, including contraception and abortion care, recognizing these services as essential components of personal autonomy, bodily integrity, and overall well-being.

Within the intricate tapestry of healthcare provision, Obstetric and Gynecologic (OBG) nurses emerge as pivotal figures in the advancement of reproductive justice principles. These healthcare professionals operate at the intersection of clinical care, advocacy, and education, wielding considerable influence in shaping the landscape of reproductive healthcare access and equity. Through their compassionate care and unwavering commitment to patient advocacy, OBG nurses serve as catalysts for change, striving to ensure that all individuals, regardless of socio-economic status, race, ethnicity, geography, or immigration status, have unimpeded access to the full spectrum of reproductive healthcare services.

As we embark on this exploration of the OBG nurse's role in promoting reproductive justice, it is essential to contextualize the significance of this endeavor within the broader discourse on healthcare equity and human rights. By delving into the multifaceted dimensions of reproductive justice and elucidating the specific contributions of OBG nurses in advancing its principles, this review seeks to shed light on the transformative potential of collaborative, patient-centered care in fostering a more just and equitable healthcare landscape.

Through a comprehensive examination of advocacy efforts, educational initiatives, supportive care practices, and stigma reduction strategies employed by OBG nurses, we aim to underscore the critical importance of their role in dismantling barriers to reproductive healthcare access and empowering individuals to make informed decisions about their reproductive health. By championing policies that prioritize patient autonomy, fostering culturally competent care environments, and engaging in continuous education and advocacy efforts, OBG nurses stand as unwavering advocates for reproductive justice, catalyzing positive change at both individual and systemic levels.

As we navigate the intricate nuances of the OBG nurse's role in promoting reproductive justice, it is our hope that this review will serve as a rallying cry for healthcare professionals, policymakers, and advocates alike to join forces in the pursuit of a more equitable, inclusive, and rights-affirming healthcare system for all.

THE ROLE OF OBG NURSES IN PROMOTING REPRODUCTIVE JUSTICE

1. **Advocacy for Equitable Access:** OBG nurses advocate for policies and practices that ensure all individuals have equitable access to reproductive healthcare services.

This includes addressing barriers such as financial constraints, lack of insurance coverage, geographic disparities, and restrictive legislation. Nurses engage in legislative advocacy, community outreach, and coalition building to dismantle these barriers and promote healthcare equity.

2. **Education and Counseling:** OBG nurses provide evidence-based education and counseling to individuals about contraceptive options, pregnancy planning, and abortion care. They empower patients with accurate information, ensuring they can make informed decisions about their reproductive health. Nurses tailor education and counseling to meet patients' unique needs, taking into account their cultural backgrounds, preferences, and values.

3. **Supportive Care:** OBG nurses offer nonjudgmental and compassionate care to individuals seeking reproductive healthcare services. Whether providing contraception counseling, prenatal care, miscarriage management, or abortion care, nurses prioritize patient dignity, privacy, and confidentiality. They create safe and supportive environments where patients feel respected, heard, and supported in their reproductive choices.

4. **Addressing Stigma and Discrimination:** OBG nurses challenge societal stigma and discrimination surrounding reproductive choices, particularly abortion. They promote destigmatizing language and attitudes within healthcare settings, advocating for policies that protect individuals' rights to access abortion care without judgment or harassment. Nurses also provide emotional support and resources to help patients navigate stigma and discrimination, empowering them to assert their reproductive rights.

IMPLICATIONS FOR OBG NURSING PRACTICE

1. **Policy Advocacy:** OBG nurses engage in policy advocacy at local, state, and national levels to support legislation that protects and expands access to reproductive healthcare services. This includes advocating for comprehensive sex education, contraceptive coverage, Medicaid expansion, and the repeal of restrictive abortion laws. Nurses collaborate with advocacy organizations, policymakers, and community leaders to advance reproductive justice principles and ensure healthcare equity for all.

2. **Cultural Competence:** OBG nurses recognize the importance of cultural competence in providing patient-centered care to individuals from diverse backgrounds. They seek to understand and respect patients' cultural beliefs, values, and reproductive health experiences, tailoring care to meet their unique needs. Nurses advocate for culturally competent healthcare policies and practices, promoting inclusivity and reducing disparities in reproductive healthcare access and outcomes.

3. **Continuing Education and Training:** OBG nurses pursue ongoing education and training opportunities to stay abreast of developments in reproductive healthcare and advocacy strategies. They participate in professional organizations, conferences, and workshops focused on reproductive justice, healthcare equity, and cultural

competence. Nurses share knowledge and best practices with colleagues, fostering a culture of advocacy and empowerment within the nursing profession.

POLICY ADVOCACY

In today's dynamic healthcare landscape, OBG nurses serve as advocates not only for their patients but also for broader systemic changes that can positively impact reproductive healthcare access and outcomes. Engaging in policy advocacy is a natural extension of their role, allowing them to leverage their expertise and first hand experience to influence legislative and regulatory decisions at local, state, and national levels.

At the forefront of policy advocacy, OBG nurses monitor proposed laws and regulations that could affect reproductive health services, including access to contraception, abortion care, and comprehensive sex education. They stay informed about legislative developments, collaborate with professional organizations and advocacy groups, and participate in grassroots efforts to influence policymakers.

One critical area of focus for OBG nurses' policy advocacy is ensuring access to comprehensive sex education in schools. By advocating for evidence-based, age-appropriate sex education programs, nurses contribute to reducing unintended pregnancies, sexually transmitted infections (STIs), and other adverse reproductive health outcomes among adolescents and young adults. They work to counter misinformation and stigma surrounding sexual health and promote inclusive curricula that address diverse identities and experiences.

Additionally, OBG nurses advocate for policies that expand access to contraception, including over-the-counter availability of oral contraceptives, insurance coverage for a wide range of contraceptive methods, and removal of barriers to obtaining long-acting reversible contraceptives (LARCs) such as intrauterine devices (IUDs) and implants. By advocating for contraceptive equity, nurses help individuals exercise their reproductive autonomy and prevent unintended pregnancies.

In the realm of abortion care, OBG nurses play a crucial role in advocating against restrictive laws and regulations that limit access to safe and legal abortion services. They support efforts to repeal outdated laws, such as mandatory waiting periods and unnecessary clinic regulations, that create barriers to abortion access. OBG nurses also advocate for policies that protect abortion providers and clinics from harassment, intimidation, and violence, ensuring that patients can access care without fear or stigma.

Cultural Competence:
Cultural competence is an essential component of effective nursing practice, particularly in the context of reproductive healthcare, where patients come from diverse cultural backgrounds with unique beliefs, values, and healthcare preferences. OBG nurses recognize the importance of cultural competence in providing patient-centered care and strive to cultivate cultural humility—the willingness to engage in self-reflection, lifelong learning, and respectful communication with patients from diverse cultures.

To enhance cultural competence, OBG nurses engage in ongoing education and training to deepen their understanding of cultural diversity and its impact on reproductive health. They participate in cultural competency workshops, seminars, and online courses that explore topics such as cultural humility, cultural competency models, and cross-cultural communication strategies. By expanding their cultural awareness and sensitivity, nurses are better equipped to provide culturally responsive care that respects patients' values, beliefs, and preferences.

In practice, OBG nurses incorporate cultural competence into their interactions with patients by employing a variety of strategies to bridge communication and cultural gaps. They use professional interpretation services or bilingual staff to facilitate communication with patients who speak languages other than English. They also seek to understand patients' cultural norms and traditions regarding reproductive health, childbirth, and family planning, adapting care plans accordingly.

Moreover, OBG nurses recognize the intersectionality of culture with other social determinants of health, such as race, ethnicity, socioeconomic status, sexual orientation, and gender identity. They understand that individuals may face multiple forms of discrimination and marginalization that influence their reproductive health experiences and access to care. By acknowledging and addressing these intersecting factors, nurses strive to provide inclusive, equitable, and affirming care to all patients.

Continuing Education and Training:
Continuous learning is fundamental to nursing practice, particularly in the dynamic field of reproductive healthcare, where new research, technologies, and clinical guidelines continually emerge. OBG nurses prioritize ongoing education and training to stay abreast of developments in reproductive health, advocacy strategies, and healthcare policies that affect their practice.

One avenue for continuing education is professional conferences and symposiums focused on reproductive health, women's health, and nursing practice. These events provide opportunities for OBG nurses to learn from experts in the field, engage in interactive workshops, and exchange knowledge and experiences with colleagues. By attending conferences, nurses gain insights into emerging trends, evidence-based practices, and innovative approaches to reproductive healthcare delivery.

Additionally, OBG nurses pursue specialized training in areas such as abortion care, contraception counseling, and sexual health education to enhance their clinical skills and competencies. Certification programs, online courses, and hands-on workshops offer nurses opportunities to deepen their expertise and expand their scope of practice in reproductive healthcare.

Furthermore, OBG nurses participate in professional organizations and networks that focus on reproductive health advocacy and activism. These organizations provide resources, toolkits, and advocacy opportunities to support nurses in their efforts to advance reproductive justice principles and address healthcare disparities. By joining forces with like-minded colleagues, nurses amplify their voices and influence in advocating for policies and practices that promote equitable access to reproductive healthcare services

CONCLUSION
The pursuit of reproductive justice is essential for achieving healthcare equity and ensuring that all individuals can exercise their reproductive rights and autonomy. OBG nurses play a vital role in advancing reproductive justice principles through advocacy, education, and supportive care within their practice settings. By promoting equitable access to reproductive healthcare services, respecting patient autonomy, and challenging stigma and discrimination, OBG nurses contribute to creating a more just and inclusive healthcare system for all.

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LANGUAGE PROBLEM AMONG THE SANTAL STUDENTS IN PURULIA DISTRICT

Nepal Paramanik

Assistant Professor of Education, Rani Dhanya Kumari College, Jiaganj, Murshidabad, West Bengal,

ABSTRACT

India is one of the diversified and multi-cultural countries in the world. Here difference kinds of people live together without any conflict. The population of the country includes of different castes, communities, social and ethnic groups. Santal is one of them. In India the tribes are known to be the autochthonous people of the land. But it is true that tribal peoples are one of the backward sections in the society and even in this modern age they face various kinds of problem. Language problem is one of the major problems. On the focus of this problem this paper tries to point out the language problem among the scheduled tribe particularly Santal tribe students in Purulia District. A questionnaire was used for knowing the language problems of Santal students in purulia district. The sample consists of 100 Santal students (Male-60 & Female- 40) reading in Primary schools of Purulia district, West Bengal. The study revealed that 100% students are responded that Santali language can't be teaches in the school. It is also found that 38% Santal students agreed with the school provides Santali books for the study and 62% Santal students said that no Santali books has been provided for their study. It is also found that all Santal students responded that teacher can't teach his lesson in Santali language. Present study also revealed that 78% Santal students said that they are not found any friends to talk in Santali language and 22% Santal students said that they found friends to talk in Santali language. On the other hand, this study revealed that 67% Santal students responded that government has taken many steps for improve the Santali language and 33% Santal students said that government could not taken any steps for improving the Santali language.

KEYWORDS: *Language Problem, Scheduled Tribe, Santal Students, Santali Language*

1. INTRODUCTION

Tribal people of India is one of the socially and economically background people and in 21st century they are still facing various problems. With a population of more than 10.2 crores, India has the single largest tribal population in the world. This constitutes 8.6 per cent of the total population of the country (**Census of India, 2011**). There is no set definition of tribes. The Tribal people are the oldest ethnological segment in the Indian population. The tribal people live in rather inaccessible parts of the country and their social life have different cultures, faiths, traditions and value. The tribal way of life is very much dictated by the forest right from birth to death. It is ironical that the poorest people of India are living in the areas of richest natural resources. Traditionally tribal people live away from the civilized world and their main occupations are gathering forest product, agriculture and hunting. For the lack of consciousness and corruptions tribal peoples are not developed properly. After independence both central and state government have adopted various welfare scheme for the upliftment of tribal people. But still they are strangling to developing their social, economic, educational status. Among the Scheduled Tribes Santals are also facing so many problems. Language problem is one of the major problems among the Santal people and students. Santali language, Santali also spelled Santali, a Munda language spoken primarily in the east-central Indian states of West Bengal, Jharkhand, and Orissa (**www.britannica.com**). It is believed that Santali language is actually older than Indo Aryan languages. Moreover, it is estimated that Santal script is comparatively a current advancement as Santali language did not have any written

language. It used Devanagari, Latin or Roman and Bengali writing systems (**Kisku, 2012**). Santals have their script called Olchiki, which was developed by Dr Raghunath Murmu in 1925. The members of the Santal people have accepted the dialect Santali as their mother tongue (**www.indianmirror.com/tribes/santhaltribes.html**).

As we all know that mother tongue is very essential for communication, study or any other activity. With the help of mother tongue we are fluently communicate with other and we are filling very comfortable when we used mother tongue. Tribal people are an integral part of society but in 21st century they survive for communication, education and interaction. All these problems are related with their language problem and it is the major problem of tribal people. As Language being the most important medium of communication and education and if we are used own language for communication that is very successful. Language problem is the major problem of tribal (santal) people which prevents them access to education. But they can't use their own language for communication and study. For the luck of proper infrastructure of tribal language they are survive. Everyone have the right that they used their own language for study or communication but unfortunately tribal language can't be used as a medium of communication. They are not able to participate in the process of communication or interaction with other friends who are not Santal communities. Tribal people have their own language and they always want to use their own language but lack of proper institute, books and proper teacher they are not improved in their own language. To improve their own language various steps should be taken for

developed the communication process and interaction of tribal people. The central government and state governments have initiated schemes for the improvement of Santali language of Santali students but still all programs are not reaching effectively.

2. STATEMENTS OF THE PROBLEMS
The problem for the present study is specifically stated as below:
"Language Problem among the Santal Students in Purulia District"

3. REVIEW OF THE RELATED LITERATURE
A. Varghese & P. Nagaraj (2013) have conducted a study on *"English language & Tribal learners"*. The result of this study as there is different language at home and school the education system of the tribal learners should be hampered. So, at first, we have to improve their language and according to the construct of curriculum.

Goutam, V. (2003) has conducted a study on *"Education of tribal children in India & the issue of medium of instruction, A jansala programme"*. The result of the study as the importance of social, cultural and psychological opportunity was not given to the tribal children, it hampers their language. So the importance must be given to them.

Jha & Jhingran, D. (2002) have strongly advocated the use of the mother tongue or home language as medium of instruction in early stages of education. This assumes greater significance in the context of education of tribal children because their mother tongue is often quite distinct from the prominent languages in the state or regional languages and it is desirable to have a local teacher from the same tribal community.

Rani, M. (2000) observed in her study that due to the language barrier the tribal children are unable to establish communication link with the teacher and thus leading to the termination of their education in some point or the other.

NCERT (New Delhi: 1994) has conducted a study *"Education problem of tribal learners"*. The result of the study a teacher should used the mother language of the tribal children at the time of teaching .the regional language must be used at the time of classroom interaction and curriculum must be constructed according to the regional language.

4. DELIMITATION OF THE STUDY
(A) Geographical Area
The investigation was delimited to only Purulia district of West Bengal, India.

(B) Level of Education
(i)   The study was restricted to the students reading at Primary school level in Purulia district.
(ii)   Among the Primary school students only Santal (Tribe) (both Male and Female) students were considered as the subjects of the present study.

5. OBJECTIVES OF THE STUDY
1. To point out the use of Santali language in the study.
2. To point out the availability of sufficient books in Santali language at schools.
3. To assess the teacher teaches Santali language or not.
4. To point out the Santali learners speak to others friend in Santali language or not.
5. To point out the governmental steps of the development of Santali language.

6. RESEARCH QUESTION OF THE STUDY
The research question of this study is as following:
1. Is the Santali language teaches in the school?
2. Is there any book in Santali language for study?
3. Are the teachers teaches Santali language as the medium of communication?
4. Are you found any friends in your school to talk in Santali Language?
5. Does any step can be taken by government to improve Santali language?

7. METHODOLOGY OF THE STUDY
Method of the Study
The present study is descriptive type in nature. The researcher has used the descriptive type survey method in the present study.

Population of the Study
All the Santal students (both male and female) reading at primary schools in Purulia district of West Bengal (India) comprised as the population of this study.

Sample and Sampling
Ten Primary schools of Purulia district, West Bengal were selected randomly. The researcher selected 100 Santal students randomly (male- 60 & Female-40). Here stratified random sampling technique was adopted. The sample profile is given in **Table 1.**

Table-1 Sample Profile

Male	Female	Total
60	40	100

Tool of the Study: The researcher prepared a questionnaire for knowing the language problems among Santal students.

Analysis marks of per Research Question

Research question	Yes	No
1. Is the Santali language teaches in the school?	1	0
2. Is there any book in Santali language for study?	1	0
3. Are the teachers teach Santali language as the medium of communication?	1	0
4.Are you found any friends in your school to talk in Santali Language	1	0
5. Does any step can be taken by government to improve Santali language?	1	0

8. ANALYSIS & INTERPRETATIONS

Objective-1: To point out the use of Santali language in the study.

Table-2: Shows the percentage of student's responses of use of Santali Language.

Research Question	Yes %	No %
Is the Santali language teaches in the school?	0%	100%

Figure-1: Graphical Presentation about the research question one.

Is the Santali language teaches in the school
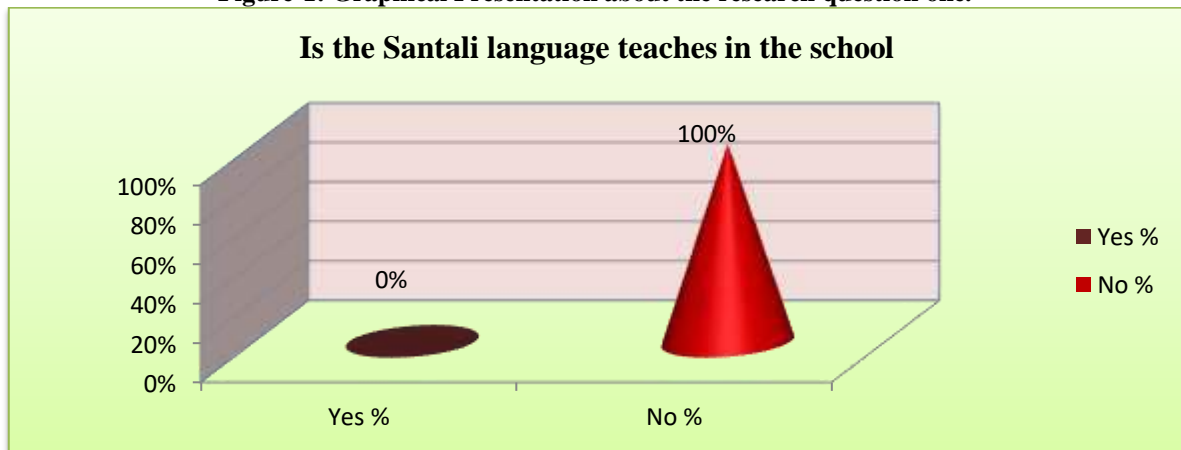
Table-2 Shows that 100% Santal students are says that Santali language can't be teaches in schools.

Objective-2: To point out the availability of sufficient books in Santali language at schools.

Table-3: Shows the percentage of student's responses towards second objective.

Research Question	Yes %	No %
Is there any book in Santali language for study?	38%	62%

Figure-2: Graphical Presentation about the research questions two.

Is there any book in Santali language for study
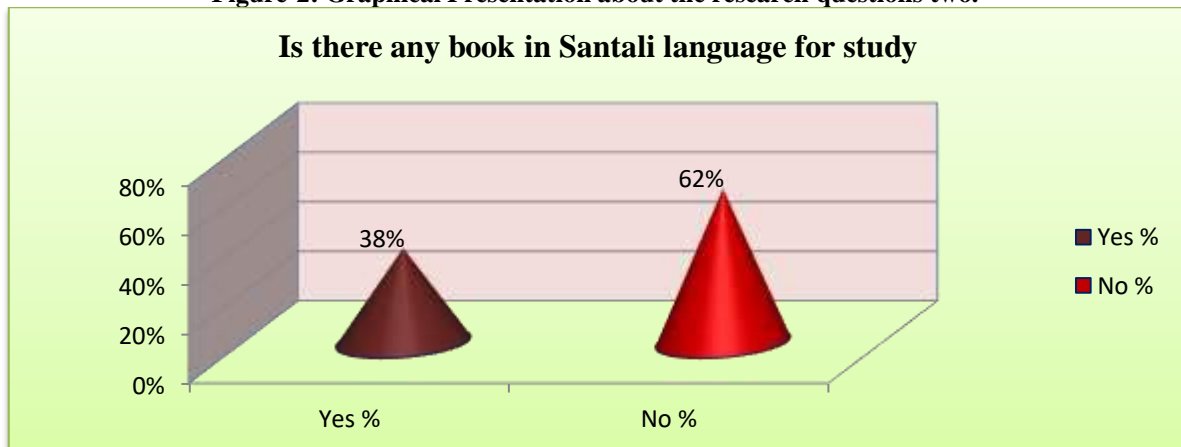
Table- 3 shows that 38% Santal students are responded that school provided Santali books for their study and 62% Santal students are said that no Santali books has been provided of school for their study.

Objective-3: To assess the teacher teaches Santali language or not.

Table-4: Shows the percentage of student's responses towards third objective.

Research Question	Yes %	No %
Are the teachers teaches Santali language as the medium of communication?	0%	100%

Figure-3: Graphical Presentation about the research questions three.
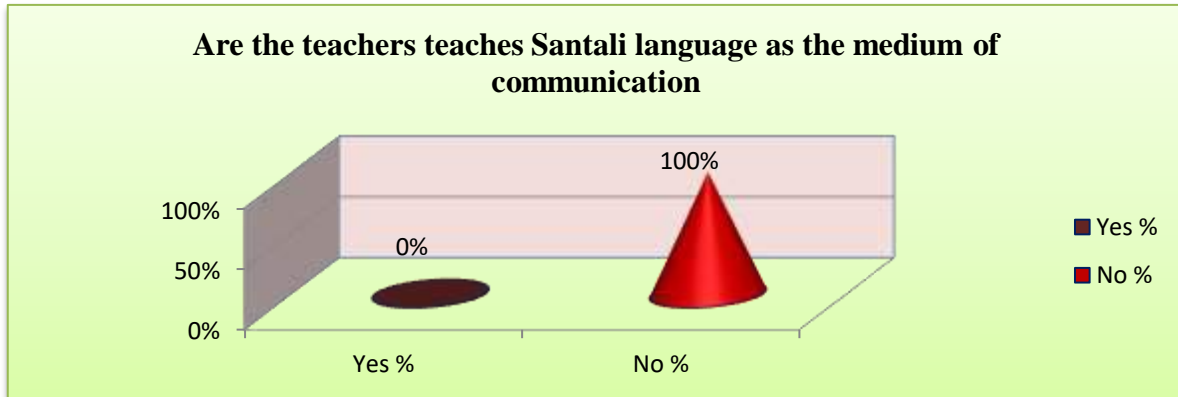
Table- 4 shows all the Santal students responded that teacher can't use Santali language as the medium of communication.

Objective-4: To point out the Santali learners speak to others friend in Santali language or not.

Table-5: Shows the percentage of student's responses towards forth objective.

Research Question	Yes %	No %
Are you found any friends in your school to talk in Santali Language?	78%	22%

Figure-4: Graphical Presentation about the research questions forth.
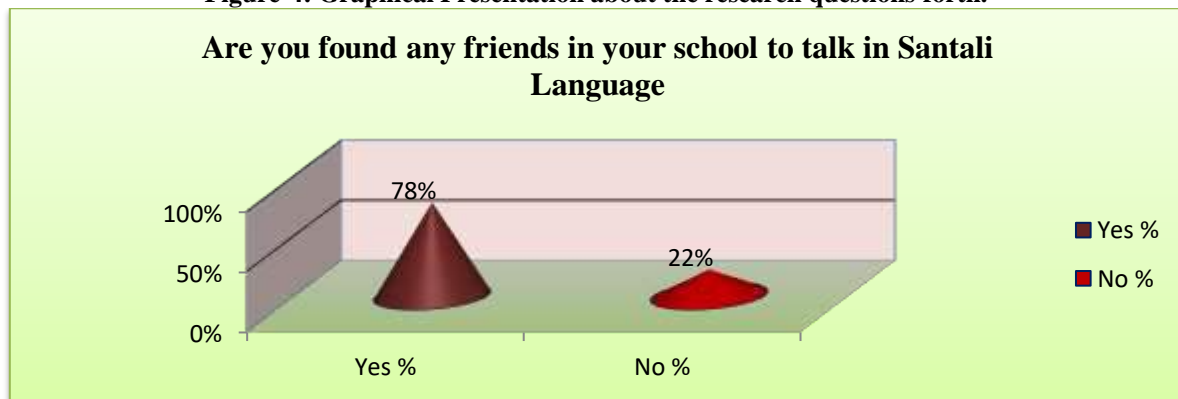
Table- 5 shows that78% Santal students said that they are found any friends to talk in Santali language in school and 22% Santal students said that they not found friends to talk in Santali language in school.

Objective-5: To point out the governmental steps of the development of Santali language **Table-6:** Shows the percentage of student's responses towards forth objective.

Research Question	Yes %	No %
Does any step can be taken by government to improve Santali language?	78%	22%

Figure-5: Graphical Presentation about the research questions fifth.
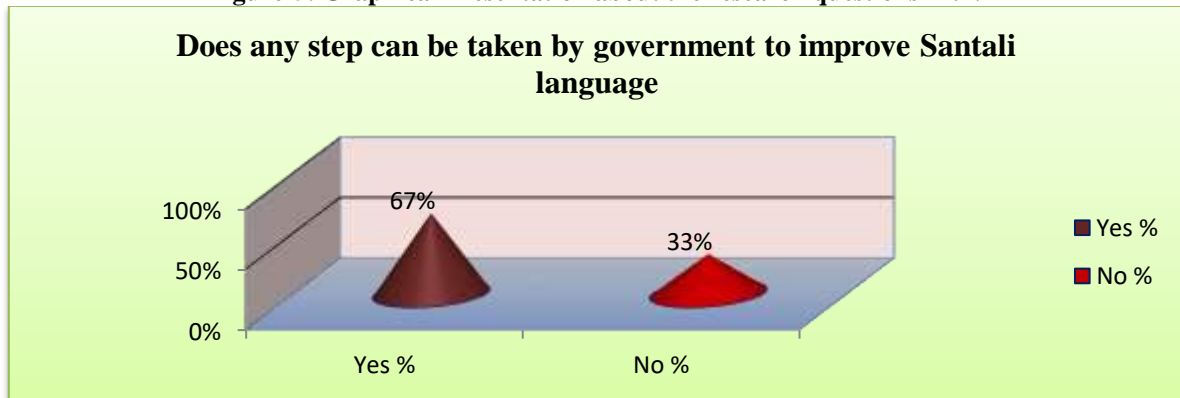
Table- 6 shows that 67% Santal students responded that government has taken many steps for improve the Santali language and 33% Santal students says that government could not taken any steps for improve the Santali language.

9. DISCUSSIONS & CONCLUSION

100% Santal students are responded that Santali language can't be teaches in schools. Once analysis it's additionally found that 38% Santal students are responded that school provided Santali books for the study and 62% Santal students says that no Santali books has been provided for their study. In this study, this is also found that 100% Santal students responded that teacher can't use Santali language as the medium of communication. On the other hand, this study revealed 78% Santal students says that they are not found any friends to talk in Santali language and 22% Santal students says that they found fiends to talk in Santali language. At the last, this study found that 67% Santal students responded that government has taken many steps for improve the Santali language and 33% Santal students said that government could not taken any steps for improve the Santali language.

On the above study it's clear that language problem is one of the vital problems in Santal communities. They can't talk in their own language in schools. On the other hand schools and schools teacher can't use Santali language as a medium of instruction. For the lack of Santali books Santali students are not able to read their mother tongue. As a result the gap has been creating between Santal students and other students. That is very dangerous for any society. So hence time has come to think it seriously about tribal language. So, there is a critical need for different govt. interventions, planners and policy makers to address this problem and allocate more funds in the central and state budgets for Santal language.

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EXPLORING WIDOWS' SUPPORT SYSTEMS: A SOCIOLOGICAL INTERPRETATION

Prof. Madhurima Verma[1], Ms Shveta Dhiman[2]

[1]CDOE, Panjab University, Chandigarh
[2]Research Scholar, Department of Sociology, PU, Chandigarh

ABSTRACT

The purpose of this study was to explore the level of perceived social support among widowed women. Total of 260-volunteered widow participated in this study; they were randomly chosen from the list of beneficiaries of the widow pension scheme from Punjab and Union Territory, Chandigarh social welfare Department. Results revealed that higher proportion of respondents in the present study reported support of their parents in all possible terms after widowhood. A large number of respondents admitted support from in-laws but less reported support from siblings and relatives.

INTRODUCTION

A large body of research has demonstrated a positive association between aspects of social support and well-being of individual. One of the objectives of the present study was to understand the importance of various support systems in the lives of widows. Widows have been identified as a vulnerable group in India. Simply becoming a widow lowers a woman's social status, as she succumbs to a 'social death' when her husband dies – she may even be viewed as inauspicious, especially if she is too young or lost her husband soon after marriage. Widows also face challenges stemming from both a set of social restrictions that have been placed on them and a lack of social protection. Widowhood is often associated with grief, loneliness, loss of life satisfaction, low morale, income inadequacy, increased rate of physical and mental ailments. Traditionally, kin and family were the usual care givers to widows. Extended family network (siblings, nieces or nephews, or grandchildren) existed as potential resources or contributors. Since there were so many restrictions on the movement of the widows, family members provided social security to these widows. Widows often experience economic discrimination, alienation, exclusion from social functions, and feelings of hopelessness (Chen & Drez,1995). In North India particularly, widows face immense difficulties in seeking gainful employment and receive little social support, culminating in poorer health and higher mortality levels than the general population.

With the onset of structural changes in the family set up due to modernization there is decline in the role of kith and kin. This paper attempts to examine the support system of the widows in meeting the demands of widowhood.

Absence of male spouse causes stress and grief, thereby enhancing the need for social support. The widow seeks support from not only from her own parents but also from the family of her deceased husband. However, due to social stigma and ostracism attached to widowhood there is a lack of support. Adilakshmi (1988) perceives that consequent on widowhood, economic support is most frequently sought by the widows, but remains the most unmet need. Most widows, upon the loss of a spouse experience a reduction of income and a related decline in their standard of living (Heinman 1982; Rogers1981). Lopata(1979, 1980) and Rogers (1981) found that most widows rely on either their own earnings or their late husband's social security as income. In cases where the widow has few or outdated job skills, employment maybe unavailable, unsatisfactory, or both (Heineman1982). Gohilvaani (2006) has argued that there are more challenges before widows with children (especially girl children). Widows find it really difficult to bring up children, especially girl children singlehandedly like funding their education, marriage etc. Problem gathers momentum where widows are illiterate and economically weak. In some cases, children emerge as only source of emotional support for them (Nair, 2006). Singh and Gill (1986) have revealed that widows confront difficulties in bringing up children, taking care of their health and inculcating discipline in them. Being single parent for a widow, it is hard to play dual roles of father and mother facing multiple problems (Giri and Khanna 2012; Patil, 1988). Widows need social support from family, relatives, friends, neighbours, colleagues, and bereaved peers (Field & Schuldberg, 2011). Houston et al. (2016) conducted one of these studies through 42 in-depth interviews with Nepali widows. Low social support was a common theme, specifically in emotional and instrumental support, which may increase women's vulnerability to mistreatment and economic insecurity. Chaudhary and Chadha (2014), on the basis of comparative study among two groups of Indian widowed, one of the women who became a widow at the age of 25–35 years, and the other group consisted of women who lost their husbands after 55 years and above. The results showed that the social support level was nearly the same for both groups.

'The relationship with friends and relatives provides much of social capital people use to deal with daily life, seize opportunities and reduce uncertainties' (Kadushin, 1981). Rosenberg and Anspach, (1973) maintains that widowhood poses a series of alterations in the kin and non-kin ties due to the individual's inability to retain or maintain social contacts. Social networks are certainly considered supportive as they offer comfort, information, material aid and other resources

(Caplan, 1974). The change in relationships that widows experience is not only observed in social relations but also within a woman's familial ties as well. Extant literature notes that following the death of a husband, a widow's relationships with her family can become strained. Pandey and Gupta (2019) indicate that widows are often seen as a burden to their families. The need of financial support comes as the foremost one to make the both ends meet in the life of widows. The need for emotional, moral and other kinds of support though provide comfort for the temporary phase but not in the long run for widows. In the present paper an effort has been made to have an overview of support mechanism for widows.

OBJECTIVES
1. To highlight the socio-economic profile of widow pensioners living in Chandigarh and Mohali district, Punjab.
2. To understand the importance of various support systems in the lives of widows in Chandigarh and Mohali district, Punjab.

METHODOLOGY
Widow pensioners drawing pension from the Social Welfare Department from UT Chandigarh and Mohali district of Punjab were included in the study. The widows who didn't remarry and had at least one child been the unit of analysis for the present study. The research design was both exploratory and descriptive. Through simple random sampling, a total sample of 260 widows (130 from Chandigarh and 130 from Mohali district, Punjab) was drawn. A structured interview schedule was used to collect information. In order to measure support, it has been divided into four broad categories, physical, psychological, economical and social.
For each of these a specific set of questions were asked from the respondents.

RESULTS
In the present study, 62 percent of respondents experienced widowhood before reaching the age of 35. The distribution of respondents between Chandigarh and Mohali showed minimal variation. Notably, 27 percent of respondents became widowed between the ages of 35-40, with a higher percentage in Mohali (31 percent) compared to Chandigarh (22 percent). Among

those whose husbands passed away before the age of 35, the percentage was 34, with Chandigarh slightly surpassing Mohali by 2 percent. For respondents whose husbands passed away between the ages of 40-45 and 45-50, the percentages were 8 and 3 percent, respectively. In both cases, Chandigarh had higher percentages than Mohali. Notably, Mohali had a higher percentage (19 percent) of husbands passing away between 40-45, and a higher percentage (7 percent) for the age group 45-50.

The study revealed that 52 percent of respondents belonged to the General caste, while 31 percent were from SC castes, with a higher percentage in Mohali. Education levels indicated that 41 percent of respondents and 36 percent of their husbands had attained primary education, with Mohali having a higher percentage. Conversely, Chandigarh had higher percentages for illiteracy (26 percent respondents, 15 percent husbands) and matriculation-level education (17 percent respondents, 34 percent husbands).

In terms of employment, 36 percent of respondents in Chandigarh were self-employed, engaged in activities like stitching clothes or providing tuitions. In Mohali, 17 percent and 13 percent of respondents worked as daily wagers and domestic help, respectively. Mohali also had a higher percentage (34 percent) of respondents not currently employed. Additionally, 32 percent of respondents had a family income below Rs. 12,000 per annum, while 15 percent earned between Rs. 12,000 and Rs. 24,000 per month, with a higher percentage in Chandigarh. Respondents earning above Rs. 50,000 annually comprised only 10 percent, with Chandigarh again having a higher percentage in this category.

Support by Parents
Support of parents is very significant in the life of an individual in general and widows in particular because it helps them in becoming emotionally amicable, economically independent and socially adjusted in the society. Aruna and Reddy (2001) state that parents were also the key source of aid regarding large finances, which came without any interest; supplied provisions; and were the core advisors. After attaining widowhood widows look at their near and dear ones for financial, psychological and moral support especially their parents. Therefore, an attempt was made to find out whether respondents received support from their parents.

Table 1 Distribution showing support by parents after widowhood

Response	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Yes	91	70	83	64	174	67
No	39	30	47	36	86	33
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 1 illustrates the support system provided to the respondents by their parents. A significant majority of the respondents, accounting for 67 percent, mentioned receiving immediate help from their parents. Notably, 70 percent of these respondents were from Chandigarh. On the contrary, parents of 33 percent of the respondents did not extend support, with 36 percent of them hailing from Mohali and 30 percent from Chandigarh.

The results suggest that a substantial number of respondents received support from their parents, highlighting the fact that respondents tend to rely on their parents for assistance. Among those who did not receive support, some respondents cited their parents' dependence on others and economic hardship as reasons. A few respondents mentioned that their parents were no longer alive to provide support, while others admitted that their parents were elderly, immobile, and unable to offer

assistance. Results endorse the findings of Aruna and Reddy (2001).

Type of support given by Parents
After the death of spouse, widows feel miserable especially those who are illiterate and have no source of livelihood.

Parents provide immediate support to their grieved daughters. The support can be economical, psychological and social in nature. The respondents were asked to mention the type of support given by their parents.

Table 1.1 Distribution showing type of support offered by parents

Type of support offered	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Not applicable	39	30	47	36	86	33
Economical	46	35	40	31	86	33
Psychological	34	27	38	29	72	28
Social	8	6	4	3	12	4
Taking care of children	3	2	1	1	4	2
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 1.1 shows the type of support provided to the respondents by their parents. 33 percent of respondents indicated that their parents provided support in the form of sufficient funds to cover immediate expenditures required during widowhood. The majority of these respondents were from Chandigarh. About 28 percent of respondents mentioned that their parents intended to offer emotional support, with a higher percentage from Mohali compared to Chandigarh. Additionally, 4 percent of respondents reported that their parents provided social support in dealing with issues related to widowhood, and in this case, Chandigarh had a higher percentage by 3 percent compared to Mohali. Only 2 percent of respondents stated that their parents assisted in taking care of their children, and among them, a higher percentage was from Chandigarh. The findings of this study suggest that while respondents received support from their parents, it was not necessarily in financial terms.

Support by In-laws
In a patriarchal society, after marriage, a woman spends the major part of her life with her in-laws. A girl is considered to be 'paraya dhan' in her parental home. After her marriage, her rights over her paternal home cease to exist. Although she has rights in her husband's property, after the death of her husband, there is denial of those rights. Aruna and Reddy (2001) found that in-laws play a substantial role across dimensions; their support is unique in precise strands. A sizable proportion act as guardians, express emotional warmth to the children of widows, and participate in discussing family problems. At the time of widowhood, widows assume that taking care of themselves and their children is the prime responsibility of their in-laws after their husbands' death. An effort has been made to find out the role of in-laws in supporting widows

Table 2 Distribution showing support by in-laws

Response	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Yes	86	66	92	70	178	68
No	42	32	36	28	42	32
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 2 describes the support system provided to the respondents by their in-laws. Majority of the respondents i.e. 68 percent stated that timely help was provided to them by their in-laws, and the higher percentage of respondents were from Mohali. In-laws of 32 percent respondents were not alive at the time of widowhood, in this case the percentage of respondents from Chandigarh was higher than that of Mohali by 4 percent. The study specifies that respondents whose in-laws were alive got their in-laws' support. Further widows considered this help as moral responsibility of their in-laws. Respondents whose in-laws were not alive for assistance felt more insecure and

uncertain for their lives ahead. Results support Aruna and Reddy (2001).

Type of support offered by in-laws
Research studies have shown that relations with in-laws change after the death of spouse since he/she is a common bond between them. In Indian society due to joint family system, it is a patrilocal rule of residence. The wife after marriage moves to house of her in-laws. After death of her husband, she continues to stay with them, it is in some cases they are asked to move out. It is in this regard information about type of support provided by in-laws was obtained.

Table 2.1 Distribution showing type of support offered by in-laws

Type of support offered	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Not applicable	44	34	38	30	82	32
Economical	63	48	69	53	132	50
Psychological	16	12	10	7	26	10
Social	6	5	11	8	17	7
Taking care of children	1	1	2	2	3	1
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 2.1 illustrates the various types of support offered by in-laws to the respondents. Approximately half of the respondents reported receiving financial assistance from their in-laws to address sudden essential expenses arising immediately after widowhood, with a greater proportion of respondents were from Mohali. 10 percent of respondents mentioned receiving psychological support from their in-laws, with a higher percentage belonged to Chandigarh compared to Mohali. 7percent of respondents noted that their in-laws provided social support in observing widowhood-related rituals, with a larger percentage from Mohali. Merely one percent of respondents indicated that their in-laws took responsibility for caring for their children, with a higher percentage being from Mohali.

Support by Siblings
In traditional Indian society, kin and family were the main caregivers to widows. However, with the change in the structure of Indian joint family, this support system is weakening. Therefore, an effort has been made to procure information on support system of provided by siblings.

Table 3 Distribution showing support by siblings at the time of widowhood

Response	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Yes	79	61	87	67	166	64
No	51	39	43	33	94	36
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 3 illustrates the support system offered to the respondents by their own siblings. The majority of respondents, accounting for 64 percent, reported receiving appropriate support from their siblings, with a higher percentage from Mohali. Siblings of 36 percent of respondents attended funeral rituals, mainly for the sake of formality, and among them, a higher percentage of respondents were from Chandigarh. The study indicates that siblings intentionally refrained from involving themselves in the affairs of the respondents' post-widowhood. This reluctance stemmed from their fear that active involvement might lead to a lifelong responsibility for both the respondents and their children.

Type of support offered by siblings
When widows face hardships, they often turn to their siblings for assistance. Aruna and Reddy (2001) discovered in their research that many siblings provide emotional support and various forms of financial assistance, including substantial aid. They also engage in activities such as sharing farm produce, purchasing seasonal goods on behalf of widows, and exchanging special delicacies. Moreover, siblings contribute to services such as transportation of goods and significant purchases, and they participate in childcare responsibilities, such as transporting children to school and assisting with decisions regarding education and careers. Siblings actively support their widowed sisters in matters related to education, career opportunities, and arranging marriages for their children. Therefore, it is essential to analyze the support provided by siblings in this study to recognize their significant role in the lives of widows.

Table 3.1 Distribution showing type of support offered by siblings

Type of support offered	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Not applicable	51	39	43	33	94	36
Economical	29	22	33	25	62	24
Psychological	44	34	48	37	92	35
Social	5	4	2	2	7	3
Taking care of children	1	1	4	3	5	2
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 3.1 depicts what kind of support was provided to the respondents by their siblings. There were 35 percent respondents who were offered psychological support by their siblings, amongst them the higher percentage of respondents were from Mohali. There were 24 percent respondents who reported that their siblings offered economical support to incur abrupt vital expenditures to be done at the time of widowhood, out of which the percentage of respondents from Mohali was higher than that of Chandigarh. There were 3 percent respondents who informed that their siblings supported them socially, wherein the higher percentage of respondents were from Chandigarh. There were only 2 percent respondents whose siblings offered help in taking care of their children, in this case higher percentage of respondents were from Mohali.

The study unveils that siblings did not consider taking care of widows and their children as social responsibility and provide support to respondents for a temporary phase.

Support by Relatives
Relatives connected through blood or marriage play a crucial role in providing moral support rather than financial assistance to widows. Elderly relatives are often called upon to oversee the household and care for children when widows are away for work. Additionally, widows often confide in these relatives, sharing problems that they cannot discuss with their own children. Therefore, it was essential to comprehend the support provided by relatives in the lives of widows.

Table 4 Distribution showing support by relatives after widowhood

Response	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Yes	32	25	46	35	78	30
No	98	75	84	65	182	70
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 4 expresses the support system provided to the respondents by their relatives. Most of the respondents i.e. 70 percent respondents reported that their relatives did not come forward to support them, amongst them higher percentage of respondents were from Chandigarh. There were 30 percent respondents who stated that their relatives gave them full support, out of which higher percentage of respondents were from Mohali. Findings indicate that most of the relatives were neither economically sound enough nor had enough time to help respondents out owing to their own familial responsibilities.

Type of support offered by relatives
In the traditional joint family system, widows used to receive not only physical security but also emotional safety. Kinsmen played a crucial role in the well-being of the widows and their children. The respondents were asked to provide information regarding this matter.

Table 4.1 Distribution showing type of support offered by relatives before widowhood

Type of support offered	Chandigarh		Mohali		Total	
	f	%	f	%	f	%
Not applicable	98	75	84	65	182	70
Economical	1	1	4	3	5	2
Psychological	23	18	32	24	55	21
Social	8	6	10	8	18	7
Total	130	100	130	100	260	100

*Percentage has been rounded off to the nearest digit.

Table 4.1 delineates the types of support provided to the respondents by their relatives. 21percent of the respondents received psychological support from their relatives, with a higher proportion hailing from Mohali. 7 percent of respondents indicated that their relatives offered social support, with a greater percentage from Mohali. Additionally, 2percent of respondents mentioned receiving financial assistance from their relatives for conducting death rituals, with a higher percentage from Mohali compared to Chandigarh. These findings suggest that relatives are more supportive in Mohali.

DISCUSSION
As widows navigate their individual journeys through grief, loss, or trauma following the death of a spouse, they may also encounter economic insecurity, discrimination, stigmatization, and harmful traditional practices related to their marital status.

A higher percentage of respondents in the current study reported receiving support from their parents in various forms after becoming widows. These findings corroborate the results of Aruna and Reddy's study (2001). Respondents whose parents were alive received support, either financial or non-financial, as widows typically looked to their parents for assistance. However, those whose parents had passed away faced greater emotional challenges in adapting to their new circumstances.

A significant portion of respondents also received support from their in-laws, including economic, psychological, and social assistance. Half of the respondents reported receiving economic support from their in-laws. Interestingly, widows' siblings were not perceived as having a social responsibility to care for them and their children, providing only temporary support in some

cases. A minority of respondents received support from friends, with a higher percentage from Chandigarh compared to Mohali. The findings underscore that many relatives, constrained by economic limitations and familial responsibilities, were unable to provide extensive assistance to the respondents. Some respondents mentioned receiving aid from NGOs, particularly in Mohali, which helped them and their children become self-sufficient through job-oriented training programs in fields like beauty and culture, stitching, and patient care.

The research unveils a resilient pattern: widows, alongside their children, form a cohesive unit, pooling their resources to navigate the challenges they confront. This highlights the crucial role of extended family, particularly parents and in-laws, in offering enduring support, even in urban settings and during crises. While friends and neighbors may offer temporary relief, it's the unwavering support of parents and in-laws that proves most valuable for widows and their children. This study emphasizes the significant contribution of parents in assisting widows in coping with trauma and rebuilding their lives.

Factors such as poverty, lack of education, and limited job skills often compel widows to rely on others for financial stability or seek employment outside the home. The findings underscore the profound impact of spousal loss on widows from economically disadvantaged backgrounds, whose households undergo significant economic upheaval following their husbands' deaths.

CONCLUSION

Widowhood brings about profound feelings of isolation, loneliness, and economic hardship. In India, a country with socialist principles, the government implements social welfare policies, including pension schemes for widows. Despite these measures, widows continue to face numerous challenges related to health, mental well-being, finances, social integration, and personal safety. Over time, these challenges often exacerbate, further complicating their lives. Widows express a heartfelt plea for unwavering support from their families as they navigate this difficult transition. Additionally, they hope for a compassionate and understanding attitude from society at large, acknowledging the unique struggles they endure.

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FACTORS INFLUENCING EMPLOYEE'S TURNOVER AND IDENTIFICATION ON THE METHODS OF RETENTION IN BANGLADESH: A CASE STUDY ON EASTERN TUBES LIMITED (ETL)

Md. Masud Rana

Lecturer, Department of Business Administration, Shanto-Mariam University of Creative Technology

ABSTRACT

This study asses the reasons behind turnover at Eastern Tubes Limited with an objective to identify the factors affecting turnover. Data were gathered from both primary and secondary sources. This research contains summary of employee turnover management at Eastern Tubes Limited (ETL), why does it occur and identify the methods of retention. This research briefly covers various areas where employee retention strategies are implemented namely recruitment, training and development, work culture, salary negotiation, compensation management, rewards and recognition and exit interviews and at the end the research finally highlights various aspects which are to be considered for improvement of employee retention strategies.

1.   INTRODUCTION

Today's competitive business world, it is considered to be an important task to manage employee turnover for any organization. Naturally people want diversities in his/her everyday life; seeks for new and challenging jobs and good working environment in job place. To provide these things to the employees in an economic way is very difficult and cumbersome. But it is also crucial for any organization to retain its talented employees. Every organization wished to have high productivity, fewer turnovers and to be profitable. Managing turnover successfully is a must to achieve the goals. In Bangladesh, it is very important to manage turnover for both government and non-government sectors. In government sectors, although some fringe benefits are given to the employees regularly do not satisfy them sufficiently. In private sectors, though salary and benefits are high but security of job is less. Due to these reasons turnover rate in private sectors is higher than public sectors. Turnover rate also varies from manufacturing to service sectors.

The purpose of this research is therefore, to find out the actual reasons behind turnover and its damaging effects on the productivity of different departments at ETL. Human resource management must cope with the changing world of work. It must be aware of the globalization, technology changes, and workforce diversity. HRM is facing a big challenge in recognizing the reasons behind employee turnover supporting the organization by providing the best workforce for the suitable positions in shortest possible time. It is a big challenge to find the suitable person for the correct position who would last long. The owners of the business organizations do not concentrate on this important issue because of less awareness. They have little idea about how detrimental the effect of

turnover is into the productivity of their organizations. Employee turnover has proven to be one of the costliest and seemingly intractable human resource challenges at ETL. The rate of turnover varies from department to department. Sometimes employee turnover benefits organizations positively. This might happen when a poor performer is replaced by a more skilled employee and when a retired employee replaced by a younger one.

High employee turnover increases the expenses and also has a negative impact on the organization's morale. Employee retention is important for building a productive, healthy and committed workforce. Retention practices help save costs associated with recruitment, business productivity or poor customer service. The objective of the employee retention strategy is to increase the awareness, tools and information available to employers to assist them in employee retention. Retention of a positive and motivated employee is very important for the organization's success.

2.   OBJECTIVES OF THE STUDY
Broader objective of the study
i) To examine the scenario of employee turnover and identify internal and external factors of it.
ii) To identify viable methods and scopes influencing employee's retention in industry.

Specific Objectives
i)   To determine overall and current scenario of employee turnover.
ii)   To analyze internal and external factors contributes to employee turnover.

iii) To analyze the role of financial and non-financial motivators in employee retention.

iv) To examine why the employees, choose to work in an industry and what is the interesting part of their job which support them to stay with the industry.

v) To determine the employee expectations that would help management improve their present retention strategies.

2.1 Scope of the study

The study could help the industry to know about the present employee conditions. It identifies the factors responsible for employee retention. This study can recognize the people who are valuable in the industry. To identify areas and activities that has greatest potential in retaining employees. Creating an environment where people want to work and have fun, leading to high morale. Doing this research report on a well-known industry like Eastern Tubes Limited (ETL) an enterprise of Bangladesh Steel & Engineering Corporation (BSEC) under Ministry of Industry will be a privilege for me. This may give me the scop to match my theoretical knowledge with the practical one.

2.2 Limitation of the Study

The limitations of this study included the following; the variables affecting turnover are low. The numbers of companies in govt sector are many and widely distributed/located, and thus the study covered only Eastern Tubes Limited (ETL) an enterprise of Bangladesh Steel & Engineering Corporation (BSEC) under Ministry of Industry. Another limitation was in the form of delays from respondents due to covid-19 situations. This was managed through planning, time scheduling, booking and locking appointment with these respondents.

2.3 Hypothesis of the study

In order to understand the objective and the overall conclusion of the study, the following hypothesis has been made. The rate of turnover at Eastern Tubes Limited (ETL) is very low and it does not affect the productivity of the organization that much as it has more employees than necessary.

3. METHODOLOGY OF THE STUDY

The study was designed as a mixed-method research study combining quantitative and qualitative methods. Data were collected from newspaper, published books, journals, research papers, published government laws and internet. This term paper aims to study on organizational employee's turnover influencing factors and identification of retention methods. Data will be collected through structured questionnaire, Industry visit, group discussion, personal interview. Data will collect from Human Resource Division & Management Information System Division of Bangladesh Steel & Engineering Corporation (BSEC) and Eastern Tubes Limited (ETL).

a. Phase- I:

In the first phase theoretical study will be carried out to understand the organizational culture, characteristics, factors associated with employee's turnover, challenges & employee retention policies.

b. Phase- II:

1. With the theoretical understanding some employees will be interviewed with selected questionnaire to know their organizational employee's turnover influencing factors and identification of retention methods. The participants of this survey will be answering some close ended questions. These arranged questions will automatically find out the reason of turnover and ways to remedy this on their job.

2. After collecting their opinions through the questionnaire, some open-ended questions will be asked for own understanding of the surveyor. This will be followed by some formal and informal discussions.

c. Phase-III:

Data Collection Tools and Techniques: (30 minimum sample size)

3.1 Sampling

For the convenience Human Resource Division and Management Information System Division of Bangladesh Steel & Engineering Corporation (BSEC) and Eastern Tubes Limited (ETL) will be chosen.

3.2 Sample Size

The sample size for the study will not be large one. The sample size will be 30 with representation of the management and staff concerned.

3.3 Sampling Scheme

Having fixed up sample extent, sample size and sample units, it will take 05 days to complete the task of collection information.

3.4 Source of Information

Both primary and secondary data will be used to reach a convincing result:

a. Primary Data:

Primary data will be collected through Structured Questionnaire, Personal Interview and group Discussion.

b. Secondary Data:

- Secondary data will be collected from the head of HR division and Management Information System Division of the industry by physical observation and record review.

- Official website of the company.

3.5 Data Processing Method: (Qualitative, Quantitative, Quasi Method)

Collected data will be coded and verified. Moreover, data will be processed by making consistency checking with the help of computer and relevant knowledge on the subject as well as the knowledge and application of statistical tools. Some manual techniques will be applied during the collection of opinion through the questionnaire.

4. LITERATURE REVIEW

4.1 Theoretical Review

The research focused on theories which explain the various factors which influence employee turnover in work place. The study focused on two key theories; the Herzberg two factor

theories and the Maslow's hierarchy of needs theory which explain many of the reasons behind employee turnover at work place.

4.2 Herzberg two Factor Theory
This theory was designed to better explain the factors that affected employee's job attitudes and motivation. Herzberg performed studies including interviews, to determine which factors in employee's work environment caused satisfaction or dissatisfaction. He found that factors causing job satisfaction (motivator factors) were different from those causing dissatisfaction (hygiene factors). Herzberg theory (Loiseau, 2011) argues that there are two distinct human needs influencing employee's motivation and attitude: Physiological needs that can be fulfilled by money for example to purchase food and shelter; and Psychological need to achieve and grow, only fulfilled by activities that cause one to grow.

Factors determining dissatisfaction include: company policy, supervision, relationship with boss, work condition, salary, and relationship with peers, all of which are external factors while those leading to satisfaction include achievement, recognition, work itself, responsibility, advancement and growth, which are intrinsic factors. Critics of Herzberg theory argue that the two factors are observed because it is natural for people to take credit for satisfaction and to blame dissatisfaction on external factors, and that job satisfaction does not necessarily imply a high level of motivation or productivity. The Hertzberg two factors theory was used in this study to explain how motivation factors influence affecting employee's turnover in the public sector with a focus at Eastern Tubes Limited a project of Bangladesh Steel & Engineering Corporation under Ministry of Industries.

4.3 Maslow Hierarchy of Needs Theory:
Commonly known as the hierarchy of needs, is also a motivational theory, developed under believed that human beings are motivated by needs that are in-born (Saleemi, 2005). Maslow's theory comprises of five needs: Physiological need

(most basic - air, water, sleep, food), safety needs (stability and consistency), love and need to belong (affiliate) needs, self-esteem needs (confidence/respect) and Self-actualization needs. Theory states that lower needs must be satisfied before one can progresses to the next level of needs. In work place, employee's needs must be met, especially safety needs and esteem need (recognition, acceptance and reward) failure to which, they will be bound to leave in search of satisfaction (Handelman, 2009). Maslow theory is a motivation theory. It shows how remuneration, career progression, working condition and reward and recognition influence employee turnover. Thus, Maslow theory was used in the study to shed some light on importance of these factors to employees, and how likely they were in influencing employee's turnover at ETL.

5. RESULT AND DISCUSSION
5.1 Existing Policies in the Organization
Every organization is governed by rules and regulations. Government Organization follow the Public Service Regulations (BSR). As an autonomous body, ETL follows its own regulations and, if not its own regulations in the field, follow the Government Rules (BSR).

Table: 01
Existing policies in the organization

Constitution	30
Training Policy	0
Human Resource Policy	0
Financial Policy	30

Findings: The study shows that there are 30 respondents of the study. All of them have spoken about the Constitution and Human Resource Policy. So, constitution and Human Resource Policy respondent dominate the research and in Eastern Tubes Ltd. all employees obeyed organizations constitution and Human Resource Policy. Mentionable that, all of them agreed that Training Policy & Human Resource Policy are absent there.

Graphical Presentation of the above findings

Figure 1: Existing Policies in the Organization

5.2 Reasons for Joining in this Organization
The government sector has a lot of scope for people who look for stability in a job. Besides, the sector offers multitude of profiles for a person to choose from based on their field of

interest and qualification. One of the main reasons for wanting to work for the government would be job stability. Government jobs are known to provide job security and stability while

allowing one to work for a greater cause that is more or less directly affective in the country their residing in.

Due to the demand of better skilled, experienced and knowledgeable individuals and the fact that most private sectors are offering better salaries, government sectors have significantly revised their salary scales to match with the current market value for each job role so that they are able to find the correct and best suited candidate from the selection pool. So, no longer does one have to worry about poor or lesser pay in a government job.

Table: 02

Reasons for Joining in this Organization								
Rank	1	2	3	4	5	6	Total No of Data	Weighted Total
Weighted Score	5	4	3	2	1	0		
Good Salary	0	11	11	7	1	0	30	96 (22.17%)
Job Security	30	0	0	0	0	0	30	150 (34.64%)
Nature of work	0	0	8	12	3	7	30	41 (9.47%)
Better future prospect/ career growth	0	19	11	0	0	0	30	98 (22.64%)
Welfare and Fringe Benefits	0	0	0	7	19	4	30	33 (7.62%)
Office Culture & Environment	0	0	0	4	7	19	30	15 (3.46%)
Total	30	30	30	30	30	30	180	433 (100%)

Rank	Reasons for joining in this organization
1	Job Security- 34.64%
2	Better Future Prospect/Career growth - 22.64%
3	Good Salary - 22.17%
4	Nature of Work - 9.47%
5	Welfare and Fringe Benefits- 7.62%
6	Office Culture and Environment- 3.46%

Findings: The study shows that there are 30 respondents of the study. All of them have spoken about Job Security (34.64%). So, Job Security dominate the research. Moreover, better future prospect/career growth (22.64%), good salary (22.17%), nature of work (9.47%), welfare & fringe benefits (7.62%) and office culture & environment (3.46%) also played important roles in attracting employees.

Graphical Presentation of the above findings

Figure 2: Reasons for Joining in this Organization

5.3 Employee Turnover is High in this Organization

High employee turnover can be both a good and a bad thing. But the impact of high employee turnover goes beyond operational inconveniences. When people constantly leave the organization, it has an impact on employee morale and productivity and eventually on the company's products and services.

Table: 03
Employee Turnover is High in this organization

Agree	0
Disagree	28
Don't Know	2

Findings: The study shows that there are 30 respondents of the study. Almost all of them think turnover rate of this company is very low. Though few of them don't about turnover rate, nobody think that the turnover rate is high.

Graphical Presentation of the above findings
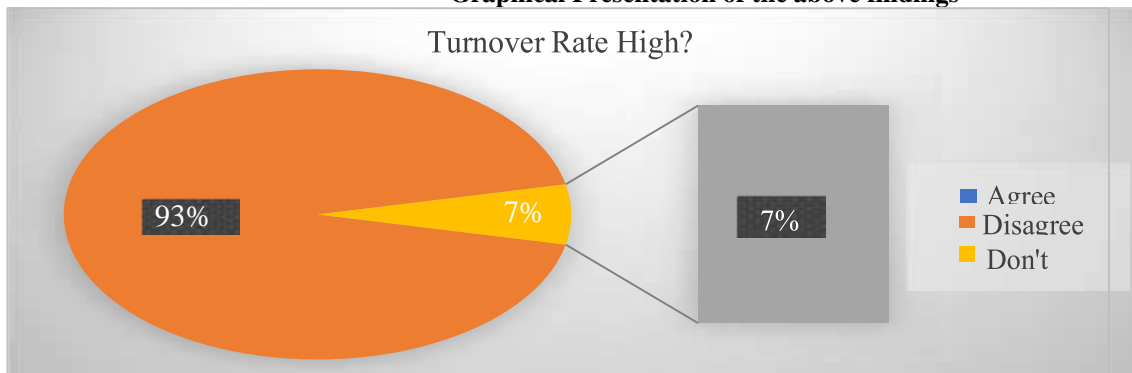
Figure 3: High Employee Turnover

5.4 Factors leading to Employers Turnover

Employee turnover may be defined as the rotation of workers around the labour market; between firms, jobs and occupation; and between the stated of employment and unemployment. Turnover is influenced by many factors that generally come from two directions: external forces and internal forces. We have a bigger impact focusing on internal forces within the company's control. Certain aspects of employee experience tend to be the biggest drivers of turnover (why employees leave) and retention (why employees stay).

Table: 04

Factors leading to Employers Turnover								
Rank	1	2	3	4	5	6	Total No of Data	Weighted Score
Weighted Score	5	4	3	2	1	0		
Looking for greener pastures with better pay	6	15	1	8	0	0	30	109 (24.50%)
Poor working environments	0	5	13	0	1	11	30	60 (13.48%)
Non-participatory decision making	0	0	0	15	15	0	30	45 (10.11%)
Lack of programs sustainability	0	1	9	1	0	19	30	33 (7.41%)
Lack of career development	1	9	2	5	13	0	30	65 (14.61%)
Inadequate job security	23	0	5	1	1	0	30	133 (29.89%)
Total	30	30	30	30	30	30	180	445 (100%)

1	Inadequate job security- 29.89%
2	Looking for greener pastures with better pay- 24.50%
3	Lack of career development- 14.61%
4	Poor working environments- 13.48%
5	Non-participatory decision making- 10.11%
6	Lack of programs sustainability- 7.41%

Findings: The study shows that there are 30 respondents of the study. Most of them thinks that inadequate job security leads to higher turnover. So, it supports previous finding in Art. 4.2 which indicates higher no of people joins in this Institution due higher job security. So, job security matters mostly in case of Turnover. The high job security leads low turnover and low job security leads higher turnover. The study also indicates that looking for greener pastures with better pay (24.50%), lack of career development (14.61), poor working environment (13.48%) also affect turnover rate. Few people think non-

participatory decision making (10.11%), lack of programs sustainability (7.41%) also have role in turnover.

Graphical Presentation of the above findings
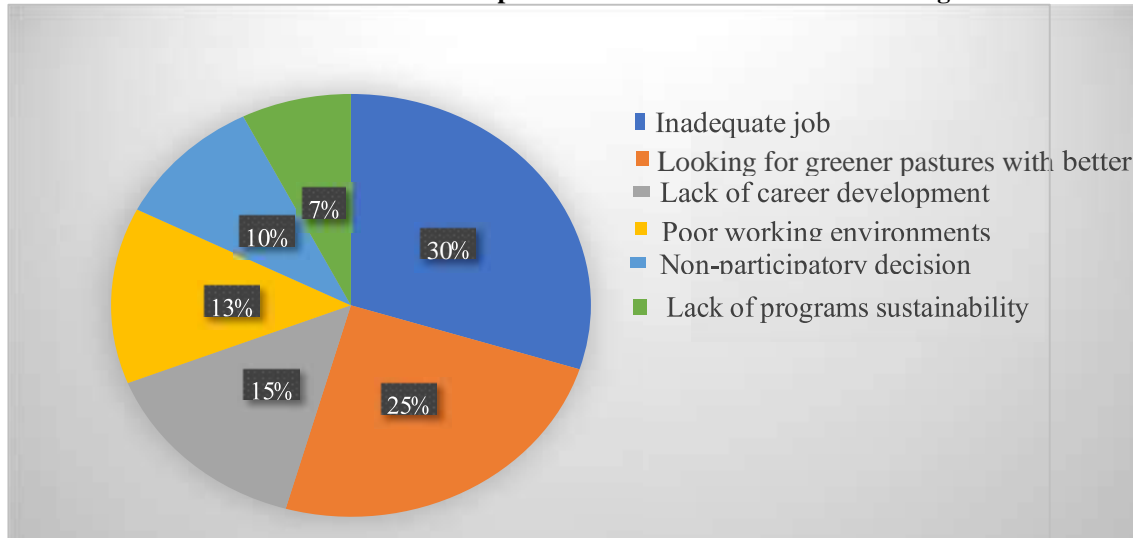
Figure 4: Factors leading to Employers Turnover

5.5 Ways to increase Employers Retention
A critical issue that organizations face is how to retain the employees they want to keep. Companies must anticipate impending shortages of overall talent as well as a shortfall of employees with the specialized competencies needed to stay ahead of the competition. Employers that systematically manage employee retention—both in good times and in bad—will stand a greater chance of weathering such shortages.

Table: 05 (Three ways to increase employee's retention)

		Rank	
Develop Job Security	30	1	Develop Job Security-30
Long Term Growth	21	2	Long Term Growth-21
Conducive Work Environment	21	3	Conducive Work Environment-21

Findings: The study shows that there are 30 respondents of the study. All of them think to increase employee's retention development of Job Security is must. Most of them also think that long term growth and conductive work environment is also necessary to increase employee's retention.

Graphical Presentation of the above findings
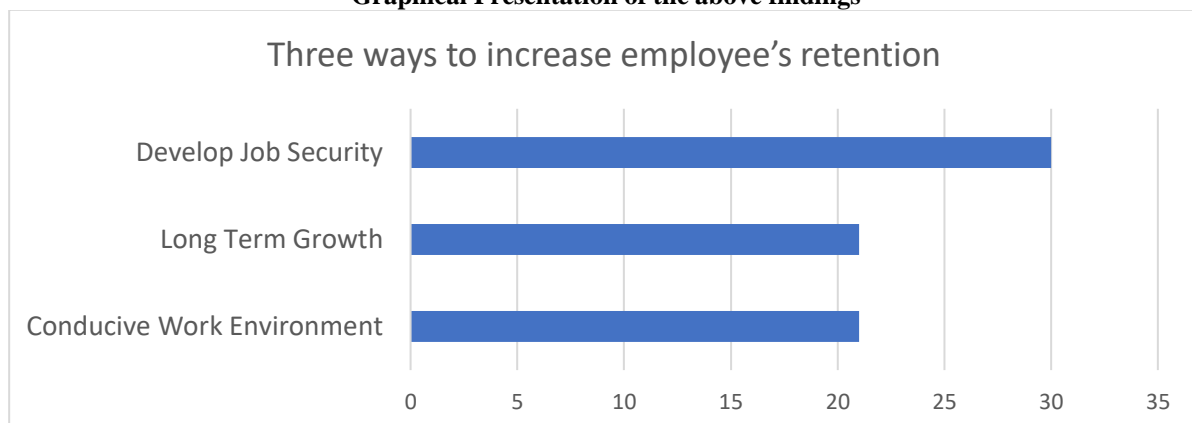
Figure 5: Three ways to increase employee's retention

5.6 Motivational factors/non-financial rewards expected by the participant to the employer:
Highly motivated employees are a critical factor in the long-term success of many organizations. Given this, HR Accountants are becoming increasingly interested in how elements of control systems affect employee motivation at all organizational levels. Employee empowerment has been advocated by management and accounting researchers as a way to increase employee motivation.

Table: 06
Three motivational factors/non-financial rewards expected by the participant to the employer

	Rank	
Transport Facilities	30	Transport Facilities-30
Establishment of day care Centre	15	Establishment of day care Centre-15
Establishment of Common Room	15	Establishment of Common Room-15

Findings: The study shows that there are 30 respondents of the study. All of them think to transport facilities are most motivational factors/non-financial rewards expected by the participant to the employer. Most of them also think that establishment of day care centre and common room are also necessary to increase employee's retention.

Graphical Presentation of the above findings
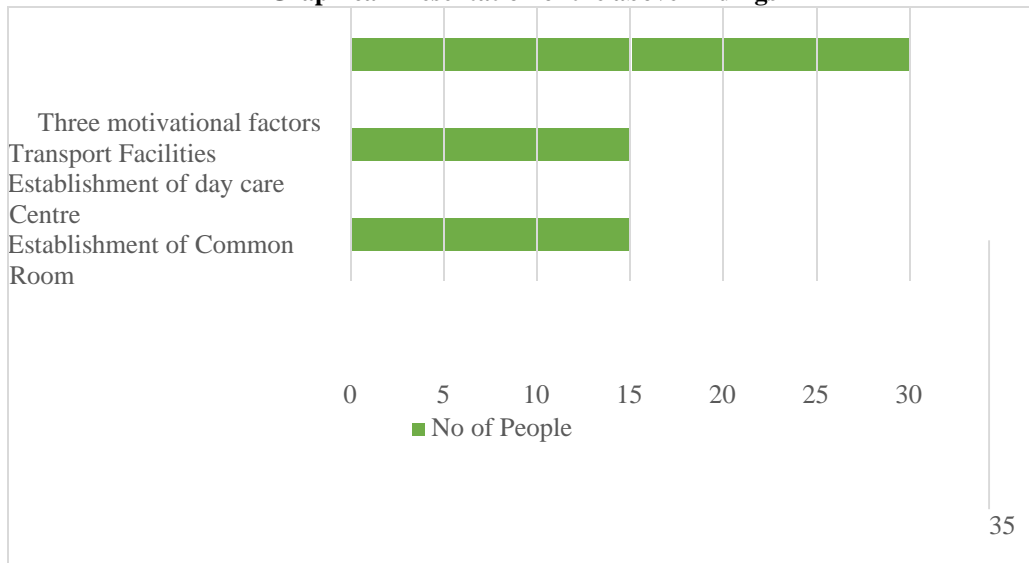
Figure 6: Three motivational factors

5.7 Most effective factors lead to employee Retention

Managing for employee retention involves strategic actions to keep employees motivated and focused so they elect to remain employed and fully productive for the benefit of the organization. A comprehensive employee retention program can play a vital role in both attracting and retaining key employees, as well as in reducing turnover and its related costs. All of these contribute to an organization's productivity and overall business performance. It is more efficient to retain a quality employee than to recruit, train and orient a replacement employee of the same quality.

Table: 07

Most effective factors lead to employee Retention										
Rank	1	2	3	4	5	6	7	8	No of Data	Weighted Total
Weighted Score	7	6	5	4	3	2	1	0		
Better Salaries	0	19	11	0	0	0	0	0	30	169 (20.12%)
Better Recruitment Policies	0	0	0	11	0	0	0	19	30	44 (5.24%)
Job Security	30	0	0	0	0	0	0	0	30	210 (25.00%)
Fringe and Welfare benefits	0	0	6	8	16	0	0	0	30	110 (13.09%)
Freedom of expression	0	0	0	0	6	13	11	0	30	55 (6.55%)
Long term Growth	0	11	11	0	8	0	0	0	30	145 (17.26%)
Improved Grievance Mechanism	0	0	0	0	0	11	19	0	30	41 (4.88%)
Adequate and fair Compensations	0	0	2	11	0	6	0	11	30	66 (7.86%)
Total	30	30	30	30	30	30	30	30	240	840 (100%)

Rank	Most effective factors lead to employee retention
1	Job Security-25.00%
2	Better Salaries-20.12%
3	Long term Growth-17.26%
4	Fringe and Welfare benefits-13.09%
5	Adequate and fair Compensations-7.86%
6	Freedom of expression-6.55%
7	Better Recruitment Policies-5.24%
8	Improved Grievance Mechanism-4.88%

Findings: The study shows that there are 30 respondents of the study. Most of them thinks that adequate job security (25.00%) leads to higher retention rate. So, it supports previous article which indicates higher no of people joins in this Institution due higher job security. So, job security matters mostly in case of employee's retention. The study also indicates that better salaries (20.12%), long term growth (17.26%), fringe and welfare benefits (13.09%) also lead employee's retention. Few people think freedom of expression (6.55%), better recruitment policies (5.24%), improved grievance mechanism (4.88%) also have role in employee's retention.

Graphical Presentation of the above findings:
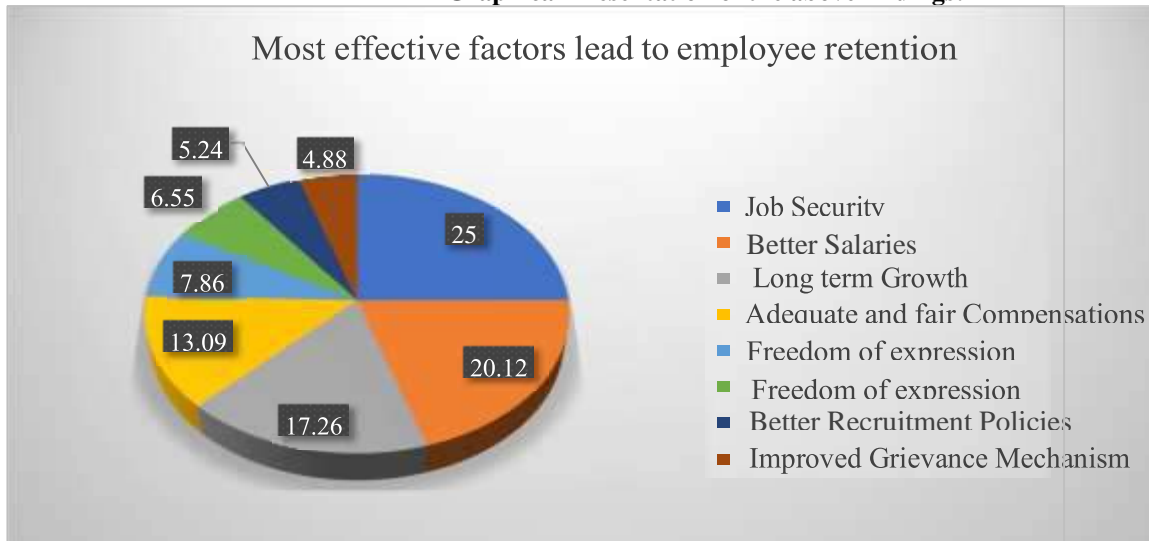
Figure 7: Most effective factors lead to employee Retention

Measurement of Turnover at ETL (Last Three Years)

Calculation for Turnover Rate (2020)	
Number of Separations	0
Number of Employees on Start Date-01.01.2020	133
Number of Employees on End Date-31.12.2020	133
Turnover Rate	= (B2/ ((B3+B4)/2))*100 = (0/((133+133)/2))*100 = 0%

Calculation for Turnover Rate (2019)	
Number of Separations	0
Number of Employees on Start Date-01.01.2019	133
Number of Employees on End Date-31.12.2019	133

Turnover Rate	= (B2/ ((B3+B4)/2))*100 = (0/((133+133)/2))*100 = 0%
Calculation for Turnover Rate (2018)	
Number of Separations	1
Number of Employees on Start Date-01.01.2018	134
Number of Employees on End Date-31.12.2018	133
Turnover Rate	= (B2/ ((B3+B4)/2))*100 = (1/((134+133)/2))*100 = (1/(267/2))*100 = (1/133.5)*100 = .0075*100 =0.75%

SUMMARY OF THE FINDINGS

The study suggests that turnover in ETL during last three years are 0%, 0%, 0.75% which indicates very low rate. Job security, better salaries, long terms growth, Fringe & Welfare benefits may be the reason for higher rate of retention. This higher rate of retention is helping sustainable development of this Organization. Though there is scope of development in Working environment, HR Policy, Employee facilities. But the overall condition of employee is satisfactory which leads to higher employee retention. Maintaining that environment of low turnover may help in sustaining the development of the Organization.

6. CONCLUSION

Turnover is a burning issue for any organization. For the steady productivity of an organization, it is essential to maintain its skilled workforce. Due to job security, retention rate is very low in this organization. According to the theoretical discussion, many solutions to reduce turnover like job security, better salaries, long terms growth, Fringe & Welfare benefits has already been suggested. Productivity of an organization depends on the skills or expertise of its workforce. A skilled worker may be an asset for any organization. If a skilled person leaves an organization the effect will be less. As a result, a vacant place of a skilled employee may be filled by another new worker but production falls due to their difference. On the other hand, five or six semiskilled or unskilled employees may be left the organizations but those empty positions can be filled by one or two skilled employees. It is, therefore, crucial to maintain a constant workforce particularly for skilled ones in an organization to reduce turnover for the betterment of the organization.

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METACOGNITIVE STRATEGIES AND ACHIEVEMENT EMOTIONS AS PREDICTORS OF STUDENTS' ACADEMIC SELF EFFICACY IN LEARNING SCIENCE

Maria Luz O. Agatinto, LPT[1], Neil Ryan B. Ado, Ph.D[2]

[1]MAED Teaching Science, St. Mary's College of Tagum, Inc., Tagum City, Davao del Norte, Philippines
[2]Graduate Education Faculty, St. Mary's College of Tagum, Inc., Tagum City, Davao del Norte, Philippines

ABSTRACT

The study examined the impact of metacognitive strategies and achievement emotions on students' academic self-efficacy in learning science. It involved 344 respondents from three public secondary schools in the Division of Tagum City, selected through stratified random sampling. Data were collected using three questionnaires: the Motivated Strategies for Learning Questionnaire (MSLQ), Achievement Emotions Scale (AES), and Academic Self-Efficacy Scale (ASES). The results showed that metacognitive strategies were frequently observed, achievement emotions were somewhat manifested, and students' academic self-efficacy in learning science was moderate. Moreover, the results indicate that both metacognitive strategies and achievement emotions significantly correlated with and predicted students' academic self-efficacy in learning science. The study suggests that teachers should promote metacognitive strategies and foster positive achievement emotions to enhance students' academic self-efficacy.

KEYWORDS: *science education, metacognitive strategies, achievement emotions, academic self-efficacy, descriptive and correlational design, regression analysis, Tagum City, Davao del Norte, Philippines*

INTRODUCTION
Background of the study
Self-efficacy is crucial for students' learning in science, as it reflects their self-perception and ability to achieve their goals (Chen et al., 2020). According to Kwarikunda et al. (2022), despite resources in science education, students in both developed and developing countries often have low self-efficacy in science topics. A decrease in metacognitive strategies can negatively impact academic self-efficacy, as students find tasks more challenging (Wu et al., 2022). Additionally, negative emotions like anxiety and fear can restrict students' potential to increase their self-efficacy levels in academic endeavors (Yang et al., 2017). Therefore, teachers must create a learning environment that enhances students' academic self-efficacy in science, promoting greater willingness to complete tasks.

In Malaysia, a study found that academic self-efficacy among students is declining due to the influence of achievement emotions felt from direct observation of their classmates, who frequently serve as a point of comparison for their academic capacity (Hasan et al., 2020). The same result was discovered in a study conducted by Grotan et al. (2019) among Norwegian students and Hitches and Ehrich (2022) among Australian students, who have experienced low academic self-efficacy in learning science because of emotional difficulties such as anxiety and depression. In the Philippines, students also face low self-efficacy towards science education, despite possessing fundamental skills (Soltani & Askarizadeh, 2021). Blanco et al.

(2020) found that students' self-efficacy in Cebu is negatively impacted by inadequate scientific skills and positive achievement emotions, while Dullas (2018) found low academic self-efficacy in Nueva Ecija and Villavicencio (2018) reported 7 out of 10 high school students struggling. Furthermore, Gurcay and Ferah's (2018) research in the Davao region also showed a decline in students' academic self-efficacy, particularly in science learning.

A study found that students' lower self-efficacy in academic endeavors is due to a decrease in metacognitive strategies and increased negative emotions in science classes. this research explores the relationship between students' academic self-efficacy in learning science in Tagum City's school division and achievement emotions and metacognitive methods. Despite previous research in Western nations showing a positive correlation between metacognitive techniques, achievement emotions, and academic self-efficacy, the impact of these variables on the educational landscape, particularly in science learning, remains unproven.

Given the challenges faced by the Education department, especially with the implementation of distance learning, this study is crucial for understanding how metacognitive strategies and emotions affect students' academic self-efficacy. The findings will provide valuable insights for teachers to enhance metacognitive strategies and emotional well-being, ultimately improving students' academic self-efficacy in learning science. The study's results will be disseminated to educational

institutions and presented at various local and international academic forums and conferences to contribute to evidence-based solutions for enhancing students' academic self-efficacy.

Research Questions
The research aimed to answer the following:
1. What is the level of metacognitive strategies in terms of:
    1.1. Rehearsal;
    1.2. Elaboration;
    1.3. Organization;
    1.4. Critical Thinking; And
    1.5. Metacognitive Self-Regulation?
2. What is the extent of achievement emotions in terms of:
    2.1. Class Related Emotions;
    2.2. Learning-Related Emotions; And
    2.3. Test Emotions?
3. What are the students' academic self-efficacy level in learning science?
4. Is there a significant relationship between:
    4.1. metacognitive strategies and students' academic self-efficacy in learning science?
    4.2. achievement emotions and students' academic self-efficacy in learning science?
5. Do metacognitive strategies and achievement emotions significantly predict students' academic self-efficacy in learning science?

METHOD
Research Design
This study adopts a quantitative research approach, specifically employing descriptive-correlational designs. According to Broadbent (2017), quantitative research facilitates the use of survey questionnaires to collect quantitative data and identify correlations between variables. Descriptive-correlational design focuses on examining relationships between variables, indicating the strength and breadth of their associations (Tan, 2019). This design was chosen to quantify the strength and significance of causal relationships between metacognitive strategies, achievement emotions, and students' academic self-efficacy in learning science. Such an approach allows for a comprehensive analysis of the interplay between these variables and their potential impact on academic performance.

Research Respondents
Grade 10 students enrolled in three selected public schools in Tagum City Division for SY 2023-2024 were the study respondents, selected using stratified random sampling. A sample size of 340 was determined from a population size of 2,889 using the Online Raosoft Sample Size Calculator. Figure 1 shows a map highlighting Tagum City, Davao del Norte, Philippines, where the study was conducted.

Source: InTagum (https://investintagum.blogspot.com/p/about-tagum.html)
Figure 1: Vicinity Map of Tagum City Highlighting the Participating Schools

Research Instruments
Three survey questionnaires, including the Metacognitive Strategies Scale (MSS), Achievement Emotions Questionnaire (AEQ), and Academic Self-efficacy Scale (ASES), were utilized to collect data from the respondents. These instruments underwent content validation by experts and pilot testing to ensure reliability. The MSS, developed by Duncan and Mckeachie (2015), consists of 28 items categorized into five subfactors, with Cronbach's alpha reliability coefficients ranging from 0.51 to 0.93. Meanwhile, the AEQ, designed by Pekrun et al. (2011), includes twenty-two questions divided into three subscales, with a Cronbach's alpha reliability coefficient of 0.75. Lastly, the ASES, adapted from Abdul and Mohammed (2006), features forty items with a test-retest correlation

coefficient of 0.85 and split-half reliability of 0.90. Five-point Likert scale was used to assess the items of the questionnaires.

Statistical Treatment of Data
The following statistical techniques were used to examine and evaluate the collected data.
Mean. This statistical approach was used to determine the level of students' metacognitive strategies, achievement emotions, and academic self-efficacy in learning science.
Pearson r. This tool was used to determine the correlation among the study variables.
Multiple Regression Analysis. This was applied to determining if metacognitive strategies and achievement emotions significantly predicted students' academic self-efficacy in learning science.

RESULTS

Table 1: **Level of Metacognitive Strategies**

Items	SD	Mean	Descriptive Equivalent
Rehearsal			
1. read my class notes and the course readings repeatedly.	0.89	4.07	High
2. memorize keywords to remind me of essential concepts in the class.	0.90	4.22	Very High
3. make lists of important terms and memorize the list.	0.90	4.04	High
Category Mean	**0.90**	**4.11**	High
Elaboration			
1. pull together information from different sources, such as lectures, readings, and discussions.	0.92	3.98	High
2. try to relate ideas in this subject to those in other courses whenever possible.	0.95	3.66	High
3. try to relate material to what I already know.	0.90	4.05	High
4. try to connect the readings with the lecture's topics to comprehend the material.	1.00	3.97	High
5. try to apply ideas from the course readings in other class lectures and discussions.	1.04	3.77	High
Category Mean	**0.96**	**3.87**	High
Organization			
1. go through the readings and my class notes and try to find the most essential ideas.	0.87	4.37	Very High
2. write summaries of the main ideas from the readings and concepts from the lectures.	1.06	3.93	High
3. make simple charts, diagrams, or tables to help me organize course material.	1.22	3.30	Moderate
4. go over my class notes and outline important concepts.	1.11	3.85	High
Category Mean	**1.07**	**3.86**	High
Critical Thinking			
1. I often find myself questioning things I hear or read to decide if I find them convincing.	0.97	4.00	High
2. try to decide whether there is good supporting evidence on the presented concept in class.	0.94	3.81	High
3. treat the course material as a starting point and develop my ideas about it.	1.03	3.88	High
4. try to play around with ideas of my own related to what I am learning in this course.	1.07	3.77	High
5. think about possible alternatives whenever I read or hear an assertion or conclusion in the class.	1.06	3.71	High
Category Mean	**1.01**	**3.84**	High
Metacognitive Self-Regulation			
1. try to stay focused on important points to ensure that I fully comprehend the information presented.	0.93	4.24	Very High
2. Makeup questions to help focus on reading.	1.04	3.95	High
3. go back and figure out when I become confused about something I am reading for this class.	0.99	4.16	High
4. change how I read the materials if course materials are difficult to understand.	1.08	3.87	High
5. see how it is organized before thoroughly studying new course materials.	1.08	3.84	High
6. ask myself questions to ensure I understand the material I have been studying in the class.	1.03	4.04	High
7. try to change how I study to fit the course requirements and teacher's teaching style.	1.11	3.65	High

Items	SD	Mean	Descriptive Equivalent
8. I am continuously working to enhance my reading comprehension skills to comprehend and retain the information presented in class fully.	0.97	4.10	High
9. try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.	0.99	3.89	High
10. try to determine which concepts I do not understand well.	0.92	4.21	Very High
11. set goals for myself to direct my activities in each study period.	1.07	4.03	High
Category Mean	**1.02**	**4.00**	High
Overall Mean	**0.99**	**3.94**	High

Table 1 shows the level of students' metacognitive strategies in learning science. Rehearsal strategies have the highest mean of 4.11, while critical thinking has the lowest mean of 3.84. These strategies are more commonly observed than in other domains. Metacognitive strategies have an overall mean of 3.94, indicating high levels of observation. However, organization has the highest standard deviation of 1.07, and rehearsal has the lowest standard deviation of 0.90. Students' responses to organization items are more varied than those of other strategies.

The study reveals that metacognitive strategies are the most effective in learning, with elaboration, organization, and rehearsal being the most used. This trend is also observed in international studies, with high school students in Turkey, Uganda, and the Philippines primarily using rehearsal for science learning. Kwarikunda et al. (2022) found that rehearsal strategies were used primarily in physics learning, possibly due to limited knowledge in low-secondary schools. Surface-level strategies like rehearsal and elaboration were preferred over deep-level ones.

Table 2: Extent of Achievement Emotions of Students

Items	SD	Mean	Descriptive Equivalent
Class-Related Emotions			
1. enjoying being with it.	0.84	4.30	Very High
2. being proud of myself.	1.12	3.96	High
3. getting angry.	1.24	2.09	Low
4. feeling uneasy every time I think about it.	1.29	2.73	Moderate
5. feeling embarrassed.	1.25	2.35	Low
6. feeling hopeless in the subject.	1.35	2.42	Low
7. getting bored.	1.28	2.23	Low
Category Mean	**1.20**	**2.87**	Moderate
Learning-Related Emotions			
1. enjoying acquiring new knowledge.	0.79	4.43	Very High
2. having an optimistic view toward studying.	0.95	3.85	High
3. getting irritated when studying.	1.30	2.56	Moderate
4. getting tense and nervous while studying.	1.33	2.75	Moderate
5. feeling ashamed that I can't absorb simple ideas.	1.40	3.01	Moderate
6. feeling hopeless when I think about studying.	1.32	2.50	Low
7. feeling bored because of the material.	1.20	2.16	Low
Category Mean	**1.18**	**3.03**	Moderate
Test-Related Emotions			
1. feeling challenged because it is enjoyable.	1.03	4.03	High
2. having great hope that my abilities will be sufficient.	1.09	3.83	High
3. being proud of how well I mastered the exam.	1.17	3.70	High
4. feeling very relieved that I will pass it.	1.20	3.81	High
5. being annoyed about having it.	1.24	2.39	Low
6. feeling panicky upon answering.	1.32	3.19	Moderate
7. feeling ashamed that I will fail.	1.41	3.51	High
8. having lost all hope that I can do well on the exam.	1.45	2.94	Moderate
Category Mean	**1.24**	**3.42**	High
Overall Mean	**1.21**	**3.11**	Moderate

Table 2 shows the achievement emotions of students in science subjects. Test emotions have the highest mean and standard deviation of 3.42 and 1.24, indicating strong manifestation.

Class-related emotions have the lowest mean and standard deviation of 2.87 and 1.20, respectively, suggesting moderate manifestation. Learning-related emotions have the lowest

standard deviation of 1.18, indicating a moderate variation. Overall, the extent of achievement emotions is moderate, with a mean of 3.11 and an SD of 1.21, implying that students in science subjects slightly manifest achievement emotions. These results were supported by Park's study (2022) and Zhou and Wu (2021), who found that students exhibit test-related emotions more than class-related and learning-related emotions. However, in science subjects, positive and negative emotions significantly influence feelings across all indicators (class-related, learning-related, and test emotions).

Table 3: Level of Students' Academic Self-efficacy in Learning Science

Items	SD	Mean	Descriptive Equivalent
In my science class, I …			
1. am capable of learning.	0.93	4.21	Very High
2. cannot read and understand my textbooks well.	1.26	3.65	High
3. sense that I am quick to pick the points from what I read.	1.09	3.38	Moderate
4. feel that I am incapable of remembering things.	1.26	2.87	Moderate
5. can do my projects well.	1.11	3.67	High
6. cannot manage time efficiently for learning.	1.23	2.86	Moderate
7. can use my teacher's assistance in my educational needs.	1.20	3.57	High
8. I failed to find out the necessary sources for my study.	1.26	2.81	Moderate
9. can ask for help from my peers whenever I need it.	1.11	3.89	High
10. fail to set higher goals in my study.	1.32	3.06	Moderate
11. can usually find out a few solutions when confronted with problems in my study	0.97	3.82	High
12. cannot express ideas well while attending examinations.	1.20	2.84	Moderate
13. find it difficult for me to read and understand the textbooks in the English language.	1.37	3.37	Moderate
14. can recollect what I have learned during exams.	1.08	3.57	High
15. often fail to comprehend the actual meaning of what I study.	1.21	3.02	Moderate
16. can prepare my class notes neatly if appropriately taught.	1.08	3.81	High
17. fail to find time for learning amid many chores.	1.26	2.97	Moderate
18. unable to organize my study resources.	1.25	3.05	Moderate
19. am assured that I have a few friends who would be helpful in my study.	1.13	3.97	High
20. cannot clarify my doubts with my teacher during class.	1.24	3.02	Moderate
21. can accomplish my aims in learning.	1.11	3.67	High
22. Cannot answer the essay-type questions well.	1.29	3.15	Moderate
23. experience that I am weak in understanding the discussions of my teacher.	1.34	3.04	Moderate
24. can develop the reading skills required to learn the subject.	1.02	3.95	High
25. cannot recall the related knowledge from the earlier classes when I study a new concept.	1.21	2.96	Moderate
26. can utilize the available library facility for my study.	1.25	3.19	Moderate
27. observe that I fail to prepare my tasks and assignments on time.	1.26	3.07	Moderate
28. can compensate for the loss well if I miss some classes for some reason.	1.21	3.47	High
29. consider that I failed to develop a healthy relationship with my teachers.	1.34	3.33	Moderate
30. am confident that I can perform well in challenging examinations.	1.20	3.47	High
31. cannot deal efficiently with unexpected problems in my study.	1.21	2.86	Moderate
32. am calm during exams since I trust my capabilities.	1.15	3.65	High
33. I cannot complete homework independently without help from guidebooks, previous notes, etc.	1.35	2.64	Moderate
34. can usually handle the problematic situations in the study.	1.07	3.46	High
35. can answer well if a sudden test is conducted.	1.14	3.32	Moderate
36. can become one of the top students if I try.	1.24	3.65	High
37. cannot answer the questions that teachers ask me.	1.25	3.23	Moderate

38. Can score well in the short answer type questions.	1.06	3.74	High
39. cannot accomplish challenging tasks and problems in class.	1.26	3.31	Moderate
40. can answer twisted questions.	1.16	3.26	Moderate
Overall Mean	**1.19**	**3.35**	Moderate

Table 3 shows students' academic self-efficacy in learning science. The highest mean was 4.21, indicating high self-efficacy among respondents. The lowest mean was 2.64, indicating moderate self-efficacy but high variation. The overall mean was 3.35, indicating average self-efficacy. The standard deviation of 1.19 indicated high variability, indicating different responses on every item. The overall mean was 3.35, indicating moderate self-efficacy among respondents. The high variability in responses suggests that students have different perspectives on learning science. Previous studies show that secondary school students have moderate academic self-efficacy in learning science, which aligns with current research. South Korean secondary students perceive their self-efficacy in science as middle-level, with a standard of 3.16. Overall, students have a moderate level of self-efficacy in learning, especially in science subjects, according to Alcoverde et al. (2022).

Table 4: Significance of the Relationship Between Variables

Variables Correlated	r-values	p-values	Remarks
Metacognitive Strategies & Academic Self-Efficacy	.370	0.000	Significant
Achievement Emotions & Academic Self-Efficacy	-.301	0.000	Significant

Table 4 reveals a moderately positive correlation between metacognitive strategies and academic self-efficacy in learning science, with a r-value of 0.370. Conversely, a moderately negative correlation between achievement emotions and academic self-efficacy was observed. The findings suggest that as students use metacognitive strategies, their academic self-efficacy also increases, while achievement emotions decrease when they increase. This study supports previous research showing that metacognitive strategies positively correlate with students' academic self-efficacy in science. It also suggests that students who effectively use metacognitive strategies are more self-efficacious.

This finding is consistent with previous studies by Ngwira (2017), Safranj (2019), Cerezo et al. (2019), Roick and Ringeises (2017), and Sen and Yilmaz (2016). Thus, a higher frequency of metacognitive strategies is linked to higher academic self-efficacy. Moreover, Tian et al. (2023) and Liu et al. (2019) found that negative achievement emotions negatively impact students' academic self-efficacy in learning science. Elevated negative emotions can lead to poor classroom performance. However, de Lima et al. (2023) found that students who enjoy science learning and experience hope and pride are more self-efficacious.

Table 5: Influence of Metacognitive Strategies and Achievement Emotions on Academic Self-Efficacy

Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	p-value	Remarks
	B	Std. Error	Beta			
(Constant)	2.900	0.179	-	16.174	0.000	
Metacognitive Strategies	0.338	0.038	0.417	8.838	0.000	Significant
Achievement Emotions	-0.283	0.037	-0.356	-7.559	0.000	Significant

R = 0.511; R square = 0.261; F = 59.837; p = 0.000

Table 5 shows that metacognitive strategies significantly predict students' academic self-efficacy in learning science, while achievement emotions negatively predict it. Metacognitive strategies increase academic self-efficacy by 0.338 for every unit increase in strategies, while achievement emotions decrease it by 0.283 for every unit increase in emotions. These two variables account for 26.1% of the observed variation in students' academic self-efficacy in science learning, as indicated by the R square value of 0.261. The results highlight the importance of metacognitive strategies and achievement emotions in shaping students' academic self-efficacy in learning science.

The study by Cengiz-Istanbullo and Sakiz (2022) found that metacognitive strategies positively impact students' academic self-efficacy. The same results were found in Soltani and Askarizadeh (2021) and Ali and Karim (2019). Students who effectively adopt metacognitive strategies believe they can learn and complete their academic tasks. Students with higher academic self-efficacy take advantage of these strategies. On the other hand, Positive and negative emotions significantly

predict students' academic self-efficacy, especially in science. Studies by Acedo et al. (2021) and Yang et al. (2021) show that increased positive emotions lead to belief in learning specific content, while negative emotions are more common when students don't feel capable of learning. Therefore, positive emotions positively impact academic self-efficacy, while negative emotions negatively affect it.

Recommendations

Students should prioritize improving metacognitive strategy use and maintaining positive emotions in order to increase their self-efficacy when learning science. Teachers can also play an important role in creating a supportive environment, guiding the use of metacognitive strategies, and providing positive feedback. Parents should actively participate by offering additional emotional support and encouragement. Furthermore, school administrators are encouraged to support activities that foster metacognitive strategies and positive emotions. Deputies can help develop interventions that address negative emotions and underutilized strategies in science education. Future research should focus on identifying additional variables that influence academic self-efficacy in STEM education.

Conclusions

The study's conclusions can be summarized as follows: Firstly, the level of metacognitive strategies is high; therefore, metacognitive strategies are often observed among students. Secondly, the extent of achievement emotions is moderate; therefore, achievement emotions are slightly manifested. Thirdly, students have a moderate level of academic self-efficacy in science learning; thus, students possess an average level of academic self-efficacy. Furthermore, metacognitive strategies significantly correlated to students' academic self-efficacy in learning science. In contrast, achievement emotions negatively correlated significantly with students' academic self-efficacy in learning science. Lastly, metacognitive strategies and achievement emotions significantly predict students' academic self-efficacy in learning science.

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ACTIVE DETECTION OF COLORECTAL CANCER IN ANDIJAN REGION

Isaev Zukhriddin Normakhammatovich, Mamadaliev Makhammadiy Mamasodikovich
Akhmedov Muminjon Makhmudovich, Mamarasulova Dilfuzahon Zakirzhanovna
Republican Specialized Scientific and Practical Medical Center Oncology and Radiology Andijan branch, Andijan State Medical Institute, Andijon, Uzbekistan

SUMMARY

The article discusses the active identification of individuals *with risk factors for colorectal cancer in the Andijan region . Active detection of CRC in 2019 was 25.5%, which was associated with low detection of CRC at an early stage (6.04% - stage 1, 64.4% - stage 2, 18.8% - stage 3, 10.7% - Stage 4).*

KEY WORDS . *Colorectal cancer , detection, screening, prevention.*

RELEVANCE

Colorectal cancer (CRC) is the third leading cause of cancer mortality in the world. The incidence of CRC is increasing, especially in developing countries. The tumor is colorectal adenocarcinoma, which develops from glandular epithelial cells of the colon. In pathogenesis - a genetic or epigenetic mutation of a certain cell[1] . Abnormal activation of replication and inhibition of apoptosis leads to the formation of a benign adenoma, which subsequently evolves into carcinoma and metastasizes [2,5].

The primary function of the large intestine is the reabsorption of water, minerals and chyme nutrients. The lumen of the colon contains microflora that breaks down the remaining large molecules. To enhance reabsorption, the epithelium is organized along the axis of cristae and villi. Colon stem cells are located at the bottom of the cristae. The function of stem cells is self-renewal and regeneration of the intestinal epithelium [7,9]. As cells differentiate, they migrate from the bottom of the cristae toward the tip of the villus. Differentiated epithelial cells include various populations, including Paget cells, enteroendocrine cells, and enterocytes. After reaching the apex of the villi after 14 days, the cells enter a state of apoptosis and are eliminated with fecal masses [10]. This process is regulated by signaling proteins and growth and transformation factors [11].

CRC is a heterogeneous group of diseases pathogenetically caused by various variants of mutations, which explains the difficulty in developing molecular therapies [4] . Surgery remains the primary treatment option when the disease is diagnosed early, but its effectiveness is reduced in the case of long-standing, complicated, metastatic tumors, which account for up to 25% of all newly diagnosed cases [6,14] . In these patients, neoadjuvant cytotoxic therapy is a treatment option, but tumor recurrence and progressive drug resistance remain a problem [13,15] .

An accurate understanding of the mechanisms of development of colorectal cancer, external and genetic risk factors, and molecular evolution will make it possible to develop variants of patient management tactics in order to prevent the risk of development and progression of pathology.

PURPOSE OF THE STUDY

And a study of the active detection of colorectal cancer in the Andijan region .

MATERIALS AND METHODS OF RESEARCH

We conducted a retrospective study , during which we analyzed epidemiological data on the characteristics of the incidence of colorectal cancer in the Andijan region of Uzbekistan based on the archives of the Republican Specialized Scientific and Practical Medical Center of Oncology and Radiology for 2016-2019; and prospective, during which the results of our own colonoscopic screening were analyzed and an algorithm for population-based CRC screening was developed. And we analyzed data from the archives of the Republican Specialized Scientific and Practical Medical Center of Oncology and Radiology for 2016-19. The annual statistics of morbidity, primary morbidity, active detection, detection depending on the stage of the tumor, mortality and survival associated with CRC were studied.

RESULTS

A study of the active detection of colorectal cancer (that is, detection during preventive examinations) showed that only 38 patients (25.50%) were identified during medical examinations. At the same time, in rural areas, active detection was 28.57% (32 out of 112 cases), in the city - 16.22% (6 out of 37, chi square = 2.44, n.d.), that is, the availability of preventive medicine is comparable in the city and rural areas . Among women, 21.88% of patients were actively identified (14 out of 64 people), among men - 28.24% (24 out of 85, chi square = 0.84, n.d.).

Active detection of rectal cancer was observed in 29.41% of cases, recto-sigmoid junction - 23.53%, colon - 19.57% (Fig.

1). The patient with anal cancer was also not identified during a medical examination. Thus, the probability of active detection of colorectal cancer in the population of the Andijan region in 2019 did not depend on the location of the tumor (chi square = 1.91, n.d.).

Fig. 1. Active detection of colorectal cancer of various localizations in the Andijan region according to 2019 data (chi square = 1.91, n.d.)
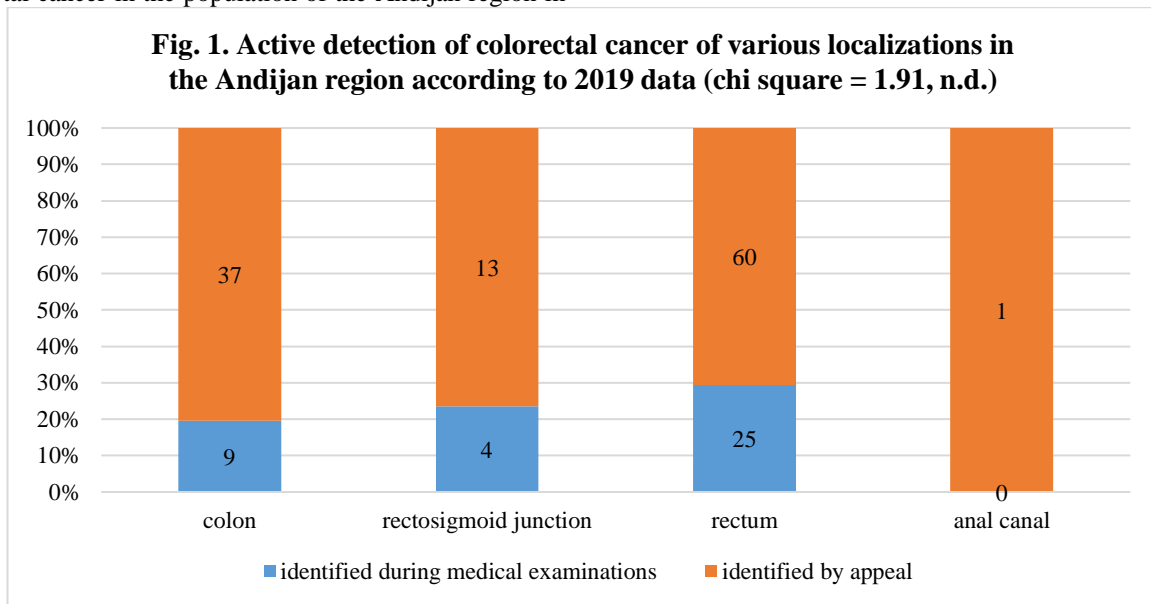
A comparison of the active detection rate over time from 2016 to 2019 (Figure 1) showed that in 2019, during preventive examinations, a significantly larger proportion of patients with colorectal cancer were identified compared to 2017 and 2016 (25.50% versus 3.57% and 2.68%, respectively, chi square = 42.28, $p < 0.001$), which indicates significant progress in the aspect of early detection of colorectal cancer and preventive health care.

Fig. 2 the proportion of patients with colorectal cancer actively detected among all newly diagnosed patients in 2016-2019 in the Andijan region
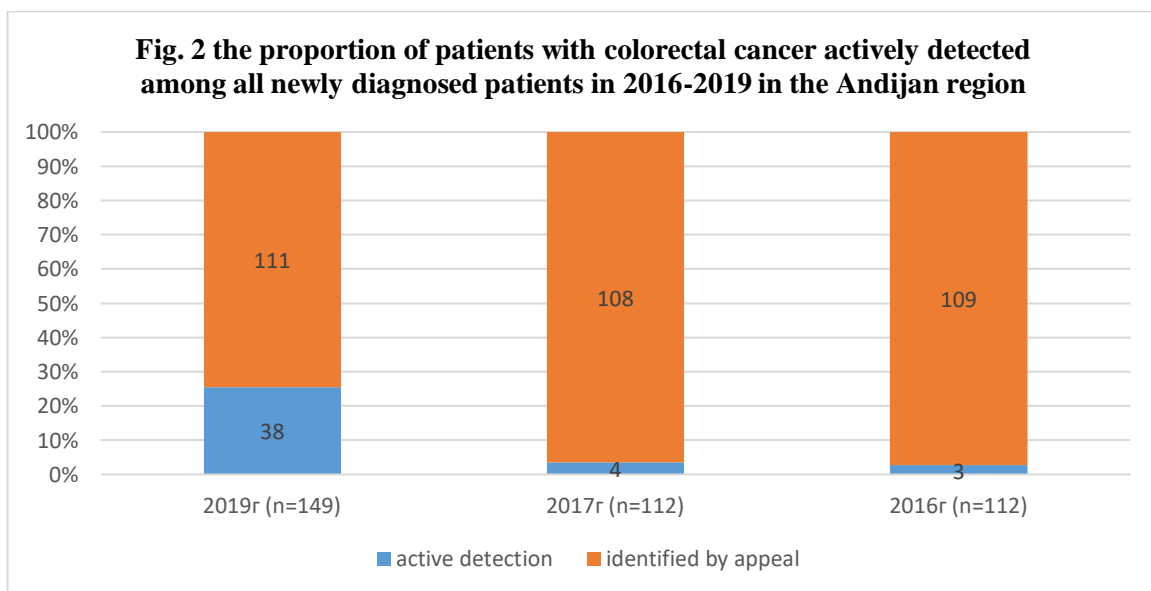
Also in terms of diagnosis: by 2019, the diagnosis of colorectal cancer was confirmed morphologically in 100% (Fig. 2), while in 2016 and 2017 this figure was significantly lower (92.79% and 92.86%, respectively, chi square = 11.17, $p < 0.01$).

Fig. 3 Proportion of morphologically confirmed diagnoses in patients with colorectal cancer first registered in 2016-2019 (chi square=11.17, p<0.01)
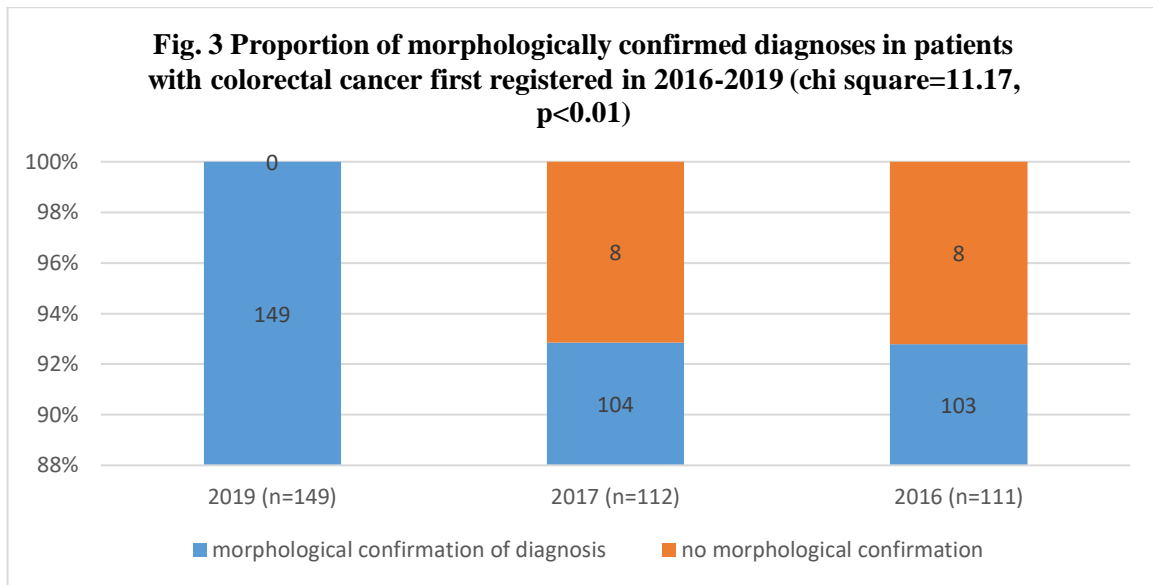
Among patients with colorectal cancer newly diagnosed in 2019, the disease was most often detected in the 2nd stage (64.4%), less often in the 3rd and 4th stages (18.8% and 10.7%, respectively), the most It was rarely possible to detect the disease in the first stage, when minimally invasive therapeutic intervention is possible. Thus, the analysis shows the insufficient effectiveness of preventive CRC screening.

The frequency ratio of the stages at which CRC was detected was comparable for all tumor locations (Fig. 4).

Fig. 4 Frequency of distribution of CRC cases by stage and localization at the time of primary diagnosis among patients identified in 2019 in the Andijan region (n= 3.85, n.d.)
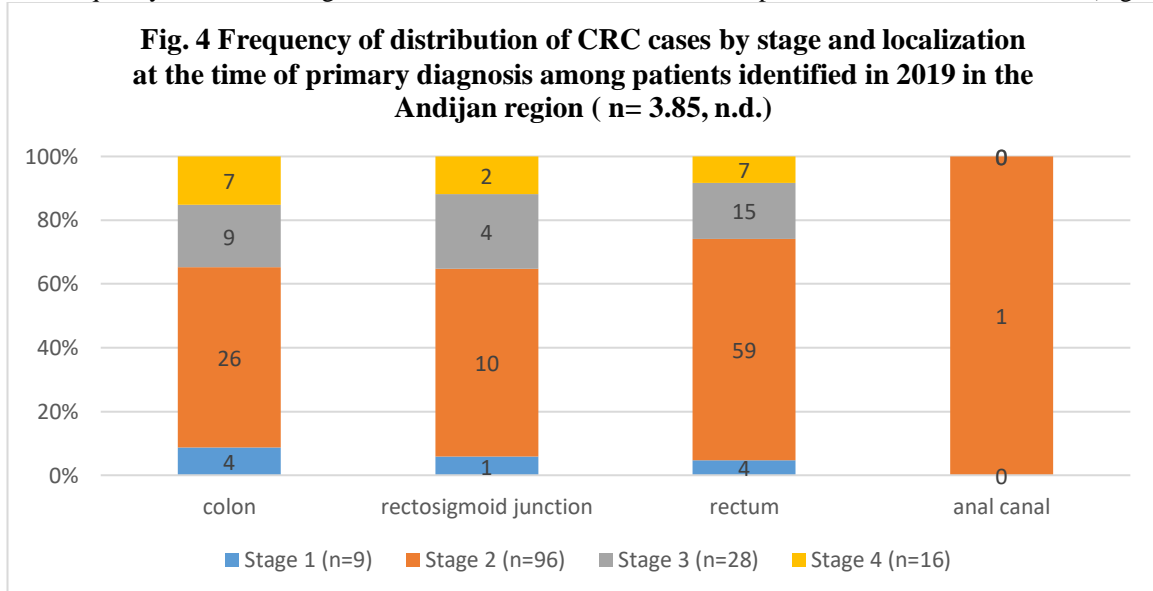
In the dynamics of observation since 2016, there was an improvement in the efficiency of the preventive diagnostics service for CRC (Fig. 5): the proportion of patients detected at the first stage of CRC increased from 0.9% to 6%, and the proportion of patients detected at the 3rd and 4th stages – decreased from 39.6% to 29.5% (reliability of frequency difference between all observation points = 16.02, $p < 0.05$).

Fig. 5 Dynamics of the ratio of CRC stages during primary diagnosis in the Andijan region of the Republic of Uzbekistan for 2016-2019 (chi square = 16.02, $p < 0.05$)
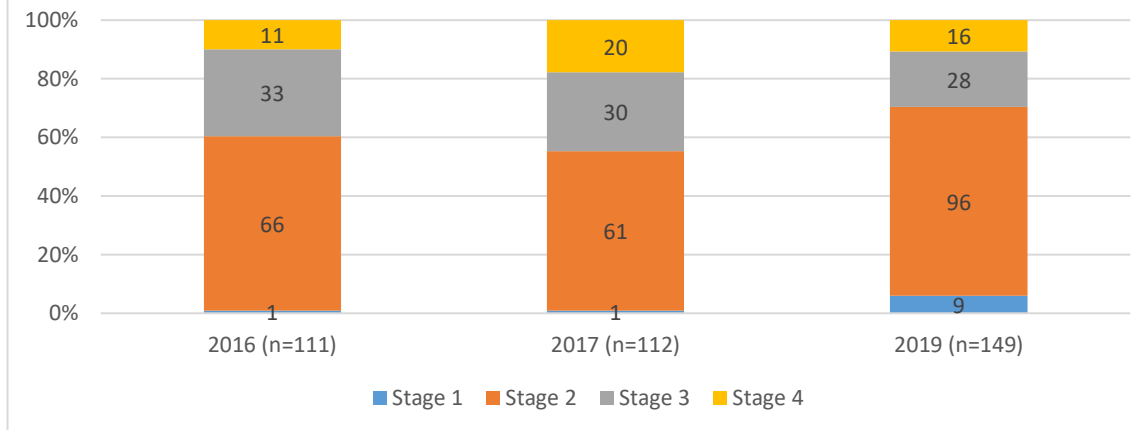
CONCLUSIONS

Active detection of CRC in 2019 was 25.5%, which was associated with low detection of CRC at an early stage (6.04% - stage 1, 64.4% - stage 2, 18.8% - stage 3, 10.7% - Stage 4).

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PROCESSES OF TEACHING COMPOSITION TO STUDENTS IN FINE ARTS CLASSES

B.M. Kurbanova

Doctor of Pedagogical Sciences (PhD),Fergana State University,Uzbekistan, Fergana

ANNOTATION

 The subject of the article mainly concerns the processes of teaching composition to students in fine arts classes, the aesthetic qualities of the artistic image, the rules and methods of composition, the creative processes of composition, aesthetic and artistic taste.
KEY WORDS: *composition, aesthetic taste, creative process, talent, abilities, integrity, contrast.*

ПРОЦЕССЫ ОБУЧЕНИЯ УЧАЩИХСЯ КОМПОЗИЦИИ НА ЗАНЯТИЯХ ИЗОБРАЗИТЕЛЬНЫМ ИССКУСТВОМ

Б.М.Курбанова, д.п.н.ф(PhD),
Ферганский государственный университет,Узбекистан, г.Фергана

Аннотация

 Тема статьи в основном касается процессов обучения студентов композиции на занятиях изобразительным искусством, эстетических качеств художественного образа, правил и методов композиции, эстетического и художественного вкуса.
Ключевые слова: композиция, эстетический вкус, творческий процесс, талант, способности, целостность, контраст.

Композиция — латинское слово, означающее «творить», и оно означает основную логику области творчества. На практике есть необходим элементы композиции. Закон целостности, сравнения, контраста, содержания средств закона и подчинения идее — главные законы композиции. Признаки этого закона полно и глубоко анализируются в книге Э. Кибрика.

Благодаря соблюдению закона знака целостности в композиции произведение искусства предстает как неделимое целое.

В единстве композиции элементы композиции представлены формой, объемом, «пятном», промежуточным копированием персонажа, жестом.

Эстетические качества художественного образа, новизны в композиционном решении открываются художником.

Эстетические открытия мы можем видеть в бессмертных произведениях Микеланджело, Тициана, Рембрана, в творчестве А. Дейнеки, А. Пластова, К. Юона, концепцию новизны в сюжете от художественных средств художественных средств построения композиции. Поток новостей«Новизны» мы видим в пейзаже А. Куинджи «Буки».

Одним из основных законов композиции является закон контраста. В научном труде «Законы живописи» Леонардо да Винчи пишет о контрасте размеров большого — маленького, низкого— высокого, тонкого— толстого, контрасте характера, фактуры, материалов.
 Микеланджело придаетбольшое значение контрастам объема на плоскости. Человек воспринимает форму предметов только через контраст света и тени и усваивает ее своим сознанием. В жанре портретной живописи художники издавна использовали «тональный контраст» и использовали темный фон для для изображения светлой фигуры.
В XIX веке мастера искусства стали изображать портреты на светлом фоне. Примером этого может служить композиция портрета Б. Серова «Девочка и персики», девушка с темным лицом и светлым фоном окна.

В живописе присутствуют контрастные теплые и холодные цвета, при расположении противоположных

цветов сила цветовувеличивается: среди них красно-зеленый,сине-золотой, бело-черный и фиолетовый.

Правила и приемы композиции. Когда мы анализируем произведения искусства, правила и приемы композиции постепенно теряют свою суть и начинают появляться новые правила композиции.

Художники естественны, когда дело доходит до создания произведений искусства и сознательно следоватьзаконам композиции. Каждое общество ставитперед искусством новые современные задачи.

В настоящее время мы разделяем теоретические основы композиции на две группы.
1. Законы композиции.
2. Правила и приемы композиции.

Одним из основных приемов композиции является выражение ритма, определение центра предмета композиции, его симметричного или асимметричного положения, размещение основного приема массы на второстепенном плане.

Наличие ритма в жизни и искусстве – хороший знак и инструмент художника. Он возвращает элемент в интервале.

Ритм играет роль эстетического воображения в понимании идеи произведения и структуры композиции, а контраст опирается на законы цвета и тона.

Творческие процессы композиции.
Использование законов и правил композиции изобразительного искусства сформировалось еще с первобытных времен. Те, кто внимательноотносится к природе, наблюдает за строением листьев, ветвей и цветов, понимает ритм и симметрию природы, осознавая повторение времен года, разницу между днем и ночью. Например, ритм отчетливо заметен в рельефах древних греков.

Работа над «композицией» и всеми этапами подготовки–творческий процесс.
Творчество – это высокий и сложный уровень человеческого сознания. Человек – это чудо, рожденное в результате его знаний, умений и жизненного опыта. В изобразительном искусстве результатом творчества является создание произведения искусства.

Интересные представления о сущности художественного творчества и о разделении творческой деятельности на структурные факторы даны в исследовании «Творческая природа искусства», проведенном Л. Г. Ермашем. Силатворчества реализуется с помощью «Духовных практических способностей» — это труд,вдохновение, память, мышление, художественный талант, воображение, темперамент и т.д. Мышление — одна из сил творчества,направляющая восприятие, интуицию и

эмоции в мышлении и анализе существования с целью создания художественного произведения.

Произведение искусства – это продукт мышления, как и в других областях человеческой деятельности. Произведение искусства включает в себя не только изобразительные средства, но иидейно-эстетическое содержание, мировозрение, филосовское понимание.

Мышление художника отличается творческим характером, оно движется вместе с творческим воображением.
Это высшее состояние ума в трудовом процессе человека. Вдохновение играет важную роль в творчестве художника как одна из активных творческих сил. Вдохновение – творческая ситуация для художника с творческой, духовной, физической точки зрения разрешится очень быстро. При этом будет активно работать творческое воображение и мышление художника.

Включаются знания, мировоззрение, художественный стиль, эстетический и художественный вкус, умения. Знания считаются основной основной составляющей творчества, и благодаря их приобретению развиваются интуиция, эстетическое чувство, восприятие, мышление, память, мировоззрение, мастерство, творческий стиль, мастерство. Для художника знания — это важнейший материал, глубокое всестороннее изучение жизни, без которого невозможно создание произведения искусства. Художник должен быть образованным, умным человеком, хорошо знающим жизнь во всех ее аспектах. Кроме того, свои знания он должен отразить в художественном образе в обобщенной форме через свои чувства. Все это входит в состав творчества.
Эстетически-художественный вкус является одновременно мировоззрением и художественным стилем и показывает определенную идейно- эстетическую творческую направленность художника. Эстетический и художественный вкус не дается человеку при рождении, так же, как и способности, он развивается по мере взросления человека.

Мастерство – это художественные способности, психические особенности и качества человека, проявляющиеся в необходимых условиях

изобразительного искусства. Навык – это идеальное приобретение знаний высокого уровня, визуальных техник, навыков и компетенций.

Следующие инструменты используются в качестве инструментов композиции. Инструментами композиции являются линия, штрих, цвет и цветовое пятно (мазок), тень – свет, цвет, линейная, воздушная и цветовая перспектива. Линию можно назвать одним из главных инструментов изобразительного искусства. Используется в долгосрочных, кратковременных композиционных зарисовках. Художник может выразить форму предмета на поверхности бумаги посредством более светлых и темных линий. На самом деле композиция сначала

делается карандашом. На следующем этапе через толщину тактовых линий формируются теневые и светлые участки предметов, выражаются глубина и расстояние.

Цвет и тон играют важную роль в создании композиции. В работе важна роль пластического объёма, линейной, воздушной, цветовой перспективы. Выше мы отметили основные инструменты композиции.

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GROUNDWATER DEPLETION IN AGRICULTURAL REGIONS: CAUSES, CONSEQUENCES, AND SUSTAINABLE MANAGEMENT: A CASE STUDY OF BASALTIC TERRAIN OF SOLAPUR DISTRICT

Mustaq Shaikh[1], Farjana Birajdar[2]

[1]*Assistant Geologist, Groundwater Surveys and Development Agency, Solapur, GoM, Solapur, India*
[2]*Assistant Professor, School of Earth Sciences, Punyashlok Ahilyadevi Holkar Solapur University, Solapur, India*

ABSTRACT

This research paper investigates the intricate dynamics of groundwater depletion in the agricultural region of Solapur, characterized by a basaltic terrain. The study unveils the multifaceted causes, consequences, and sustainable management strategies tailored to the unique geological and socio-economic conditions of Solapur. Over-extraction for irrigation, geological factors related to the low permeability of basaltic rocks, and specific agricultural practices have collectively contributed to a discernible decline in water table levels. The agricultural impacts are profound, with reduced crop yields and economic strains on farmers. Socioeconomic consequences extend to local communities, necessitating a holistic approach to address the challenges. The research proposes sustainable management strategies, including water conservation practices, localized policy interventions, community engagement, and technological innovations, designed to mitigate the adverse effects of groundwater depletion. These strategies, tailored to Solapur's conditions, showcase a pathway towards long-term resilience and sustainability. The case study of Solapur holds broader significance, serving as a microcosm for understanding and addressing groundwater depletion in agricultural regions globally. The complex interplay between geological, climatic, and anthropogenic factors underscores the importance of context-specific solutions and collaborative efforts to ensure the sustainable use of groundwater resources. The findings contribute valuable insights for policymakers, researchers, and communities striving to achieve water security and resilience in agricultural regions worldwide.

KEYWORDS: *Agricultural Regions, Basaltic Terrain, Groundwater Depletion, Solapur Case Study, Sustainable Management.*

INTRODUCTION

Groundwater is a vital resource that plays a pivotal role in sustaining agriculture, particularly in regions with water-scarce environments. As global populations burgeon, the demand for food production escalates, and the reliance on groundwater becomes increasingly crucial for agricultural sustainability [1]. Among the myriad of regions grappling with the delicate balance of water resources, the basaltic terrain of Solapur stands out as a compelling case study. The basaltic terrain of Solapur, located in [provide location details], is characterized by its unique geological composition. Basalt, a type of volcanic rock, defines the landscape and has a profound influence on the hydrogeological dynamics of the region. Understanding the interaction between agricultural practices and the groundwater system in this distinct terrain is imperative for developing effective water management strategies. Solapur, known for its predominantly agrarian economy, heavily depends on groundwater for irrigation to meet the water requirements of its

agricultural activities [2]. The region faces the dual challenge of sustaining a growing population's agricultural needs while grappling with the inherent limitations posed by its geological features [3]. The intricate relationship between the basaltic terrain and groundwater availability makes Solapur a pertinent case study to unravel the causes, consequences, and potential solutions related to groundwater depletion in agricultural settings [4]. This research endeavors to delve into the complexities of groundwater depletion in Solapur, aiming to uncover the underlying factors contributing to this phenomenon. By doing so, we seek not only to enhance our understanding of the specific challenges faced by the region but also to draw broader insights applicable to agricultural areas grappling with similar geological constraints. Through a comprehensive analysis, this paper aims to contribute valuable knowledge to the ongoing discourse on sustainable groundwater management in agricultural regions, with Solapur serving as a microcosm of the intricate interplay between geology, agriculture, and water resources [5].

The literature on groundwater depletion in agricultural regions, with an emphasis on basaltic terrains, provides valuable insights into the complex interplay between geological characteristics, human activities, and water resource sustainability. Existing studies reveal a growing concern about the overexploitation of groundwater in regions with basaltic geological formations, shedding light on the causes, consequences, and potential management strategies [6].

Numerous studies have explored the causes of groundwater depletion in basaltic terrains, identifying common factors that contribute to this phenomenon. Over-extraction for irrigation purposes emerges as a predominant factor, with farmers heavily relying on groundwater to meet the water demands of their crops. The geological properties of basaltic rocks, such as low porosity and limited water storage capacity, exacerbate the vulnerability of these regions to groundwater depletion [7]. Consequences of groundwater depletion in basaltic terrains are multifaceted and extend beyond agricultural impacts. Studies indicate a significant lowering of water tables, resulting in increased pumping costs for farmers. Furthermore, the depletion has ecological ramifications, affecting local flora and fauna dependent on groundwater sources. Socioeconomic consequences, including the potential displacement of communities and loss of livelihoods, are also explored in the literature [8].

While existing literature provides valuable insights, several gaps in understanding persist. Limited attention has been given to the specific challenges posed by basaltic terrains, such as the role of geological heterogeneity in influencing groundwater recharge rates [9]. Additionally, the interaction between climate change and groundwater depletion in these regions remains an underexplored area. The comprehensive understanding of groundwater dynamics is still incomplete, as the influence of agricultural practices, technology adoption, and local policies remains not fully elucidated. Additionally, the exploration of artificial intelligence in this context has not been thoroughly investigated to date [19]. The available literature also lacks a comprehensive synthesis of case studies in basaltic terrains, with a focus on diverse regions facing similar challenges [10]. This gap hampers the development of region-specific and contextually relevant management strategies. As this research unfolds, addressing these gaps in the literature will be imperative to advance our understanding of groundwater depletion in basaltic terrains and refine strategies for sustainable management in agricultural regions facing analogous geological constraints.

STUDY AREA - SOLAPUR
Situated in the southwestern part of Maharashtra, India, Solapur encompasses a diverse landscape characterized by the basaltic terrain. The region's geological composition predominantly consists of basaltic rock formations, a consequence of ancient volcanic activity. This geological setting plays a pivotal role in shaping the hydrogeological dynamics of Solapur. The low permeability of basaltic rocks significantly influences water percolation and recharge, impacting the availability of groundwater resources [11].

Solapur's topography is generally flat, interspersed with undulating terrain. The region experiences a semi-arid climate, marked by hot temperatures and erratic rainfall patterns. The combination of geological and climatic factors poses inherent challenges to water retention and sustainable agriculture, necessitating a heavy reliance on groundwater resources. Agriculture forms the backbone of Solapur's economy, with the majority of the population engaged in farming activities. The agricultural landscape is characterized by the cultivation of cash crops, cereals, pulses, and oilseeds. Given the semi-arid climate and limited surface water availability, farmers in Solapur heavily depend on groundwater for irrigation to ensure consistent crop yields throughout the year [22].

Groundwater serves as the primary source of irrigation, with bore wells dotting the landscape. The prevalence of traditional and modern irrigation methods underscores the critical role of groundwater in sustaining agricultural productivity. However, this heavy reliance on groundwater raises concerns about depletion, necessitating a comprehensive understanding of the groundwater status in Solapur. Several studies have been conducted to assess the groundwater status in Solapur, shedding light on the trends and challenges faced by the region. These studies have employed hydrogeological assessments, remote sensing, and modeling techniques to quantify groundwater levels, recharge rates, and the overall health of the aquifer system [13].

Previous data indicates a noticeable decline in groundwater levels in certain areas of Solapur, attributed primarily to excessive pumping for irrigation. Studies have also highlighted the need for sustainable groundwater management practices to mitigate the impact of depletion on agriculture and the environment [2]. While these studies provide valuable insights, ongoing research and continuous monitoring are essential to comprehensively understand the dynamic nature of Solapur's groundwater resources. This paper seeks to contribute to this understanding by synthesizing existing knowledge, conducting on-the-ground assessments, and proposing sustainable management strategies tailored to Solapur's unique geographical and geological context.

CAUSES OF GROUNDWATER DEPLETION IN SOLAPUR
1. Over-extraction for Irrigation
One of the primary causes of groundwater depletion in Solapur is the excessive pumping for agricultural irrigation. The region heavily relies on groundwater to meet the water demands of crops due to limited surface water availability. Farmers, utilizing bore wells, extract groundwater at rates that surpass the natural recharge capacity of the aquifer. The continual over-extraction of water has a cumulative impact, resulting in a decline of the water table and reducing the accessible groundwater for sustainable agricultural use. It is crucial to note that water quality, in addition to quantity, plays a significant role in this context. Therefore,

analyzing water quality is imperative for fostering agricultural growth [18].

2. Geological Factors
The basaltic terrain of Solapur significantly influences groundwater dynamics, impacting both recharge and depletion. The low porosity and permeability of basaltic rocks restrict the infiltration of rainfall, reducing natural groundwater recharge rates. Additionally, the geological heterogeneity of basaltic formations contributes to variations in aquifer properties across the region. Understanding these geological factors is crucial for assessing the vulnerability of specific areas within Solapur to groundwater depletion. Variations in rock characteristics, fractures, and faults play a significant role in determining the overall health of the aquifer system and its susceptibility to depletion [23].

3. Agricultural Practices
The choice of agricultural practices in Solapur plays a critical role in exacerbating groundwater depletion. Traditional farming methods, such as flood irrigation, can lead to inefficient water use, promoting excessive water percolation and reducing overall water-use efficiency. Moreover, the cultivation of water-intensive crops without implementing water-saving techniques can further strain the groundwater resources. The adoption of modern irrigation technologies, like drip or sprinkler systems, is limited in certain areas, contributing to an unsustainable reliance on groundwater. Crop patterns and the selection of crops that are not well-suited to the region's water availability exacerbate the strain on groundwater resources. A lack of awareness or incentives for sustainable agricultural practices may perpetuate these trends [14]. Exploring the impact of specific farming techniques and promoting water-efficient practices is essential for developing targeted strategies to mitigate the adverse effects of agricultural activities on Solapur's groundwater levels.

4. Climate Change and Groundwater Recharge
Climate change poses a significant threat to groundwater recharge rates in Solapur. Alterations in precipitation patterns, increased temperatures, and changing weather conditions directly impact the hydrological cycle, influencing the amount and distribution of rainfall. Changes in precipitation intensity and frequency can affect the timing and magnitude of groundwater recharge, potentially leading to decreased replenishment of aquifers in the region. Rising temperatures may intensify evaporation rates, particularly in a semi-arid climate like Solapur, further reducing available water for recharge. Additionally, shifts in vegetation patterns and increased evapotranspiration due to climate change may impact the overall balance between rainfall and groundwater replenishment. Understanding these climate-induced changes is crucial for assessing the long-term sustainability of groundwater resources in Solapur and implementing adaptive strategies to mitigate potential impacts [24].

5. Land Use Changes and Groundwater Levels
Land use changes, driven by urbanization, industrialization, and shifts in agricultural practices, contribute significantly to alterations in groundwater levels in Solapur. The conversion of natural landscapes into impervious surfaces, such as roads and buildings, reduces the infiltration of rainwater into the ground, limiting groundwater recharge. Urban expansion and changes in land cover can result in increased surface runoff, reducing the amount of water available for groundwater replenishment. Agricultural land use changes, such as the conversion of traditional crops to water-intensive cash crops or changes in irrigation practices, also influence the demand for groundwater. Understanding the spatial and temporal patterns of land use changes is essential for predicting their impact on groundwater levels and implementing land-use planning strategies [25]. This involves prioritizing sustainable water management, as demonstrated in Solapur through continuous groundwater monitoring with piezometers and automatic water level recorders, thus advancing effective and informed water resource management practices [21] .

6. Technological Factors and Groundwater Depletion
Advancements in agricultural technologies play a dual role in groundwater dynamics in Solapur. While modern technologies can enhance water-use efficiency, some practices may contribute to groundwater depletion. The increased use of mechanized pumps for irrigation, without adequate regulation, can lead to over-extraction and a decline in groundwater levels. Moreover, the adoption of certain crop varieties that require more water or the use of irrigation methods that are not water-efficient may exacerbate groundwater depletion. Understanding the nuanced relationship between technological advancements and groundwater sustainability is essential for formulating policies and incentives that promote the responsible use of agricultural technologies to ensure the long-term health of Solapur's aquifers [26].

By exploring these six factors, this research aims to uncover additional dimensions of the groundwater depletion issue in Solapur. Identifying the interconnected impacts of these factors is crucial for developing holistic and adaptive management strategies that address the dynamic challenges posed by a changing climate, evolving land use patterns, and advancing agricultural technologies.

CONSEQUENCES OF GROUNDWATER DEPLETION IN SOLAPUR
1. Lowering of Water Tables
The sustained over-extraction of groundwater in Solapur has led to observable changes in water table levels across the region. The continual withdrawal of water for agricultural and other uses exceeds the natural recharge rates, causing the water tables to decline. Shallow wells and hand pumps, once reliable sources of water, may now require deeper drilling to access diminishing groundwater reserves. The lowering of water tables not only

increases the cost of extraction but also poses challenges for domestic water supply, affecting both rural and urban communities [27].

2. Agricultural Impacts
Groundwater depletion in Solapur has far-reaching consequences for agricultural productivity. As the water table drops, farmers are compelled to drill deeper wells, incurring higher extraction costs. The reduced availability of groundwater for irrigation can result in decreased crop yields and adversely impact the cultivation of water-sensitive crops. Prolonged or recurrent periods of water scarcity may force farmers to alter cropping patterns or resort to less water-intensive, but possibly less profitable, crops [12]. This shift can have cascading effects on the local economy and food security, making it imperative to explore sustainable agricultural practices that optimize water use.

3. Socioeconomic Consequences
The consequences of groundwater depletion extend beyond the agricultural sector, influencing the socioeconomic fabric of Solapur. Local communities that rely on agriculture for their livelihoods face uncertainties due to fluctuating water availability. The economic viability of farming is compromised, leading to potential income losses for farmers and related businesses. Additionally, the increased drilling depth for wells may disproportionately affect small and marginalized farmers who may lack the resources for deeper well installations [28].

The overall socioeconomic impact is multifaceted, affecting not only farmers but also local businesses and service providers dependent on the agricultural sector. Migration patterns may be influenced as individuals seek alternative livelihoods, potentially resulting in shifts in population distribution within the region. The strain on water resources can also lead to conflicts over water access and allocation, emphasizing the need for community-driven and equitable water management practices. In analyzing the consequences of groundwater depletion in Solapur, a comprehensive understanding of the interconnected environmental, agricultural, and socioeconomic impacts is essential. This knowledge serves as the foundation for developing strategies that mitigate the adverse effects, promote sustainable water use, and enhance the resilience of local communities in the face of ongoing groundwater challenges.

Sustainable Management Strategies for Groundwater in Solapur
1. Water Conservation Practices
Implementing water conservation practices tailored to Solapur's unique conditions is essential for sustainable groundwater management. These practices should focus on optimizing water use in agriculture, the primary consumer of groundwater in the region. Promoting efficient irrigation methods such as drip and sprinkler systems can significantly reduce water wastage. Additionally, adopting soil moisture management techniques, rainwater harvesting, and implementing agroforestry practices,

along with the identification of suitable sites for plant growth using multicriteria technique and physico-chemical properties of soils, can collectively enhance groundwater recharge [21]. Public awareness campaigns, farmer training programs, and exhibitions focused on enhancing groundwater awareness can collectively play a crucial role in encouraging the widespread adoption of water conservation practices [20].

2. Localized Policy Interventions
Effective policies are indispensable for sustainable groundwater management in Solapur. Localized policies should be formulated, taking into account the specific geological, climatic, and socio-economic factors of the region. Regulatory measures to control groundwater extraction, set limits on well depths, and monitor water usage can be instrumental. Incentives for farmers adopting water-efficient technologies and crop patterns aligned with the region's water availability can provide positive reinforcement. Collaborative governance involving local authorities, agricultural experts, and community representatives is vital for developing and enforcing policies that balance water needs with the long-term health of aquifers [29].

3. Community Engagement
The active involvement of local communities is crucial for the success of sustainable groundwater management initiatives. Community engagement can take various forms, including participatory decision-making, awareness campaigns, and the establishment of local water user associations. Empowering communities with the knowledge and skills to monitor and manage their water resources fosters a sense of ownership and responsibility. Collaborative efforts between governmental bodies, non-governmental organizations, and local communities can create a holistic approach to address groundwater challenges. Community-based initiatives can also include the promotion of traditional water conservation practices that have proven effective in the region [14].

4. Technological Solutions
Innovative technologies tailored to Solapur's basaltic terrain can significantly contribute to sustainable groundwater use. Remote sensing and Geographic Information System (GIS) technologies can aid in mapping aquifer characteristics, identifying recharge zones, and monitoring changes in land use [15] [16] [17]. Implementing sensor-based irrigation systems and smart water management technologies can optimize water use in agriculture. Research and development of cost-effective desalination technologies or alternative water sources may also be explored. Technological solutions should be adapted to local needs, economically viable, and environmentally sustainable.
By integrating these strategies, Solapur can work towards a more sustainable and resilient groundwater management framework. Recognizing the interconnectedness of water, agriculture, policy, and community dynamics is pivotal for developing and implementing effective solutions that ensure the long-term availability of groundwater resources in the region.

CONCLUSION

In conclusion, the comprehensive examination of groundwater depletion in Solapur, situated in a basaltic terrain, has revealed critical findings with profound implications for sustainable water resource management. The multi-faceted causes of over-extraction, geological factors, and agricultural practices have led to observable consequences, including the lowering of water tables, adverse impacts on agriculture, and socio-economic repercussions. However, the study also unveils a range of sustainable management strategies tailored to Solapur's specific conditions. The interplay between over-extraction for irrigation and the unique geological characteristics of Solapur's basaltic terrain has resulted in a noticeable decline in water table levels. The vulnerability of aquifers to sustained pumping exacerbates the challenges posed by the low permeability of basaltic rocks. Groundwater depletion has direct ramifications for agriculture in Solapur, affecting crop yields and posing threats to the viability of farming practices. The shift towards sustainable agricultural practices and efficient water use emerges as a critical necessity. The consequences of groundwater depletion extend beyond agriculture, influencing local communities, livelihoods, and the overall economy. Socioeconomic impacts include economic losses for farmers, potential shifts in population distribution, and the need for equitable water management. Tailored solutions, including water conservation practices, localized policy interventions, community engagement, and technological innovations, offer pathways towards sustainable groundwater management. These strategies address the specific challenges posed by Solapur's basaltic terrain and contribute to long-term resilience.

The case study of Solapur serves as a microcosm with broader significance for understanding and addressing groundwater depletion in agricultural regions globally. The complex interactions between geological features, climatic conditions, agricultural practices, and socio-economic factors observed in Solapur are representative of challenges faced by many regions reliant on groundwater for agriculture. The lessons learned from Solapur can inform sustainable water management practices in other basaltic terrains and regions with similar constraints. Moreover, the case study emphasizes the importance of context-specific strategies, recognizing that a one-size-fits-all approach may not be effective. The interconnectedness of local communities, technological advancements, and policy frameworks requires holistic and adaptive solutions. By incorporating sustainable practices and engaging communities in the decision-making process, Solapur exemplifies a proactive approach to address groundwater depletion, offering valuable insights for global efforts aimed at achieving water security and resilience in agricultural regions. In essence, the Solapur case study underscores the need for an integrated and participatory approach to groundwater management, acknowledging the delicate balance between human activities and the natural environment. It is a call to action for policymakers, researchers, and communities worldwide to collaborate in developing and implementing sustainable solutions that safeguard vital groundwater resources for current and future generations.

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EXPLORING THE INTEGRATION OF GENDER AND DEVELOPMENT CONTENT AND PEDAGOGY IN LANGUAGE TEACHING THROUGH THE LENS OF ENGLISH TEACHERS: A PHENOMENOLOGY

Rosalinda P. Palma, Ryan A. Jancinal

ABSTRACT

The purpose of this phenomenological study was to explore into the experiences of teachers on the integration of gender and development content and pedagogy in language teaching. This study was participated by the 13 teachers who were involved in the integration of gender and development in language teaching from the Schools of the Division of Davao de Oro. From the results, it showed that teachers have different lived experiences, coping strategies, and insights on the integration of gender and development content and pedagogy in language teaching. As such, the following themes emerged: using androgynous styles in forming groups; fostering gender-inclusive education; promoting equality and self-discovery through GAD Integration; issues of educating students on gender and development; and problems on gender inclusivity during group activities; utilizing and practicing gender-fair language; integrating GAD activities to teaching; being flexible and adaptive; promoting inclusivity and equality through GAD integration in education; recommending the continuation of GAD integration; and provision of GAD related training and seminar.
KEYWORDS: *integration of gender and development, language teaching, inclusivity, phenomenology, Davao de Oro*

INTRODUCTION

The Department of Education (DepEd) issued a Gender-Responsive Basic Education (GRBE) Program that enhances and promotes K to 12 curricula that integrate gender and development in all core subjects including English together with its Gender and Development directive from the Philippine Constitution to eradicate all types of discernment touching women and justices of children and others (DepEd Order No. 32, s. 2017). However, the integration of gender and development specifically in language teaching remains to be a challenge among English teachers.

In India, a study on English language teaching on gender language education found that English language educators tried to include even the most minute ideas of gender-fair language and gender-fair teaching strategies (KM Baharul Islam, 2018). Moreover, another study in Indonesia by Abdul Hamid (2001), as cited by Kamarudin et. al (2016) on linguistic sexism, discovered that language teachers were having difficulty in integrating gender and development in a language classroom because they scarce exposure to the educational curriculum on the teaching process based on gender-based strategies. Meanwhile, in the Philippines, a study conducted by Castro and Dela Rosa (2021) found that in the Division of Bataan and City Division of Bataan, the integration of gender and development in teaching strategies specifically in English remains a challenge among the teachers

which resulted from no proper training and support from a gender specialist.

Purpose of the study

The aim of this phenomenological inquiry was to explore and understand the lived experiences of secondary language educators in Mawab District, Division of Davao de Oro on the integration of gender and development on content and pedagogy in English teaching.

Research Questions

1. What are the lived experiences of the language teachers in integrating gender and development content and pedagogy in English teaching?
2. How do English teachers cope with the challenges of integrating gender and development content and pedagogy in English teaching?
3. What are the insights of English teachers on integrating gender and development content and pedagogy in English teaching?

Theoretical Lens

This study was gleaned through the lens of Gender Schema Theory by Sandra Bem (1981), Social Learning Theory by Albert Bandura (1960), and the DepEd Order No. 32., s.2017 also known as the Gender-Responsive Basic Education Policy.

Gender Schema Theory (Bem, 1981) focuses on how individuals utilize the information provided by their culture regarding masculinity and femininity (Vinney, 2019). The gender schema theory holds that kids actively learn and essentially socialize themselves. Children actively classify the behaviors, actions, and characteristics they observe into gender categories, or schemas, as in this case. In this study, Bem's Gender theory was used to understand how gender influenced students through the schemas they create by observing and learning from their environment, the school, teachers, and colleagues.

METHODS
Research Design
A phenomenological approach was used in this study to investigate the lived experiences of public secondary English teachers on the integration of gender and development content and pedagogy in language teaching.

Research Participants
For the phenomenological study, Creswell J.D. (2018) cited the importance of the random selection of participants where he suggested that a total number of fourteen (14) participants or key informants were best in the conduct of a qualitative phenomenological study. In my study, I considered thirteen (13) participants to seven (7) to undergone in-depth interviews and seven (6) focused group discussions.

Data Analysis
After the data collection and interviews were conducted, the collected information was organized, reviewed, transcribed, translated, and analyzed through thematic analysis. By using this method, the themes were certain to comprise all crucial information without leaving out any substantial features. Accordingly, using the descriptions made for the topic, this phase entailed giving the relationship or meaning the theme conveys a comprehensive name. After this, the meaning and content of the codes were taken into consideration by the qualitative researcher in choosing the theme. Lastly, I used a method called "telling the story" Or "representing the data.

RESULTS

Table 1
Major Themes and Core Ideas on the Experiences of Teachers in the Integration of Gender and Development in English

Major Themes	Core Ideas
Fostering Gender-inclusive Communication	• utilizing gender fair language in providing examples • giving the students words that are from single gender but is used in general
Using Gender-Inclusive Learning Strategies	• giving the learners variety of activities or differential methods to address the needs for each gender • providing group quiz and equally distributing activities to the students disregarding their gender
Noting Issues in Using Gender-neutral Language	• having the students used to writing in a gender-biased form and utilizing it in constructing their own sentences • letting the students unlearn common gender bias terms is difficult • having concerns on how to address students especially those who belong to LGBTQA group

Fostering Gender-inclusive Communication
In support of this theme, IDI-02 said that they were utilizing gender fair language in providing examples:

> *First, I utilize gender-fair language in providing sample sentences in teaching English lessons like active voice and verb tenses.*

In fact, this was supported by FGD-05, they stated that giving the students words that were from single gender but is used in general:

> *My strategy is that because in English there are so many stories sometimes one of my strategies instead of using the word, he or she most of the time, I used the word we or us for them not to be left out and for them that the opinions and my strategies in the discussions.*

Using Gender-inclusive Learning Strategies
This theme was linked to the answer of FGD-04, who said that they were giving the learners variety of activities or differential methods to address the needs for each gender:

> *Yes, I agree with all their ideas, in addition since, we are handling heterogenous class, with different gender identity so we need to give them a variety of activities or differential methods.*

FGD-05 also shared that they were providing group quiz and equally distributing activities to the students disregarding their gender:

> *Integrating gender and development, in my class I am very fond of giving a group quiz so I usually tend to equally distribute my students disregarding of their gender.*

Noting Issues on Using-neutral Language

This extracted theme was related to the answer of IDI-02, who shared that they having the students used to writing in gender-biased form and utilizing it in constructing their own sentences:

I observed that majority of the students learned about the common gender bias like mother Earth instead of Earth, camera man instead of photographer which are very difficult to unlearn although the sample sentences are gender.

More so, FGD-01 shared that letting the students unlearn common gender bias terms was difficult:

One of the difficulties that I have experienced or encountered as a language teacher is very common to everybody I believe, which is to let my students unlearn common gender bias language.

Table 2
Major Themes and Core Ideas on the Coping Strategies of Teachers on the Challenges in the Integration of Gender and Development in Language Teaching

Major Themes	Core Ideas
Utilizing and Practicing Gender-fair Language	• presenting sentences with fair language to clearly and properly write their own gender language without bias • having differentiated activity and instruction and will use gender-fair language
Utilizing GAD-integrated Approaches to Teaching Instruction Approaches	• integrating GAD every time problems occur on different behaviors in group activities • addressing properly the differences of the learners' preferences achieve an interactive teaching and learning atmosphere
Enhancing One's Teaching Strategies	• researching more on the techniques and strategies that could apply to have better understanding on learners' identity and preferences. • seeking learning by reading, participating in GAD-related activities and webinars to effectively integrate GAD in teaching English.

Utilizing and Practicing Gender-fair Language

In connection to this developed theme, IDI-02 shared that they were presenting sentences with fair language to clearly and properly write their own gender language without bias:

First, I utilize projector in presenting sentences with fair language for students to copy properly and clearly without writing their own gender biased language.

This was supported by IDI-01, who stated that they were having differentiated activity and instruction and used gender-fair language.

I need to apply the differentiated instruction by using of gender-fair language because as a teacher we must be resourceful and must be sensitive to the need of that learner.

Utilizing GAD-integrated Approaches to Teaching Instruction Approaches

This theme was linked on the answer of IDI-04, who shared that they were integrating GAD every time problems occur on different behaviors in group activities:

Aside from that Ma'am, integrating GAD every time problems occur on different behaviors in group activities is my strategy to really address the needs of the learners.

In addition, FGD-02 expressed that they were addressing properly the differences of the learners' preferences achieve an interactive teaching and learning atmosphere:

By addressing properly the learners' preferences, it is now easy for me to achieve an interactive teaching and learning atmosphere inside my classroom.

Enhancing One's Teaching Strategies

This theme was related on the answer of FGD-03 who shared that they were researching more on the techniques and strategies that could apply to have better understanding on learners' identity and preferences:

As a teacher, you must research more in addition to the techniques and strategies that you could apply to have a better understanding on your student's identity and preferences.

In fact, IDI-02 supported on this by stating that they were seeking learning by reading, participating in GAD-related activities to effectively integrate GAD in teaching English:

We should seek learning by reading, participate in GAD related activities and webinars to effectively integrate this in teaching English.

Table 3
Major Themes and Core Ideas on the Insights of Teachers on the Integration of Gender and Development in Language Teaching

Major Themes	Core Ideas
Recommending the Continuation of GAD Integration	• continuing GAD integration to foster connection and understanding among learners • integrating GAD on teaching language as means to help various learners
Demonstrating Gender Sensitivity	• having the sensitivity to addressing the students specially in gender related topics to avoid gender bias in class • knowing the background information of the students for the teacher to be sensitive in addressing the learner
Incorporating GAD to Promote Holistic Academic Development	• Gender and development can be positively integrated to promote holistic learning • Gender and development can be a tool for the language teachers to promote self-empowerment among the learners • managing student behavior and their learning process can create holistic and effective learning

Recommending the Continuation of GAD integration
In support to this theme, IDI-01 recommended that having a need to continue the integration of gender and development:

> *I need to continue with the activities that integrated gender and development because I have observed that once the group is grouped into mixed without the differentiation of group deepened understanding has been developed among the learners.*

Also, IDI-04 recommended that integrating gender and development on teaching language can help all kinds of learners:

> *Yes, because integrating gender and development on teaching language can help all kinds of learners*

Demonstrating Gender Sensitivity
In connection to this theme, FGD-03 shared that they were having the sensitivity to addressing the students specially in gender related topics to avoid gender bias in class:

> *My realization as I integrate gender and development content in my pedagogy in English teaching is that we should be sensitive in addressing the learners.*

In fact, FGD-05 also said that they were knowing the background information of the students to be selective and sensitive with his/her choice of words when addressing opinions and concerns towards the learners:

> *One of my realizations in integrating gender and development is that we should be very prepared when it comes to dealing with your students.*

Incorporating GAD to Promote Holistic Academic Development
In connection to this theme, IDI-02 shared that gender and development can be positively integrated to promote holistic learning:

> *I realized that gender and development can be positively integrated in teaching English to promote students holistic learning.*

In fact, IDI-05 stated that gender and development can be a tool for the language teachers to promote self-empowerment among the learners:

> *My realizations about the is that this can be a tool for the language teachers especially in my part to promote self-empowerment among the.*

DISCUSSION
Lived Experiences of Teachers on the Integration of Gender and Development In Language Teaching
Fostering Gender-Inclusive Communication
Gendered language is anything that unnecessarily differentiates between women and men. This study result was supported by the study of Paterson (2019) which stated that a curriculum must be created to see the desires of the students without compromising the students' gender preferences through applying and using gender inclusive communication. In similar manner, Savignon (2018) said that gender and development-guided classrooms can aid students in gaining a better understanding of how to use the language both orally and in writing in a proper and suitable manner.

Using Gender-Inclusive Learning Strategies
The participants had experienced the integration of gender and development in English teaching through using gender-inclusive learning strategies. This corroborated with the study of Romiti et al., (2020) which stated that on gender perspective in English language teaching, teachers' experiences were found to be beneficial regarding their capacity to create engaging language activities in broader social norms that support gender equality and diversity. Moreover, the study of Lengkawanati (2018) supported that by demonstrating effective learning techniques to students

and exposing them to gender-neutral activities may help the students achieve higher learning outcomes and grow into independent learners.

Noting Issues on Using Gender-Neutral Language
In English, gender-inclusive language has indeed largely been normalized. This result is being supported by the study of Cablao (2020) which stated that many public and private institutions in the Philippines have struggled to pinpoint the specific areas of curriculum where gender and equality were incorporated. Further, Park and French (2020) also stated that learning strategies that integrated gender and development were driven and have a reputation for being effective or efficient particularly in the learning of languages, but they cannot be employed by all learners.

Coping Strategies of Teachers on the Challenges in the Integration of Gender and Development in Language Teaching
Utilizing and Practicing Gender-fair Language
Teachers who were involved in the integration of GAD in language teaching encountered challenges in the integration of gender and development in language teaching. This result of the study was validated by the study of Metz-Gockel (2019), which states that for gender-sensitive teaching to be guaranteed, using of gender-fair language is necessary. Another essential finding in the study of Acar-Erdol et al., (2018) which reiterated that the curriculum and educational system have an impact on how people think and act.

Utilizing GAD-integrated Approaches to Teaching Approaches
Integrating gender and development activities in teaching English helped the teachers to cope with the challenges experienced by the teacher inside the classroom in dealing with learners who were gender sensitive. This result of the study was supported by the findings of Bautista (2021), which stated that to ensure that the Department of Education was following the provisions on the integration of gender and development in teaching strategy. Moreover, another study of Lengkanawati (2018) which stated that by demonstrating effective learning techniques to students and exposing them to gender-neutral activities.

Enhancing One's Teaching Strategies
In the integration of gender and development in language teaching, through enhancing their teaching strategies teachers were able to address the diversity of learners. This result was being supported by the study of Ariyanto (2021) which indicated that teachers were prepared to incorporate gender and development concepts into their lessons. Further, a study of Bengoechea (2019) supported this result by emphasizing the relevance of understanding the attitudes of the linguistic community.

The Insights of Teachers on the Integration of Gender and Development in Language Teaching
Recommending the Continuation of GAD integration
The primary purpose of the integration of gender and development was to embrace the differences of the learners and to accept the idea that everyone is unique. This result was verified by the study of Kumlu et al., (2021) which stated that schools should take initiatives to address wide range of preparations and policies including gender-responsive policies and building gender-sensitive pedagogy. In addition, a study of Cudiamat and Hernandez (2018) also reaffirmed that gender-responsive teaching strategy should be implemented and continued in the classroom to promote gender equality and enhance students' academic performance.

Demonstrating Gender Sensitivity
Demonstrating gender sensitivity was one of the perceptions of the teachers in the integration of gender and development in language teaching. This result in the study was being substantiated by the study of Hernandez and Cudiamat (2018) which reaffirmed that gender-responsive teaching strategy should be implemented in the teaching space to promote gender equality and enhance students' academic performance. Moreover, the result of the study of Galamgam et al., (2021) also supported this result as they said that teachers must consider the needs and particularities of each student based on their backgrounds, well-being, and gender.

Incorporating GAD that Promotes Holistic Academic Development
With its integration it became a tool for the language teachers to promote self-empowerment and manage the learners' behaviors in the learning process. This result was validated by the study of Shi (2019) which said that basically, language learning strategies provide learners the ability to enhance students' learning by boosting linguistic proficiency, self-assurance, and interest in learning process. In fact, this result was verified by the study of Weimer (2019) which stated that using effective tactics and procedure that also consider gender and development aided in the development of the students' cognitive, psychomotor, and affective abilities.

Implication to Teaching Practice
The results of this study significantly acclaimed that in the integration of gender and development in language teaching, English teachers played an important role in promoting gender sensitive and equitable learning environment for the students. Through integrating gender and development, students and teachers were having a harmonious exchange of idea in during the teaching and learning process. Moreover, the result of this study opened the minds of the teachers to really strengthen the integration of gender and development in the classroom. Teachers were key sources of equality and fairness when talking about classroom set-up, therefore it was indeed anticipated that in school, children, or learners during activities inside or outside the classroom were given equal opportunity among others.

Recommendations for Further Research

This phenomenological study aimed to explore, analyze, and comprehend the lived experiences of thirteen teachers with respect to their participation in the integration of gender and development in language instruction in the Davao de Oro Division. These 13 educators were selected using approved inclusion criteria and purposive sampling. Further, it was encountered that teachers developed approaches to cope with the challenges of integrating gender and development in language teaching. Besides, this study was done to reveal the insights of teachers being involved in the integration of gender and development in language teaching.

It was suggested that in the future, researchers should involve more research participants or informants in their studies that directly address the integration of gender and development in language instruction. To ensure that the study is conducted in a different location, future research may concentrate on the experiences of other educators who are involved in the integration of gender and development. Thus, as it focuses on filling in the various gaps in our understanding of the phenomenon, future research may offer more information on the body of knowledge.

Concluding Remarks

Eliminating gender biases and discrimination has been the main goal of having gender and development programs. This program does not only focus on a single gender preference alone; however, this gives importance to all types of gender. Being one of the teachers who advocated gender sensitivity and fairness, I see this research as an opportunity to see if the language teachers have the same view as me in the integration of gender and development in teaching language. Based on the result of the study, there were some teachers that were not aware that they were already using the gender and development teaching strategy not until they had a capability training about Gender and Development. Yet, in the modern times, Gender and development also touched on the other form of gender such as male and those who belong to LGBTQA community. Altogether teachers must demonstrate gender sensitivity in addressing the learners. Demonstrating sensitivity really promotes peaceful classroom environment. Also, I realized that integrating gender and development promotes holistic academic development. Through practicing gender sensitivity teachers can create learning activities that were equitable for all in which now promotes holistic learning. In addition, in integrating gender and development in teaching, teachers can promote inclusivity and equality among the teachers. Also, it was highly and firmly recommended that gender and development should be integrated continuously to promote equality, fairness, and non-discriminatory education. Besides, I concluded that the department of education should provide relevant trainings and seminars that focuses on the integration of gender and development in the curriculum.

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RESERVE OFFICERS' TRAINING CORPS (ROTC) IN LOCAL COLLEGES AND UNIVERSITIES IN METRO MANILA: A MULTI-DIMENSIONAL ANALYSIS

Ronaldo R Pasion Ph.D.[1], Renel P Cruz Ph.D.[2], Edelito P Deles Ph.D.[3], Oscar G Abuan, Ph.D.[4]

Faculty College of Criminal Justice and Graduate School, Taguig City University

ABSTRACT

This study assesses the implementation of the Reserve Officers' Training Corps (ROTC) in selected local colleges and universities in metro Manila, emphasizing regulations, regulations and directives, public relations advocacy campaigns, and unit goals/accomplishments. The research is focused on evaluating the level of ROTC implementation and distinguishing notable variations among institutions. It is limited to six respondent schools in Metro Manila, offering a detailed comparative analysis within this specific educational and geographic context. Data was collected using standardized questionnaires to assess compliance with regulations, public relations activities' efficacy, and unit objectives' achievement. The data was analyzed using Analysis of Variance (ANOVA) within a quantitative framework. The results show that ROTC programs effectively implement the variables studied. However, there are significant differences in implementation levels among institutions, indicating variability in program execution, possibly due to variations in institutional priorities, resource allocation, and ROTC leadership effectiveness. This study supports Huntington's theoretical framework about the equilibrium between military professionalism and social integration, highlighting the difficulties of aligning military education with civilian expectations and norms. The results emphasize the need for specific strategies to improve the standardization and effectiveness of programs. It suggests sharing best practices and enhancing leadership training within ROTC units to address disparities and enhance the quality of training and community engagement in the NCR.

KEYWORDS: *Reserved Officers Training Corps, Local Colleges and Universities, Regulation and Directives, Public Relations Advocacy Campaign, Unit goal/accomplishment*

INTRODUCTION

Reserved Officers' Training Corps (ROTC) aims to offer military education and training to prepare students for national defense readiness. The specific objectives are to train college students for emergency service in the Armed Forces of the Philippines (AFP) and to equip them for participation in the reservist program with the potential to become commissioned officers in the AFP. All branches of the Philippine Armed Forces employ graduates of the ROTC Advance Program. Around 75% of the AFP officer corps in 2008 were ROTC graduates from the officer preparation schools of the various services. Via a merit-based incentive program, the ROTC offers qualifying student cadets academic incentives in exchange for their promise to serve in the military reserve or, if given a chance, on active duty in the AFP following graduation.

Currently, ROTC is an optional program part of the NSTP because of the death of UST student Mark Welson Chua on March 18, 2001. His death is widely believed to be linked to his exposé of alleged irregularities in the Reserve Officers' Training Corps unit of the university. His death catalyzed the passage of Republic Act 9163, or the "National Service Training Program Law," which removed completion of mandatory ROTC as a precondition for graduation for male college students in the Philippines.

According to CHED, the number of cadets enrolled in ROTC has decreased from more than 800,000 during the 1999–2000 academic year to 150,000 as of 2011. Five hundred colleges and institutions participated in the ROTC program during the first quarter of 2011. This is a significant decrease from the 20,000 schools that offered ROTC before implementing the National Service Training Program. In the ten years from 2002 to 2012, the NSTP's ROTC component graduated 1,435,000 students.

Comparatively, 8,614,000 and 538,700 graduates have come from the NSTP's CWTS and LTS components. The biggest issue with introducing ROTC is the decline in cadet numbers. The students could be called upon to serve as backup soldiers in the case of war, invasion, tragedy, or another calamity.

The ROTC program is essential for training college and university students for future military duty and leadership positions. This curriculum, integrated within higher education institutions, is designed to provide students with the skills and information required to become commissioned military officers. The study examines the implementation of ROTC programs, focusing on compliance with rules, the effectiveness of public relations efforts, and the accomplishment of program objectives. This report thoroughly examines the ROTC's operational environment in specific educational institutions from many perspectives.

Regulatory compliance is a significant problem with ROTC programs, presenting several obstacles and issues. The inconsistency in implementing regulations and directives can significantly affect the quality and uniformity of ROTC training. The study explores the difficulties of successful public relations advocacy campaigns, which are crucial for drawing volunteers and gaining community support. The research discusses the challenges in reaching unit goals, emphasizing the importance of defined standards, sufficient resources, and robust evaluation methods to guarantee the program's effectiveness and significance.

This study aims to thoroughly evaluate the implementation of the ROTC program in selected local colleges and universities in metro Manila to improve its efficacy and ensure it aligns with

national security goals. The research aims to provide significant information for legislators, educational leaders, and military authorities by focusing on regulation and directives, public relations advocacy campaigns, and unit target accomplishment. The ultimate objective is to enhance the ROTC program to support its members and the nation effectively, assuring its continued importance in shaping future military and civilian leaders. This study aims to tackle present obstacles and enhance the ROTC program to meet its stakeholders' goals better.

Literature Review

Carter (2019) examined Samuel Huntington's thesis on civilian control of the military, providing a fundamental examination of the relationship between military and civilian sectors in a state. Huntington differentiated between subjective and objective control, supporting the latter to sustain a professional military that functions autonomously while still adhering to societal norms and standards. This conceptual framework is especially relevant in situations such as the Cold War period, where differences in ideology between military goals and civilian beliefs might possibly weaken the concept of civilian control over the military. Carter's analysis emphasizes the lasting significance of Huntington's paradigm, showcasing its effectiveness in examining the intricate interactions and conflicts that define military-civilian relationships, particularly considering the changing nature of warfare and defense tactics.

Spiegeleire et al. (2014) and the legal and institutional frameworks in R.A 7077 and the University of Colorado (2019) provide insights into the strategic and organizational requirements that influence military policies and ROTC programs. The books emphasize the importance of policies and programs in ensuring national defense, developing military capabilities, and grooming future military leaders. The connection of ROTC objectives with Huntington's advocate for objective control is clear in the programs' emphasis on professional military education. This focus strives to develop military skills and guarantee that upcoming leaders understand ideas that go beyond the military realm, combining functional and societal requirements.

Black (2014) and Albaum & Duerr (2011) explore the importance of public relations initiatives within ROTC programs. Their observations emphasize the importance of developing and implementing successful communication tactics to improve the public's view of ROTC programs and, consequently, gain support for them. This effort is in line with Huntington's belief that public relations serves as a link between military goals and wider societal ideals and expectations. The decrease in ROTC involvement, as pointed up by Cudis (2019), indicates possible challenges in reaching this alignment. It implies that even with sincere public relations initiatives, there can be a gap in effectively involving potential participants and gaining broad community support.

The studies conducted by Ezell & Davis (2021), Sun Tzu (2018), and Kenton (2020) highlight the importance of logistics strategy and the influence of organizational policies on the effectiveness of military activities. They are expanding Huntington's functional imperative into military logistics by promoting advanced decision-support technologies to improve operational efficiency and adaptability. This highlights the complicated nature of military logistics, stressing the need for systems that can facilitate strategic and tactical decision-making while simultaneously handling the intricacies of contemporary military operations.

Pandey & Asthana (2017) present a significant criticism on how restricted rules affect job satisfaction in the military. Their research indicates that having policies is crucial for discipline and operational consistency, but overly strict policies might harm

morale and satisfaction among people. This discovery presents a complex challenge to Huntington's paradigm, suggesting that the quest for objective control and professional autonomy needs to be balanced with the welfare and drive of military people. Maintaining a balance is crucial for sustaining a proficient and dedicated military force.

Objectives of the Study

The study assessed the implementation of the Reserve Officers' Training Corps program of selected local colleges and universities in Metro Manila, namely Taguig City University, Pamantasan Lungsod ng Muntinlupa, University of Makati, City University of Pasay, Navotas Polytechnic University and Pamantasan Lungsod Ng Marikina to serve as the basis towards a Program Plan to enhance its operation.

Specifically, it sought to answer the following problems:
1. What is the level of Implementation of the Reserve Officers' Training Corps among the selected local colleges and universities in metro Manila as assessed by the six respondents' schools in terms of:
   1.1 Regulation and Directives,
   1.2 Public Relations Advocacy Campaign and
   1.3 Unit goal/accomplishment?
2. Is there any significant difference in the level of implementation of the Reserve Officers' Training Corps among the local colleges and universities in terms of the variables above?
3. What program plan may be proposed to enhance the implementation of the ROTC program of selected local colleges and universities in Metro Manila?

METHODOLOGY

This study used a quantitative research method with a survey approach to investigate the implementation of the Reserve Officers' Training Corps (ROTC) in chosen local colleges and universities in Metro Manila and to detect notable differences among these institutions. The survey aimed to gather quantitative data on three main variables: 1) compliance with Regulations and Directives, 2) efficacy of Public Relations Advocacy Campaigns, and 3) attainment of Unit Goals/Accomplishments. Each selected school's ROTC program included six participants who were asked to score various aspects of the program's implementation using a four-point rating scale. Descriptive statistics were utilized to assess the general level of implementation, and inferential statistics, particularly ANOVA (Analysis of Variance), were used to identify any notable variations in implementation levels among various institutions. The results were used to create a program plan to improve the implementation of ROTC in the local colleges and institutions of the NCR.

In addition, the study utilized the descriptive survey research method to evaluate the implementation status of the Reserve Officers' Training Corps program in selected Local Colleges and Universities in Metro Manila. The institutions included were Taguig City University, Pamantasan Lungsod ng Muntinlupa, University of Makati, City University of Pasay, Navotas Polytechnic University, and Pamantasan Lungsod ng Marikina. The assessment focused on regulation, directives, records and reports, public relations advocacy campaigns, and unit goals/accomplishments. The purpose of the descriptive research approach was to collect information on the current state, focusing on describing actual situations rather than evaluating or interpreting them (Creswell, 2009). The descriptive technique aims to accurately depict or portray a person or group's attitudes, behaviors, or qualities. It can be described as a purposeful procedure of collecting, analyzing, categorizing, and organizing data about current conditions, practices, beliefs, processes, trends,

cause and effect relationships, and then accurately interpreting this data using statistical methods.

Scope and Delimitation

The study focused on the implementation of the Reserve Officers' Training Corps program of selected local colleges and universities in the National Capital Region, namely Taguig City University, Pamantasan Lungsod ng Muntinlupa, University of Makati City University of Pasay, Navotas Polytechnic University and Pamantasan Lungsod Ng Marikina in terms of compliance with Regulations and Directives, efficacy of Public Relations Advocacy Campaigns, and attainment of Unit Goals/Accomplishments as the basis of the Researcher to enhance its operations through a program plan. The respondents in this study were the six NCR schools under local government, consisting of their NSTP director, ROTC coordinator, ROTC officers/commandants, and ROTC cadets. These groups of respondents are assured to be knowledgeable and aware of the extent to which the ROTC program is implemented in selected colleges and universities. The setting of the study was explicitly concentrated in selected local colleges and universities, namely Taguig City University, Pamantasan Lungsod ng Taguig, University of Makati, City University of Pasay, Navotas Polytechnic University, and Pamantasan Lungsod ng Marikina from the School Year 2019 – 2020 to 2021 to 2022.

Data Gathering Tool

A researcher-made questionnaire was used as the main instrument for gathering data for this study. It combines the checklist and the Four-Point Rating Method of Summated Ratings. For the checklist part, suggested responses are enumerated with the respondents' indicating choices with check marks or by ranking. On the other hand, the Four-point Rating scale is a set of attitude items, all considered of approximately equal attitude value, and to each subject's response with degrees of agreement or disagreement. The score of such scale is summed, or summed and averaged, to yield an individual's attitude score. In this study, using the Four-point rating method, four responses were used to describe the respondents' assessment of a scale value assigned to each of the four responses. Starting with a particular category, all favorable responses are scored four (4) through one (1), and unfavorable responses are scored in the opposite order. The items in the questionnaire were checked for validity against another similar instrument in some related studies and through consultation with the dissertation adviser and other experts. The items were also checked for face validity; that is, every item was examined to see if it was related to the problems of the study. The questionnaire was then pre-tested for internal validity to ten (10) persons not included as respondents. The pre-test results were collated and analyzed to determine the weaknesses and defects of the instrument. Accordingly, the necessary correction was made, and the questionnaire was constructed in its final form.

Data Gathering Procedures

The researcher began the data collection process for this study by thoroughly reviewing and analyzing essential documents and relevant information that matched the study's theme. The first stage entailed gathering, analyzing, interpreting, and reviewing existing literature, reports, and relevant documents to understand the obstacles and implementation status of the Reserve Officers' Training Corps (ROTC) in chosen local colleges and universities in Metro Manila. This initial phase was crucial in pinpointing the precise issues and topics of investigation that the study intended to tackle. The theoretical and contextual foundation supported the creation of research questions and the survey instrument, ensuring the study was based on pertinent academic and practical factors.

After doing a preparatory examination of literature and documents, the researcher requested formal authorization from the management of the local colleges and universities to conduct the survey. This entailed creating and sending requests that detailed the study's goals, importance, and anticipated impact on comprehending the ROTC's implementation obstacles and achievements. Obtaining consent from the universities was essential since it validated the research methodology and enabled access to the six identified responder groups vital to the study. The respondents, representing many stakeholders in the ROTC programs, were chosen to offer unique viewpoints and insights on the study's main focus areas.

Further, after acquiring the required permits, the researcher distributed the meticulously crafted survey questions to the participants. This stage was carefully planned to guarantee high response rates and high-quality data gathering. The questionnaires were distributed and collected in a way that prioritized the convenience and anonymity of the respondents, thus promoting their complete and truthful engagement. The researcher carefully gathered the filled questionnaires and then organized and combined the research results in preparation for detailed analysis. The generated data were subsequently sent to the research adviser for evaluation, amendments, and endorsement. The iterative feedback and revision process significantly improved the study's rigor, validity, and reliability, preparing for insightful analysis and relevant results that could impact the broader discourse on ROTC implementation in the region.

Treatment of Data

This study analyzed quantitative data from a survey performed in selected local colleges and universities in Metro Manila to evaluate the implementation of the Reserve Officers' Training Corps (ROTC). The weighted mean was used to assess the status of the ROTC implementation regarding regulations, records, public relations, and unit goals and to pinpoint issues related to human resources, facilities, logistics, training, and budget. The weighted mean was calculated using a procedure that used the sum of the frequency multiplied by the number of respondents, using a four-point Likert scale to assign relative weights (ranging from 1 to 4) to the responses. The weights represented different verbal interpretations ranging from "Fully Implemented" to "Not Implemented" for the ROTC's implementation levels and scales designed in a similar approach for evaluating problem severity and recommended levels.

The study used Analysis of Variance (ANOVA) to determine if there were significant differences in the level of implementation of ROTC across different universities about the specified aspects. ANOVA, invented by Ronald Fisher and described by Larson (2008), is utilized to compare variances across groups (between variance) and within groups (within variance) to get the F-value, which signifies the presence or absence of statistically significant differences. By employing this method, the researcher could thoroughly examine the data and provide a detailed assessment of the current ROTC program implementation condition. This assessment emphasized the program's strengths and areas that could be enhanced among the participating schools.

Ethical Considerations

The study on implementing the Reserve Officers' Training Corps (ROTC) in chosen local colleges and universities in Metro Manila strictly followed ethical guidelines to maintain research integrity and safeguard participants' rights. Before collecting data, legal permission was acquired from the institutions' management, and informed consent was gained from all participants, ensuring their voluntary involvement and the confidentiality of their answers. The research design and technique were meticulously developed to prevent any possible injury or discomfort to participants. It was ensured that all data obtained would be exclusively used for the

study, and any identifying information would be anonymized in the results. This ethical framework helped ensure a courteous and responsible interaction with participants while enhancing the legitimacy and dependability of the study's results.

RESULTS AND DISCUSSION
Level of implementation of the Reserve Officers' Training Corps of Selected Local Colleges and Universities in Metro Manila

The following tables illustrate the respondents' evaluation of the level of implementation of the Reserve Officers' Training Corps of selected local colleges and universities in Metro Manila in terms of regulation and directives, public relation advocacy campaign, and unit goal/accomplishment.

Table 1
Level of Implementation of Reserve Officers' Training Corps in Terms of Regulation and Directives

Local Colleges and Universities							
Regulation and Directives	**A**	**B**	**C**	**D**	**E**	**F**	Total
1. The LCUs have updated with ready references such as Laws, Circulars, SOP, and other policies regarding ROTC. Republic Act 9163 (NSTP Law) RA 8049 (Anti-Hazing law) Guidelines for the implementation of basic ROTC program	3.24 (I)	3.19 (I)	3.66 (FI)	3.28 (I)	3.48 (I)	3.27 (I)	**3.34 (I)**
2. Localized memorandum or guidance from the unit regarding any of these policies	3.41 (I)	3.21 (I)	3.34 (I)	3.30 (I)	3.14 (I)	3.69 (FI)	**3.34 (I)**
3. Communications sent to the school administration are properly filed.	3.32 (I)	3.48 (I)	3.39 (I)	3.25 (I)	3.65 (FI)	3.21 (I)	**3.38 (I)**
4. Communication received from higher headquarters correctly filled	3.17 (I)	3.11 (I)	3.21 (I)	3.06 (I)	3.39 (I)	3.40 (I)	**3.22 (I)**
5. Use publication on bulletin boards for information and dissemination	3.28 (I)	3.51 (FI)	3.49 (I)	3.27 (I)	3.58 (FI)	3.48 (I)	**3.43 (I)**
Over-all Weighted Mean	**3.28 (I)**	**3.30 (I)**	**3.42 (I)**	**3.23 (I)**	**3.45 (I)**	**3.41 (I)**	**3.33 (I)**

Legend: Verbal Interpretation (V.I.)   the computed weighted mean (M):
3.50 – 4.00 = Fully Implemented (FI)   1.50 – 2.49 = Less Implemented (LI)
2.50 – 3.49 = Implemented (I)   1.00 – 1.49 = Not Implemented (NI)

Table 1 shows the respondent's evaluation of the level of implementation of the Reserve Officers' Training Corps of selected local colleges and universities in Metro Manila regarding regulation and directives. Data show the overall weighted mean of 3.33, which is implemented, and that University A implemented the localized memorandum or guidance from the unit regarding any of these policies based on the mean score of 3.41 and implemented communication received from higher headquarters correctly filled as indicated from the mean score of 3.17. In contrast, university B fully implemented publication on bulletin boards for information and dissemination, as described by the mean score of 3.51, and implemented communication received from higher headquarters, which was correctly filled, as defined by the mean score of 3.11.

On the other hand, University C fully implemented and updated with ready references such as Laws, Circulars, SOP, and other policies regarding ROTC. Republic Act 9163 (NSTP Law) RA 8049 (Anti-Hazing law) Guidelines for implementing basic ROTC program as indicated by the mean score of 3.66, but implement communication received from higher headquarters correctly filled based on the mean score of 3.2. In contrast, University D implemented a localized memorandum or guidance from the unit regarding any of these policies, as indicated by the mean score of 3.30, and implemented communication received from higher headquarters, which was correctly filled, as seen by the mean score of 3.06. Moreover, University E fully implemented communications sent to the school administration properly filed as described from the mean score of 3.65, but implemented localized memorandum or guidance from the unit

regarding any of these policies as revealed from the mean score of 3.14, while University F fully implemented localized memorandum or guidance from the unit regarding any of these policies as reflected from the mean score of 3.69, and implement communications sent to school administration properly filed as shown from the mean score of 3.21.

In an interview, a school administrator said, *"The school provides bulletin boards to inform cadets for information and dissemination."* Another school administrator remarked, *"The university ensures that the ROTC department is grounded with government laws and school policies based on Republic Act 9163 (NSTP Law)."* The National Defense Act was amended in 1990 by Presidential Decree 1706 (The National Law), which offered the three (3) components of the National Service Program, namely: Military Service (MS), Civil Welfare Service (CWS), Law Enforcement Service (LES) with DND, CHED & DILG respectively as implementing agencies. In 1991, RA 7077, or the AFP Reservist Act, was enforced, prescribing a two (2) year ROTC Program as a requirement for graduation to all tertiary-level students.

Spiegeleire et al. (2014) said that military policy (also called defense policy or defense policy) is public policy dealing with multinational security and the military. It comprises the measures and initiatives governments must take about decision-making and strategic goals, such as when and how to commit national armed forces.

The analysis uses references from Huntington's theoretical framework, as discussed by Carter in 2019, and empirical data on ROTC implementation in local higher education institutions to show the complex relationship between theoretical predictions and real-world military-civilian interactions in educational environments. Quantitative data from various regulatory and directive metrics for ROTC programs in the National Capital Region indicate that the majority of local colleges and universities have achieved a "Implemented" status, with weighted means falling between 3.22 and 3.45 on a scale where 3.50 to 4.00 represents "Fully Implemented." There is strong compliance with important rules and legislation like the Republic Act 9163 (NSTP Law) and RA 8049 (Anti-Hazing Law). However, there is still potential for enhancement to achieve complete implementation.

Huntington's distinction between subjective and objective control and his support for the latter is evident in the organized and professional manner in which ROTC is implemented in the participating schools. This systematic strategy, striving for a proficient military operating independently while following civilian norms and standards, reflects the disciplined control Huntington advocates. The variation in implementation scores among different regulatory and directive components indicates a complex interaction between the functional requirements of

military training and the societal requirements of educational institutions. This is especially clear in the regions where scores are close to reaching the "Fully Implemented" status, showing a deeper connection with Huntington's concept of objective control through professional education and adherence to set norms.

Furthermore, the findings from Spiegeleire et al. (2014), in conjunction with the frameworks in R.A 7077 and the University of Colorado (2019) emphasizing the strategic significance of military policies and ROTC programs, are practically reflected in the statistics. The establishment of ROTC programs at local colleges and universities shows a continuous effort to link them with broader strategic and organizational goals, focusing on improving military capabilities and grooming future leaders. Alignment is essential for maintaining a professional military force that meets the functional needs of national defense and adheres to democratic scrutiny and civilian management, as described by Huntington. The analysis indicates that ROTC programs are mainly established in participating institutions, but achieving complete implementation and adherence to Huntington's concept of objective control is still ongoing. This reflects the overall difficulties in aligning military training with educational goals and societal values.

Table 2
Level of Implementation of Reserve Officers' Training Corps in terms of Public Relations Advocacy Campaign

Local Colleges and Universities							
Public Relations Advocacy Campaign	**A**	**B**	**C**	**D**	**E**	**F**	**Total**
Conduct an anti-terrorism information drive	3.52 (FI)	3.23 (I)	3.38 (I)	3.38 (I)	3.41 (I)	3.22 (I)	**3.35 (I)**
ROTC Advocacy Campaign	3.29 (I)	3.57 (FI)	3.26 (I)	3.39 (I)	3.28 (I)	3.39 (I)	**3.36 (I)**
Gender Awareness Campaign	3.37 (I)	3.11 (I)	3.50 (FI)	3.42 (I)	3.35 (I)	3.47 (I)	**3.37 (I)**
Anti-Hazing Law Campaign	3.19 (I)	3.41 (I)	3.18 (I)	3.21 (I)	3.14 (I)	3.52 (FI)	**3.45 (I)**
Illegal Drugs Awareness campaign	3.48 (I)	3.52 (FI)	3.42 (I)	3.48 (I)	3.39 (I)	3.41 (I)	**3.45 (I)**
Over-all Weighted Mean	**3.38 (I)**	**3.37 (I)**	**3.35 (I)**	**3.39 (I)**	**3.32 (I)**	**3.40 (I)**	**3.39 (I)**

Legend: Verbal Interpretation (V.I.)   the computed weighted mean (M):
3.50 – 4.00 = Fully Implemented (FI)   1.50 – 2.49 = Less Implemented (LI)
2.50 – 3.49 = Implemented (I)   1.00 – 1.49 = Not Implemented (NI)

Table 2 shows the respondent's evaluation of the level of implementation of the Reserve Officers' Training Corps of selected local colleges and universities in Metro Manila regarding public relations advocacy campaigns. Data show the overall weighted mean of 3.39, which is implemented. It was found that University A fully implemented the conduct of an anti-terrorism information drive based on the mean score of 3.52 but implemented the anti-hazing Law Campaign as indicated by the mean score of 3.19. In contrast, University B fully implemented the OTC Advocacy Campaign based on the mean score of 3.57 and implemented the Gender Awareness Campaign, as revealed by the mean score of 3.11.

On the other hand, University C fully implemented the Gender Awareness Campaign, as seen from the mean score of 3.50, and implemented the Anti-Hazing Law Campaign based on the mean score of 3.10. However, University D implemented an Illegal Drugs awareness campaign, as revealed by the mean score of 3.48, and implemented an Anti-Hazing Law Campaign, as shown by the mean score of 3.21. Moreover, University E implemented the conduct of an anti-terrorism information drive, as reflected in the mean score of 3.41, and implemented the Anti-Hazing Law Campaign, as indicated by the mean score of 3.14. University F

fully implemented the Anti-Hazing Law Campaign, as noted in the mean score of 3.52, and implemented the Conduct of Anti-terrorism Information Drive, as seen by the mean score of 3.22. The ROTC was established to prepare college students for possible service activities for the government activities and to train officers and enlisted personnel to do advocacy campaigns.

Staff said in an interview, *"The ROTC department of UMAK is doing its objectives of conduct of anti-terrorism information drive among students and the recent ordinance focusing on Gender and development awareness campaign."* Another ROTC official recalled, *"The school initiated many activities from GAD sensitivity issues to terrorism, strengthening drugs campaign and the anti-hazing law Campaign."*

According to Black (2014, 68-71), Public Relations activities will seek the ROTC unit to focus on critical stories, such as special promotions, and the nature of the message may vary between the actual media outlets targeted and their audiences.
Carter (2019) analyzed Huntington's thesis on civilian control. He highlighted the importance of ROTC public relations campaigns as a modern representation of the military's efforts to uphold societal trust and relevance, particularly in a post-Cold War era

marked by changing military-civilian dynamics. Implementing campaigns on anti-terrorism, gender awareness, and illegal drugs aims to align military objectives with civilian beliefs and values to prevent ideological differences that could weaken civilian control over the military, as warned by Huntington.

The findings of Spiegeleire et al. (2014) and the frameworks outlined in R.A 7077 and the University of Colorado (2019) align with the ROTC's strategic and organizational initiatives to comply with societal and educational requirements, as demonstrated in advocacy campaigns. These initiatives align with Huntington's support for advanced military education beyond conventional military instruction, integrating societal issues like gender awareness and anti-hazing legislation into their educational programs and community engagement efforts. The differences in implementation levels, ranging from 'Implemented' to 'Fully Implemented' across various campaigns and colleges, demonstrate the persistent challenges in achieving alignment. This reflects concerns raised by Black (2014), Albaum & Duerr (2011), and Cudis (2019) about the effectiveness of public relations in garnering broader community support for ROTC programs. This situation demonstrates the challenges of implementing Huntington's model in actual military education and outreach, highlighting the importance of ongoing efforts to improve the efficiency of these campaigns. This is crucial to ensure that they meet their goals and reinforce the connection between the military and civilians per societal values and expectations.

Table 3
Level of Implementation of Reserve Officers' Training Corps In terms of Unit Goal/Accomplishment

Local Colleges and Universities							
Unit goals accomplishment	A	B	C	D	E	F	Total
Spearhead CIVAC Activities	3.28 (I)	3.52 (FI)	3.38 (I)	3.45 (I)	3.24 (I)	3.20 (I)	**3.34 (I)**
Participation in Command Directed Activities	3.42 (I)	3.48 (I)	3.41 (I)	3.17 (I)	3.19 (I)	3.27 (I)	**3.32 (I)**
Participation in College/ University Activities	3.51 (FI)	3.16 (I)	3.26 (I)	3.21 (I)	3.62 (FI)	3.40 (I)	**3.32 (I)**
Community extension	3.28 (I)	3.40 (I)	3.31 (I)	3.38 (I)	3.28 (I)	3.32 (I)	**3.32 (I)**
Innovations and Improvement in ROTC Training	3.64 (FI)	3.29 (I)	3.34 (I)	3.19 (I)	3.11 (I)	3.47 (I)	**3.34 (I)**
Over-all Weighted Mean	**3.42 (I)**	**3.36 (I)**	**3.34 (I)**	**3.27 (I)**	**3.28 (I)**	**3.33 (I)**	**3.32 (I)**

Legend: Verbal Interpretation (V.I.)   the computed weighted mean (M):
3.50 – 4.00 = Fully Implemented (FI)   1.50 – 2.49 = Less Implemented (LI)
2.50 – 3.49 = Implemented (I)   1.00 – 1.49 = Not Implemented (NI)

Table 3 shows the implemented overall weighted mean of 3.32. The findings also indicate that University A fully implemented innovations and improvement in ROTC training based on the mean score of 3.64 and implemented community extension as indicated by the mean score of 3.28, while University B fully implemented spearhead CIVAC activities as seen from the mean score of 3.52, and implemented participation in College/ University Activities as indicated from the mean score of 3.16. On the other hand, University C implemented participation in command-directed activities, as described by the mean score of 3.41, and in college/university activities, as revealed by the mean score of 3.26. In contrast, University D implemented spearhead CIVAC Activities, as indicated by the mean score of 3.45, and implemented participation in Command Directed Activities, as seen by the mean score of 3.17. Moreover, University E fully implemented participation in College/ University Activities, as reflected in the mean score of 3.62, and implemented innovations and Improvement in ROTC training based on the mean score of 3.11. In contrast, University F implemented innovations and Improvements in ROTC training, as seen from the mean score of 3.47, and implemented spearhead CIVAC Activities, as indicated by the mean score of 3.20.

Basic ROTC focuses on equipping its graduates with the five fundamental skills of LEAD, SHOOT, MOVE, NAVIGATE, and COMMUNICATE. These five skills are embedded in lectures and training under the two Military Science courses to be taken under Basic ROTC: Military Science 1 and Military Science 2. In an interview, an ROTC staff from TCU said, *"The ROTC department was established to teach students the values of citizenship, leadership, service to the community, personal responsibility, and a sense of accomplishment while instilling in them self-esteem, teamwork, and self-discipline."* Another staff member from UMAK said in an interview, *"The ROTC spearheads CIVAC Activities, including school inaugurals, school foundation weeks, etc., in a parade in reviews."* According to the University of Colorado, the Army ROTC Program's goal is to recruit, develop, and commission college-educated men and women to serve as officers in the United States Army. Participants in the program are commissioned as Second Lieutenants in the Army upon graduation with a bachelor's degree.

This data illustrates how Huntington's theory emphasizes the significance of a military force that upholds professional standards and engages in societal and community activities to strengthen its relationships with the civilian sector. The diverse execution levels in various tasks highlight the ROTC units' endeavor to harmonize military instruction with their involvement in communities and institutions, reflecting Huntington's conceptual framework. The 'Fully Implemented' statuses in various places indicate successful integration of ROTC programs into social and educational frameworks, showing alignment between ROTC objectives and broader societal and institutional goals, as proposed by Huntington.

The strategic and organizational insights from Spiegeleire et al. (2014) and the legislative and institutional frameworks outlined in R.A 7077 and the University of Colorado (2019) demonstrate the structural and policy-driven support that facilitates ROTC programs in achieving diverse objectives. Valuing professional military education and engaging in community and university activities align with the functional and societal priorities emphasized by these frameworks. Nevertheless, the designation of areas as 'Implemented' instead of 'Fully Implemented' indicates

persistent obstacles in achieving these goals comprehensively in all aspects of ROTC training and involvement. This reflects the intricate issues highlighted by Black (2014), Albaum & Duerr (2011), and Cudis (2019) in aligning military goals with civilian expectations and backing through efficient public relations and community engagement tactics. ROTC programs continuously work to improve their operations and engagement tactics by Huntington's objectives, aiming for a thorough integration of military training with society contributions and innovations.

Table 4
ANOVA Table for Difference in the Level of Implementation of Reserve Officers' Training Corps among the Local Colleges and Universities

Profile		Sum of Squares	Df	Mean Square	F-com	p-value	Decision	Remarks
Regulation and Directives	Between Groups	9.54	5	4.77	3.12	0.000	Reject	Significant
	Within Groups	301.41	715	1.53				
	Total	310.95	720					
Public Relation Advocacy campaign	Between Groups	11.08	5	3.69	3.74	0.000	Reject	Significant
	Within Groups	36.58	715	1.18				
	Total	47.66	720					
Unit Goal/ Accomplishment	Between Groups	9.93	5	3.31	3.36	0.002	Reject	Significant
	Within Groups	52.08	715	1.68				
	Total	62.01	720					

Regulation and Directives. The hypothesis was rejected, and therefore, there is a significant difference among the evaluation of the six-respondent local colleges and universities in the level of implementation of Reserve Officers' Training Corps in terms of regulation and directives since the p-value of 0.000 is less than 0.05. Data reveal that the six respondents' local colleges and universities differ in their level of implementation of the Reserve Officers' Training Corps in terms of regulation and directives. This may reflect different administrative strategies, limited resources, or variable levels of importance placed on compliance and adherence to ROTC principles by each institution's management. The variability indicates a requirement for a detailed analysis of the specific variables influencing these disparities, such as institutional support, the expertise and training of ROTC personnel, or the resources assigned to the ROTC program.

Public Relation Advocacy campaign. The hypothesis was rejected since the p-value of 0.000 is less than 0.05. Therefore, there is a significant difference in the evaluation of the six respondents from local colleges and universities in terms of the level of implementation of the Reserve Officers' Training Corps in terms of public relations advocacy campaigns. Data shows that the six respondents' local colleges and universities differ in their level of implementation of the Reserve Officers' Training Corps in terms of public relations advocacy campaigns. This demonstrates how ROTC programs at various colleges and universities focus on and implement ways to improve the public's view and backing of the ROTC. The discrepancy could be due to different community environments, levels of skill in public relations within ROTC units, or differences in strategic interests among institutions.

Unit Goal/Accomplishment. The hypothesis was rejected, and therefore, there is a significant difference among the evaluation of the six-respondent Local Colleges and Universities in the level of implementation of Reserve Officers' Training Corps in terms of unit goal/accomplishment since the p-value of 0.002 is less than 0.05. Data reveal that the six respondents' local colleges and universities differ in their level of implementation of the Reserve Officers' Training Corps in terms of unit goal/accomplishment. Differences in leadership, organizational culture, institutional support, and cadet participation levels differ throughout universities, impacting the efficacy and efficiency of ROTC units in achieving their objectives.

A sophisticated approach is needed to comprehend and tackle the reasons that lead to differences in ROTC program execution among schools. They propose that ROTC programs may have similar goals. However, the way these goals are pursued and the success of these endeavors are impacted by an intricate combination of institutional, administrative, and contextual elements. To address these differences, targeted interventions may be necessary to share best practices, improve institutional support, and promote cooperation among ROTC units in various schools and universities to ensure a consistent and efficient implementation of ROTC programs.

CONCLUSIONS AND RECOMMENDATION
Based on the findings of this study, the following conclusions were drawn:

Implementations
The ROTC programs at selected local colleges and universities are generally implemented in terms of regulations and directives, public relations advocacy campaigns, and unit goals/accomplishments. On average, the institutions have aggressively aligned their ROTC programs with rules, promoted public relations activities to advocate for the ROTC, and made progress toward reaching their unit goals. Although some locations and colleges have achieved 'Fully Implemented' designation, there is variety in the implementation levels of the programs, indicating that while they generally match expected criteria, there are chances for improvement in specific areas.

Significant Difference
The ANOVA results show substantial variations in the ROTC implementation level among local colleges and universities in three variables: Regulation and Directives, Public Relations Advocacy Campaign, and Unit Goal/Accomplishment. Despite the generally excellent implementation status, variations exist in how each university approaches and executes its ROTC program.

The variations may arise from factors such as institutional priorities, resource availability, leadership effectiveness in ROTC units, and the engagement techniques used in public relations.

Theoretical Implications

The results demonstrate the complex relationship between military professionalism and societal integration, emphasizing the intricate difficulties in maintaining independence while following societal norms and standards. This study enhances existing knowledge by presenting empirical proof of the diversity in executing ROTC programs, thus providing a more profound insight into how military education programs manage the theoretical aspects of military-civilian relationships in various institutional settings. It highlights the importance of using Huntington's paradigm to examine the complex interconnections and possible conflicts when integrating military training programs with civilian educational standards and societal norms.

Practical Implications

Practical discrepancies in ROTC implementation among various local colleges and universities indicate a necessity for specific ways to streamline program execution. This involves creating a structure for exchanging optimal methods, especially concerning compliance with regulations, public relations campaigns, and reaching educational and training objectives. The research indicates that ROTC programs could improve by adopting a collaborative strategy that utilizes effective methods from top-performing universities to enhance the program's overall quality.

The study on the implementation levels of Reserve Officers' Training Corps (ROTC) programs at selected local colleges and universities has led to the following suggestions based on the theoretical and practical implications of the findings:

1. Create a best practices framework by setting up a collaborative platform or forum for ROTC programs from other universities to exchange best practices, focusing on regulations and directives, public relations advocacy campaigns, and unit goals/accomplishments. This approach can help lower-performing schools learn successful techniques and innovations from institutions that have attained 'Fully Implemented' status in some aspects of the ROTC program.

2. To improve leadership training, institutions should invest in specialized leadership development programs for ROTC unit commanders and staff due to the crucial role of leadership effectiveness in the differences in ROTC implementation. The training should emphasize strategic planning, change management, public relations, and community involvement skills to provide individuals with the necessary competencies to traverse the intricacies of military education in civilian academic environments.

3. Institutions should evaluate and rectify resource deficiencies that may impede the complete execution of their ROTC programs. This may entail obtaining extra financing, enhancing infrastructure, and guaranteeing access to updated training resources and technologies. Sufficient resource support is essential for improving the quality and efficacy of ROTC training and activities.

4. ROTC programs should create and execute detailed public relations strategies customized to their community's needs and interests to improve the success of Public Relations Advocacy Campaigns. This may involve enhancing awareness via social media, community service initiatives, and collaborations with local organizations to enhance public perception and backing for the ROTC.

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LINGAW ANG BATA: A MODIFIED LAS TO ADDRESS PUPIL'S LEARNING DIFFICULTY IN THIS MODULAR LEARNING

Cheryl B. Vios[1], Glory Y. Perez[2]

[1]Nopulan Elementary School, Josefina District, Josefina, Zamboanga del Sur
[2]Lower Bag-ong Tudela Primary School, Josefina District, Josefina, Zamboanga del Sur

ABSTRACT

The Covid-19 pandemic has caused a historical disturbance in the delivery of education in the Philippines. Pupils were only given a modules. The major purpose of this study was to determine the effectiveness of modular distance learning modality to the Academic Performance of Students on its more than a year implementation. So, this has lead the way for the implementation of Lingaw Ang Bata: A Modified Learning Activity Sheet as an urgent response to assure continuity of education. This study address pupil's learning difficulty in this modular learning before and after employing the Lingaw Ang Bata: A Modified LAS. The researchers use the qualitative interview as the main instrument in research design. Furthermore, an interview was conducted to get the responses of the respondents on how the program helped them in improving their learning difficulty in modular learning. The study revealed that before employing the intervention, the gain score of the students is low. On the other hand, after employing the intervention, the learning difficulty in each competency reached Closely Approximating Mastery. In addition, the respondents mentioned that this program helped them utilized the LAS that was made easier to let them explore, discover and increase their level of understanding in answering the Science competency in quarter 1 providing us with different methods and strategies to make it easier for them on how to use them effectively. Moreover, it is recommended that Lingaw Ang Bata: A Modified LAS should be utilized by the Science teachers in schools especially the Grade 5.

KEYWORDS : *Modified LAS, learning difficulty, modular learning, pre-test, post-test, MPS*

CONTEXT AND RATIONALE

The role of the classroom teacher is to manage the classroom in a manner that meets the individual needs of each student in the class. This includes promoting learning and supplementing activities, coordinating and collaborating with support staff, using a variety of teaching approaches, and adapting instruction to include all students. The classroom teacher is in charge of each student's overall academic program. Moreover, part of the classroom teacher's job is to track the learners' learning progress to assure that they have learned and mastered the skills that are most essentials in life.

There were studies conducted which showed that the use of learning Activity Worksheets improved the learning performance of the learners. Just like the study of Surya (2019), it stated that Learning Activity Sheet (LAS) is a learning resource needed and is a stimulus for students in the learning process. A good student activity sheet will make students feel happy to learn and make the learning experience. In addition, LAS is made according to the conditions, needs, and characteristics of students. LAS does not only contain questions and discussion and practice questions but there is a process of construct understanding to problem-solving, and permanent understanding. LAS like this can help students to

build a good understanding and guide students to discover the concepts of material themselves. If a student understands a material, chances are that he will continue to remember it and also can apply it when solving problems presented.

"Worksheets can be useful in many ways in terms of academic achievement", Che- Di Lee (2014) cited. For example, as supplements to textbooks, worksheets can be used to add information for particular classes. In addition, blanks in worksheets are invitations for students to fill in gaps; they are opportunities for knowledge construction. Well-designed questions in worksheets can draw students' interest when paired with proper teaching methods. Furthermore, worksheets play a variety of functions in different contexts.

However, based on last year's records and experiences, in Science subject quarter 1, the modules received from central office were none out of 6 competencies. Most of the modules or LAS we gave to the pupils came back without answer, their reasons were, it was difficult to understand and they find it hard to answer the given questions. Last year's First Quarter's Mean Percentage Score on this competency was 50.25% based on the item analysis and has not reached the mastery level and the learning standard which is 75% of the competencies required to

pass in each subject. It has come to our decision that this problem needs to be addressed by simplifying the modules through the use of modified LAS or the Learning Activity Sheets. This study tries to reveal the use of materials with appropriate exercises and techniques as perceived by the teachers and the pupils.

Furthermore, the Nopulan Elementary School would like to test the utilization of Lingaw Ang Bata (LAB): A Modified LAS to Address Pupil's Learning Difficulty in this Modular Learning to enhance learning performance in Grade V pupils. Thus, the researchers agreed to conduct this study in order to help those pupils who have difficulties in answering the learning competencies by means of designing LAB: A Modified LAS.

ACTION RESEARCH QUESTIONS
This action research will attempt to address the difficulty of learners in modular learning.
Specifically, this study will seek to answer the following questions:
1. What are the difficulties encountered by the learners in modular distant learning?
2. How does the intervention help the learners to cope with difficulties they encountered?
3. What is the mean percentage score of the learners' in pre-test and post-test?
4. What is the implication of the study?

INNOVATION, INTERVENTION, AND STRATEGY
The innovation being utilized in this study is a self-made learning assessment tool named as Lingaw ang Bata (LAB) a modified LAS to address pupil's learning difficulty in this modular learning.

This innovation can be considered as one of assessment tool in Department of Education which can be adopted like engaging different activities in a fun way. This tool was done through specific, simple and understandable test questions. The pupils answer the LAS with confident and in meaningful way. The LAS was made to let the pupils explore, discover and increase their level of understanding in answering the given questions. Likewise, this also help to supply the scarcity of science modules.

At this point, this study aims to stimulate the said assessment tool that would be a great help to improve pupils MPS with regard to learning difficulty in modular learning. Moreover, it will support the teachers who encountered the competency as least learned or difficult to teach competency.

Students learn best when learning is active. When they are mentally involved, when they engage in hands-on activities, when they are involved in a process of inquiry, discovery, investigation, and interpretation. Thus, learning is enhanced when students repeat the information in their own words or when they give examples or make use of the information (Bransford, Brown, and Cocking, 2000).

ACTION RESEARCH METHODS
Research Design
The current action research employed a mixed-method design. Creswell (2003) states that this design is preferred in a situation where the researcher tends to base knowledge, claims on pragmatic grounds (e.g. consequence-oriented, problem-centered, and pluralistic basis.) It employs strategies that involve collecting data, either simultaneously or sequentially to best understand research problems. Data gathering involves both numeric information (e.g. surveys as well as text information (e.g. interviews) so that the final data represents different typical scenarios of research). This study used the qualitative interview as the main instrument in determining the pupil's learning difficulty in modular distant learning. The researchers have crafted an assessment tool that includes Pre-test and Post-test.

This research design is considered appropriate for this undertaking because this study's main objective is to determine the impact of LAB: A Modified LAS to address pupils learning difficulty in this modular learning. Both results are compared if they conform to one another. Thus, it would lead to a good foundation if LAB: A Modified LAS is aide in pupil's learning in a modular approach.

Participants and/or other Sources of the Data and Information
The participants of this study were the seven (7) Grade V pupils of Nopulan Elementary School, Josefina District school year 2021-2022. The researchers believed these participants were the most mature among other lower-grade pupils. Nonetheless, it was assumed that they could provide more appropriate and refined data for this study.

RESEARCH INSTRUMENT
The researchers made differentiated learning activity sheets to tests the pupils in pre-test and the post-test used in this study. It undergoes face validity only as some panel of experts was checking it within the school. Interview-guide questions were maximized in the qualitative phase of this undertaking, and the researchers themselves conducted the in-depth interview.

DATA GATHERING PROCEDURE
To ensure the probity of the research conduct, the researchers secured permission from the office of the public schools district supervisor as well as the office of the school principal on their consent allowing the researchers to conduct this study that aims to address pupils learning difficulty in this modular time.

Upon approval, the grade 5 pupils was purposively identified to probe the impact of "LAB: A Modified LAS" on their learning. As an indispensable step in the data collection phase, the research participants were wholly informed about the purpose and significance of the study and their involved commitment and protection of confidentiality. Nevertheless, informed consent was requested first from them.

After such, the researcher established a strong linkage with the stakeholders by searching for some special assistance that could be provided to the research participants, such as peers and foster family approach. After all the students already had special support, the respondents were given LAB: A Modified LAS and asked to answer each 20-item pre-test and post-test at home. The interviews were conducted in the participants' homes. The researchers prepared an observation logs, assessment tool and practice tests to be utilized before, during and after the intervention.

Lastly, after the retrieval, MPS is computed, analyzed and interpreted simultaneously. Hence, both findings were presented and took part as the basis of whether this strategy was effective.

DATA ANALYSIS
This research undertaking utilized the mixed method research design. It follows that both quantitative and qualitative data were simultaneously gathered.

To better interpret the data in determining the performance of Grade 5 pupils in modular learning, the MPS of both pre-test and post-test are identified through the total scores garnered by the respondents, divided by the total number of items which further be multiplied by 40 and added by 60.

The DepEd Memorandum No. 160 s. 2012 was used to describe the MPS of the learners' mastery level.
Specified below is the mastery/achievement level:

MASTERY/ACHIEVEMENT LEVEL
MPS	Descriptive Equivalent
96 – 100%	Mastered
86 – 95%	Closely Approximating Mastery
66 – 85%	Moving Towards Mastery
35 – 65%	Average
15 – 34%	Low
5 – 14%	Very Low
0 – 4%	Absolutely No Mastery

In analyzing and presenting the needed information that has been acquired from the accumulated sources and data of the study, the researchers revisited the research question to logically organize the ideas along with the collected information. Interpretation involved the discussion and analysis of the themes that emerge.

RESULTS AND DISCUSSIONS
This section presents the results and discussion of the study.
Table 1 shows the emerging themes of the difficulties of pupils in modular distant learning.

Table 1. Emerging Themes

Difficulties of pupils in modular distant learning	• *Difficulty in understanding learning modalities in Science.* • *Lack of interest*

Difficulty in understanding modular learning in Science
Theme 1 is all about the difficulty of the students in understanding the learning competency in Science. According to them, they find it difficult in understanding the modular learning in Science competency. Three of the students said:

"Lisod kayo sabton ang mga pulong nga gigamit sa maong module". [It is difficult to understand the words used in the module.] *s1*

"Usahay, laglom kayo ang mga pulong nga gigamit ug lisod kayo tugyaron kon unsa ang gipasabot kay wala pa ko sukad naka basa ato nga pulong". [Sometimes, I find it difucult to understand the words used because it's unfamiliar to me and I never encountered it before.] *s2*

"Dili kayo step by step ang pag discuss sa topic." [The topic was not discussed in a step by step process.] *s3*

The statements uttered by these students proved that they are having difficulty in understanding modular learning in Science. According to Dangle et.al (2020) they revealed that students had a hard time answering their tasks on their modules and the lack of knowledge of parents academically to guide their child/children.

Lack of Interest
Theme 2 indicates the lack of interest in learning the topic. Pandemic has brought a lot of changes in the learning modality of the pupils .No teachers are involved in the learning or teachers have lack of interaction since face-to-face is not allowed. Accordingly:

"Boring kay dili ko kasabot. Dili pud ma discuss ug maayo sa maestra kay kulang ang oras". [It is so boring because I don't understand. Teacher also will not discuss the topic properly due to limited of time.] *s4*

"Kapoy ug basa sa modyul wala koy masabtan. Wala usab makatudlo nako kay busy akong ginikanan ug samot pud sila dili kabalo. ". [It is so boring to read the module. Noone also can help me because my parents were busy and don't know how to answer.] *s5*

Respondents 4 and 5 emphasized their lack of interest in understanding the lesson because no one will guide them and sometimes teachers lack time in teaching them to let them understand the lesson. According to Bijeesh (2017), without the presence of the faculty and their classmates who remind them of their assignments the chances of getting distracted and losing track of deadlines are high. It showed that the main challenges that emerged were lack of school funding in the production and delivery of modules, students struggle with self-studying, and parents' lack of knowledge to academically guide their child/children. Hence, it is evident that there are struggles associated with the use of modular distance learning (Sumaoang et.al, 2020).

Table 2. Intervention help the learners to cope with difficulties they encountered.

Respondents	Responses
1	*This intervention helps me to understand more about the learning competency that was being used.*
2	*This intervention guides me on how to answer the given questions in each competency*
3	*It helps to improve and widen my knowledge because of the varied activities that become easier and understandable.*
4	*This intervention helps me as a guide in answering different questions specifically the difficult ones.*
5	*LAS helps me a lot of things, especially in answering the given questions because it was being discuss step by step.*
6	*For me, this intervention is very much helpful because through this we learn and know more about the differentiated activities given.*
7	*For me, this intervention is very useful for this is very easy, convenient and not time consuming to answer different activities.*

Table 2 details how intervention help the learners to cope with difficulties they encountered. Seven out of seven pupil-respondents say that this intervention improves their difficulties encountered in answering the learning activity sheets. Respondents 1, 2, 4, and 6, mention that the intervention helps and guide them to widen their understanding because it became contextualized, easier and understandable to answer. Further, respondent 5 says that LAS helps a lot of things, especially in answering the given questions because it was being discuss step by step. Moreover, respondents 3 and 7 state that this intervention guides them on how to answer the given questions and also it is very useful for them because it is very easy, convenient and not time consuming to answer different activities.

Therefore, with the responses given above, it is showed that this intervention catches their interest and helps them improve their learning difficulty in this modular learning. It is because this intervention provides a sample of contextualized, standard, and differentiated learning activities. Exposing them through various activities is an excellent way to reach this goal. Moreover, the qualities of the module that learners evaluated as significant in their understanding of the lessons contained in the module. Among the qualities were learning competencies are contained in the modules, supplementary activities that enhance student's understanding of the contents, language and words used in the module are correctly used, clear and specific directions, and the provisions of self-assessment to assess their learning. These are qualities of modules that will determine their effectiveness since SLM are a self-directed and independent learning tool (Yazon, 2016).

Mean Percentage Score of learners' in the pre-test and post-test
The graph below shows the comparison of the pre-test and post-test mean percentage score before and after implementing the intervention.

Pre-test and Post Test

Post test — 91
Pretest — 65.14
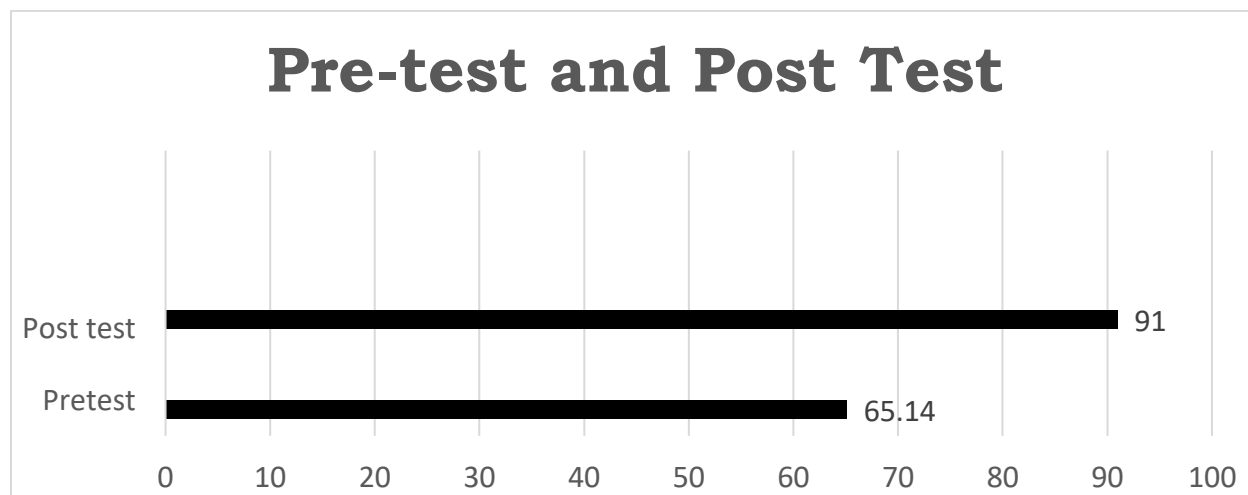
Figure 1. Comparison of mean percentage scores between pre-test and post-test

As shown in figure 1, the scores of the learners from pre-test to post-test differed. In the conduct of pre-test, pupils' mean percentage score is 65.14 which is interpreted as low. Hence, the mean percentage score does not meet the standard of passing which is 75%. Based on DepEd Memorandum no.160, s.2012, 65% and below signifies an average and low performance. This shows that pupils are having difficulty in answering the given modules.

According to (Kaymakci 2006), instructional materials play an important role in ensuring the effectiveness of teaching and learning activities. Worksheet is a kind of printed instructional material that is prepared and frequently used by teachers to help students to gain knowledge, skills and values by providing helpful comments about the course objectives and enabling students to engage in active learning and learning-by-doing in and out of the school.

However, when the intervention was implemented, pupils' mean percentage score in post-test reached 91% which is closely approximating mastery. DepEd Memorandum no.160, s.2012 stipulated that 86% and above indicates the high performance of the learners. The mean percentage score of the learners from the pre-test increased from 65.14% to 91% thus, the learners significantly improved their performance after administering the intervention.

Table 3. Implication of the study

Respondents	Responses
1	*The lesson was easy to understand because it became easier.*
2	*I like to study more because I was attracted by the pictures and it was easy to understand.*
3	*The activities were easy and colorful.*
4	*The competency was discussed step by step.*
5	*The LAS was easier compared to the given module*
6 and 7	*The activities were arranged accordingly and easy to answer.*

Table 3 shows the impact of the study. Seven out of seven pupil-respondents say that this study improves their level of understanding in answering the learning activity sheets. Respondents 1, 2, and 3 mention that this study is easy to understand and has a colourful pictures that attract them. Further, respondent 4 says that the competency was discussed step by step. Moreover, respondents 5, 6, and 7 state that LAS was easier to answer compared to the given module and the activities were arranged accordingly. The concepts presented in the modules engross students in learning. The tasks provided develop a sense of responsibility among students and they progressed on their own. They learn to learn; they are empowered. In addition, the students participate in real experiences. They discover new things, and they experience their knowledge on their own. Students learn to reflect on their own experiences, thus developing new skills, learning through modular direct students to oversee their own learning (Nardo et.al, 2017).

CONCLUSION AND RECOMENDATIONS
The study revealed that before the Lingaw Ang Bata: A MODIFIED LAS was employed, the gain score of the students in their MPS is 65.14% which signifies an average performance in answering the learning competency. However, after employing the said intervention their learning difficulty in modular learning was increase as shown in their MPS which is 91% which indicates a high performance of the pupils. Therefore, this intervention improved the learning difficulty in this modular learning.

Based on the results and conclusion, it is highly recommended that this Lingaw Ang Bata (LAB): A MODIFIED LAS intervention should be utilized by the Science teachers in teaching their pupils in difficult learning. Teachers should use this intervention as one of the guides and materials in guiding the pupils, especially the Grade 5 to improve their learning difficulty in this modular learning.

ACTION PLAN

Goals/ Objectives	Activities/ Strategies	Persons Involved	Resources Needed	Time Frame	Success Indicator
To enhance the learning performance of pupil's learning difficulty from low to closely approximating mastery	Distribute the modified LAS to the pupils and let them utilize the self-learning module.	Students Researcher	Printing Materials Snacks	Quarter I	Learning difficulty has improved from low to closely approximating mastery.
To share this intervention to grade advisers and	Conduct LAC Session	Researcher, grade 5 advisers and	Soft copy of the intervention	Quarter I	Class advisers/ and subject teachers utilized this

Grade 5 subject teachers		grade 5 subject teachers			intervention in their teaching.
To be able to utilized the Lab: A modified LAS	Conduct an assessment to the students	Researcher, advisers, and students	Soft copy of the intervention, bond paper and snacks	Quarter I	Scores in MPS is high

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VI. COST ESTIMATE

Activities	Quantity	Unit	Estimated cost	Total estimated cost
SUPPLIES AND MATERIALS				
Short Bond paper 80 GSM	3	Ream	245	735
Long Bond Paper 80 GSM	3	Ream	320	960
T700 printer ink Cyan	1	refill bottle	350	350
T700 printer ink yellow	1	refill bottle	350	350
T700 printer ink magenta	1	refill bottle	350	350
T700 printer ink black	1	refill bottle	350	350
		SUBTOTAL:		3,095
Reproduction and Binding cost				
Binding of documents	7	Instance	150	1050
		SUBTOTAL:		1050
Food expenses during the implementation of the intervention and in-depth interview				
Snacks during FGD and validation	25	Pax	75	1,875
SUBTOTAL:				1,875
GRAND TOTAL:				₱6, 020.00

Appendix A
INFORMED CONSENT

Title of the Study

Lingaw Ang Bata: A Modified LAS to Address Pupil's Learning Difficulty in this Modular Learning

Principal Investigator:

_____

I agree to participate in this study, I understand that the focus of the study is to document and analyze the effect of SSS as an aide in modular distance learning for students from families with low educational attainment.

1. Confidentiality: I understand that the information provided by this study may be used for research purposes, including publications in a research journal. All personal information, however, will be coded, and at no time will my personal identity be revealed.

2. Voluntary participation: The nature and purpose of the study has been explained to me. I understand that participation in this study is voluntary, and refusal to participate will involve no penalty or victimization. I may terminate my participation at any time I choose, without penalty. I understand that I may withdraw from participation at any time I choose, without penalty. I understand that I may withdraw from participation at any point in the study with no penalty whatsoever.

3. Termination of Participation: My participation in this research may be terminated without my consent if the investigator believes that any part of the study may put me at undue risk. My participation may also be terminated if I do not adhere to the study protocol.

4. Persons to contact with questions: I understand that the principal investigator in this study is: _____**.**
I also take note of the contact persons as indicated in the information leaflet that accompanied this letter which I will file for safekeeping and later reference.

5. Consent to participation: I certify that I have read all of the above and received satisfactory answers to any questions that I may have had. I, therefore, willingly give my consent to participate in the study. (I will be provided with a copy of this signed informed consent)

_____   _____

Participant's Signature   Date

Appendix B
Learning Activity Sheet in Practical Research 2

Name: _____Section and Strand: _____
Pretest
I. Multiple Choice: Read each question carefully. Choose the letter of the correct answer and write it on a separate sheet of paper.
1. What kind of sources are diaries, letters, and personal accounts?
    A. Primary Sources   B. Secondary Sources   C. References   D. Work Cited
2. This framework is the researcher's idea of how the research problem will have to be explored.
    A. Theoretical Framework   C. Concept Mapping
    B. Webbing   D. Conceptual Framework
3. This involves critiquing and evaluating what other researchers have done in relation to the problem to be studied and whether these studies affirmed or negated the subject under study?
    A. Review of Related Readings   C. Review of Related Literature
    B. Review of Related Findings   D. Review of Related Research
4. This citation refers to the rules and conventions established by an association in America for documenting sources in a research paper.
    A. Modern Language Association (MLA)   C. Chicago Manual of Style
    B. Background of the Study   D. American Psychological Association (APA)
5. For the citation style above, this is the bibliography label for the list of sources cited at the end of the study.
    A. Bibliography   B. Sources   C. References   D. Works Cited
II. Identification. Read each question carefully. Give what is asked. Write your answers on a separate sheet of paper.
_____1. We cite sources properly to avoid this offense of the law.
_____2. This review helps to establish what theories already exist, the relationships between them, to what degree the existing theories have been investigated, and to develop new hypotheses to be tested.
_____3. This review consists of an overview of existing evidence which uses pre-specified and standardized methods to identify and critically appraise relevant research.
_____4. The body of literature in this review includes all studies that address related or identical hypotheses or research problems.
_____5. This review is a flowing, dynamic account of past events which involves an interpretation of these events to recapture the nuances, personalities, and ideas that influenced these events.

In-Depth Interview Guide

  A. Engaging Question

    1. What are your thoughts about the modular learning modality that the school is using in this new normal time?
    2. What are the difficulties encountered by the learners in modular distant learning?
  B. Exploratory Questions

    1. What can you say about having a modified learning activity sheet in your study?
    2. Does it address your struggle in understanding the discussion and activities in the module you have received? In what way?
    3. How does the intervention help you to cope with difficulties you've encountered?

  C. Exit Question

    1. Is there anything else you would like to say about the modified learning activity sheet as your exercises during this pandemic?

STRATEGIES AND PUBLIC PARTICIPATION IN SOLID WASTE MANAGEMENT IN PORT LOKO CITY

Osman Justine Conteh
University of Makeni, Sierra Leone.

ABSTRACT

To create a framework for long-term, sustainable solid waste management, this paper examines the Port Loko municipality's solid waste management plan and public involvement. It sets out: to examine the waste management tactics employed by the Port Loko City Council; to evaluate the methods used for solid waste management transportation; to investigate whether dustbins are available for collecting solid waste throughout the city; to determine whether land fill is available; to evaluate the degree of public involvement in the procedures related to solid waste management; to create a framework for long-term, sustainable solid waste management.

The primary means of addressing the objectives was by means of semi-structured interviews and discussions with diverse stakeholders and members of the municipality's community. The current solid waste management system was examined in the study, along with input from the general public, to determine its advantages and disadvantages. It was found that Port Loko City's current solid waste management system is not sustainable. The separation of waste is not provided for. Waste is not being collected or transported in an appropriate or sufficient manner.

Officially, recycling and composting of waste are not permitted. People are not involved in the decision-making process regarding solid waste because the majority of the waste is disposed of in open landfills.

Additionally, the study examined the recently suggested solid waste management system. It was discovered that the recently suggested system, which includes a framework for a two-stream waste segregation system, is superior to the current system. The current waste collection and transportation system is not as good as the proposed one. A key component of the plan is the composting of biodegradable waste. But to create a solid waste management system that is sustainable, important issues were left out of the proposed system.

INTRODUCTION

The issue of solid waste management affects both urban and rural areas. Every individual contributes to this issue by having the potential to produce waste. Producing waste is one thing, but the kind of waste produced is another, and managing or disposing of the waste is a whole other story. It is well known that the rate at which solid waste is produced outpaces the ability to handle it in an environmentally responsible manner. Waste is produced by a variety of industries, including commercial, industrial, and households. Often, local governments or administrative bodies oversee managing the waste.

There is growing agreement that in order to address this issue, which has serious consequences for the environment and public health, the immediate stakeholders in the solid waste problem—that is, the waste generators, or residents in this case—must work together with the authorities. In Sierra Leone, as in many other countries, solid waste management is a major source of concern. African countries, Davidson, Gary (2011).

Waste is defined as any product—liquid, gaseous, solid, or a combination of the above—that is undesired or unnecessary for individuals, businesses, or organizations, according to the Environmental Protection Agency (EPA) (2008) in the context of waste management in Sierra Leone. Municipal solid waste management (MSWM) is the process of managing solid waste, including its generation, collection, transportation, recovery, and disposal in the most appropriate and appropriate way possible. It combines technology and policy to protect the environment, public health, socioeconomic values, and aesthetics. (Daskalopoulos et al., 2009)

The rapid population and economic growth in developing nations during the past few decades has led to an increase in the consumption of natural resources and, in certain places, a significant amount of waste generation. And as a result of inadequate human and financial resources to address the issue, inappropriate waste disposal has emerged as a problem throughout Africa, most notably in Sierra Leone. Due to a lack of infrastructure and awareness, between 20 and 80 percent of the solid waste in African cities is disposed of by dumping in open areas, waterways, and surface drains. Appropriate disposal of municipal waste is necessary to protect human health, the environment, and natural resource preservation. (UNEP, 2012).

LITERATURE REVIEW
Waste Management Strategies

Waste prevention, recycling (including composting), and combustion are the three primary elements of an integrated municipal waste management strategy, according to the United States Environmental Protection Agency (USEPA) (2013, 2014). These elements led to the classification of five primary activities under integrated solid waste management (waste

prevention, recycling, composting, combustion, and land filling) in a hierarchy. It is evident that the earlier components and the later activities under classification are similar.

In order to lessen the quantity and/or toxicity of discarded waste, waste prevention—also referred to as source reduction—occurs during the design, manufacture, procurement, or use of materials and products. Waste prevention, which is simply defined as "reducing waste by not producing it," is the recommended method for managing solid waste in municipal settings because it lessens the quantity of waste that needs to be managed by the community (Mackaness, 2015). Because of the many benefits that source reduction offers—including reuse activities and the recognition that it is a commonsense approach with significant potential to use resources efficiently, save money, and reduce waste—the Makeni and Bo city councils, in collaboration with Welt Hunger Hilfe, have been taking an increasingly creative approach to solid waste prevention.

Public Participation
Communities are still frequently ignored, even in local decision-making processes, and are viewed as passive recipients of government services in many parts of the world (Tadesse, 2016). In the end, this method leaves people unaware of their potential contributions to the process. Therefore, involvement may be the ingredient lacking in a recipe for improved solid waste management when there are multiple waste management and disposal techniques in place. Public participation has been the focus of extensive research, even in the areas of recycling behavior. (Barr, 2014).

According to research, there is a shortage of landfill space nowadays, but for aesthetic, health, and environmental reasons, communities are also less likely to accept the placement of landfills close to where they live (Barr, 2014). The involvement of the public in solid waste management decisions and practices becomes inevitable as the use of autocratic waste management techniques may no longer be feasible.

According to Read et al. (2008), waste reduction is being promoted by local governments as a more effective method of handling solid waste. Bekin, Carrigan, and Szmigin make the case in their study on waste reduction that it is a more environmentally friendly and involved method of addressing the solid waste issue.

They discovered that there was less production of solid waste in communities that produced some consumables (fruits and vegetables) (Bekin et al., 2017). However, they discovered that these communities had mechanisms in place to guarantee that people understood the necessity of taking intentional steps to address waste from the perspective of sustainable development.

The community members actively participated in recognizing the value of teamwork and, consequently, came to an agreement on such projects. Thus, it makes sense that Read et al. suggested that, despite financial limitations, waste minimization be embraced by both the public and private sectors as a worthwhile endeavor in which to invest for waste management (Read et al., 2008).

The public's involvement in waste management, and specifically in solid waste management, has become essential and can take many forms. In order to address the waste problem, Tsai (2017) claims that a cooperative society offers a chance for "creativity and innovation." Tsai's observation highlights the significance of the public's willingness to collaborate on waste-related issues. It takes mutual comprehension and consensus for members of the public to cooperate. When unity is attained, it creates an environment that is conducive to the emergence of innovative approaches to managing waste in a way that is both sustainable and agreeable. As a result, the public now has an obligation to cooperate in solid waste management, among other

Transportation
In addition to collecting recyclables and solid waste, the functional aspect of collection also involves moving these materials to the site where the collection vehicle is emptied after collection. Wastes from secondary locations must be collected by the appropriate city authority, who must then transport them in trucks or motor vehicles and dispose of them in the approved landfill outside of the city. NGOs and CBOs do, however, gather waste from bin locations and dispose of it in skips. Typically, collection vehicles include tipping trucks (container carriers), normal trucks, open trucks, dump trucks, and tractors.

Availability of Dustbins
Waste is collected in most areas using large (15 m3) containers that are picked up and emptied by Waste Management Units (WMU). In some locations, smaller containers have been positioned and emptied by the WMU at the disposal site; in other locations, the tractor-trailer system is employed. In both systems, it is typically necessary for households, businesses, and institutions to transport their waste to designated containers. The Waste Management Unit (WMU) is not only in charge of collecting waste; it also has to enforce waste management regulations so that all waste generators pay for the services rendered and use the containers or tractor-trailers as part of the waste management system. Sichaaza (2008).

Land Fielding
This offers a safer substitute for the careless disposal of solid waste. It is obvious that improper waste management can endanger both human health and the environment, which is why it is necessary to establish special locations, or landfills, to handle waste that cannot be recycled or composted. "Containers shatter, releasing their contents. Rainwater and liquids dumped in the landfill mix and seep through the trash. They could wash with soluble hazardous materials, creating leachate. Leachates will either percolate through the soil until they reach an impermeable layer or flow downhill over surface land. Both surface and groundwater can become contaminated by leachates. (2017) Bernard et al.

A standard landfill is designed in a way that it can protect ground water from contamination, and also avoids fires that would break out as a result of methane emission. Bernard (2017)

Gaps in the Research

Specifically in Port Loko city, in a developing nation like Sierra Leone, the challenges surrounding solid waste management are extremely challenging to handle. Lack of infrastructure and funding to handle solid waste creates a vicious cycle whereby low-quality service delivery results in fewer people being willing to pay for those services, which further depletes the resource base, and so on. The issue is made even more difficult by the city's and population's rapid urbanization and growth, which significantly increase waste production and the need for waste retrieval services in urban areas.

METHODOLOGY

Study Population

The study was carried out in Port Loko, the capital and headquarters of the recently formed North/West Region, which is situated 72 kilometers to the north and west of Sierra Leone's capital, Freetown. The population of Sierra Leone is 44,900, according to statistics from the 2015 census.

The resident leaders were included in the study population as well. The community leaders who speak for the people living in a specific home are known as resident leaders. Solid waste management is one of the issues that the resident leaders are in charge of handling as part of their duty to address matters that impact the residents. All adults who are 18 years of age or older and who are able to provide information on solid waste management are included in this group.

The methodology of this study was based on the research survey approach which is a method of systematically obtaining standard information about the Strategy and public participation of solid waste management in Port Loko city. The importance of the survey was to standardize the information obtained. A questionnaire with questions which were semi-structured and interview guides was used to assess the strategy used by city council and the public participation towards solid waste management in Port Loko city.

This research was included in the wide category of descriptive studies. More specifically, within this wide field of descriptive studies, the survey research approach was used. The descriptive design was chosen because it provides a precise description of the traits of a given phenomenon, community, or individual. The methodical gathering and presentation of data is a requirement of the descriptive study. In essence, the design makes it easier to gather information that gives a thorough account of the phenomenon, group, or community as it occurs in the wild. Learning about the phenomenon is a descriptive study's primary goal.

Both qualitative and quantitative data were gathered for the study to meet its primary goal. Data that can be used to draw statistical conclusions about all variable outcomes and is displayed numerically on graphs, frequency tables, bar charts, pie charts, histograms, and pictograms is known as quantitative data. Analyzing qualitative data enables the interpretation of phenomena.

Thirty (30) respondents with a target population of four hundred (400) people and ten council staff members with a target population of fifty-four (54) staff members were chosen from among six streets in the three main sections of the city.

Respondents were asked questions about the survey's independent variables on the questionnaire. Thirty (30) responders from six different streets took part in the study, making up 7.5% of all participants. Four hundred (400) people made up the local population, or 7.5% of the total, while ten (10) council employees, representing both the higher and lower ranks, were also interviewed, making up 18.5% of the council staff overall. The local population is greater than the council because they are the biggest generators and the ones who deal with solid waste issues the most directly.

RESULTS AND DISCUSSIOINS

This study set out to look into Port Loko City's solid waste management plan and public involvement in it. Utilizing a primary data collection tool, the strategy and public involvement in Port Loko City's solid waste management were analyzed. To forecast the effect of the intervention variable on the five distinct dependent variables (transportation, public participation, dustbins, and landfill), statistical tools such as frequency tables, bar charts, and pie charts were employed. This chapter describes the study sample and uses basic descriptive statistical tools (frequency tables, bar charts, and pie charts) to analyze the data for each research question. A summary of the analysis is also included. With Excel, statistical analysis was carried out.

DESCRIPTIVE STATISTICS

Table 1: Frequency and percentage distribution of respondents as part of the waste management processes in the study area, Port Loko city.

Dependent variable	Dependent variable	Frequency	Percentage
	WASTE STRATEGY		
	choice of current waste service		
	waste containers to households	6	20%
	waste containers to specific locations	0	0%
	timely collection	3	10%
	sensitization campaigns	1	3%
	employ more workers	20	67%
	TOTAL	**30**	**100%**

Do you sort wastes

Yes	4	13%
No	26	87%
TOTAL	**30**	**100%**

Are you reusing wastes

Yes	24	80%
No	6	20%
TOTAL	**30**	**100%**

Wastes reused

Rubbers	22	73%
cans	6	20%
Bottles	1	3%
Others	1	3%
TOTAL	**30**	**100%**

PUBLIC PARTICIPATION
Wastes found outside your home

pick and put in a container	5	17%
No action	25	83%
TOTAL	**30**	**100%**

Reduce waste generated

Ye	23	77%
No	7	23%
TOTAL	**30**	**100%**

Willing to pay for waste in future

Yes	24	80%
No	6	20%
TOTAL	**30**	**100%**

Necessary to work together

Ye	28	93%
No	2	7%
TOTAL	**30**	**100%**

Constraints in managing wastes

Transportation	18	60%
Personnel	4	13%
Personal protective equipment	0	0%
Community participation	4	13%
Processing or treatment	2	7%

Disposal	0	0%
Equipment	2	7%
TOTAL	**30**	**100%**

TRANSPORTATION

Disposal of wastes from home/shop

Myself	23	77%
Housekeeper	6	20%
someone else at home	1	3%
Private collector	0	0%
city council	0	0%
TOTAL	**30**	**100%**

Outlook about public containers

Far away from the houses	22	73%
Too small to contain wastes	6	20%
Produce unpleasant smell	2	7%
Nothing wrong with them	0	0%
No communal containers	0	0%
TOTAL	**30**	**100%**

Primary responsibility for collection

Local council	27	90%
Private company	0	0%
Neighborhood groups	3	10%
Others	0	0%
TOTAL	**30**	**100%**

Enough vehicle to do the job

Yes	7	23%
No	23	77%
TOTAL	**30**	**100%**

DUSTBIN AVAILABILITY

Waste containers at home/shop

Yes	7	13%
No	23	87%
TOTAL	**30**	**100%**

Waste containers by other entity

Ye	0	0%
No	30	100%
TOTAL	**30**	**100%**

How do you dispose wastes

open pit burying	23	77%

Open pit dumping	6	20%
Recycling	1	3%
Composting for manure	0	0%
TOTAL	**30**	**100%**
Amount of bins in your locality		
5	23	77%
10	5	17%
15	0	0%
None	2	7%
TOTAL	**30**	**100%**
LANDFILL		
Place for disposal		
Landfill	24	80%
Skip	2	7%
An open pit	4	13%
Others	0	0%
TOTAL	**30**	**100%**
Landfill fenced		
Yes	0	0%
No	30	100%
TOTAL	**30**	**100%**
Conducive for public health		
Yes	2	7%
No	28	93%
TOTAL	**30**	**100%**
Are people scavenging the landfill		
Yes	27	90%
No	3	10%
TOTAL	**30**	**100%**
What are they looking for		
Rubbers or plastics	23	77%
Bottles	5	17%
Cans	2	7%
Metals	0	0%
TOTAL	**30**	**100%**

Source: field work 2018

Table 1 shows the totality of results which indicates the characteristics of the respondents in Port Loko city. The table indicates that there are a total number of 30 respondents who must have known about wastes management. This can also be stated as 100% of 30 respondents had known issues of waste management in Port Loko city.

The table also illustrates the service the municipality to improve upon; it provides ways for the respondents to answer what is

best needed to improve the present services. out of the five options listed,6(20%) says provision of waste containers to household is necessary,3(10%) says timely collection of waste should be done,1(3.3%) sensitization campaigns are necessary and 20(66.6%) which is the highest frequency says employing more workers to do the job is necessary. This shows that, there are more improvement needed to add more workers to the waste collection management in Port Loko city

The table also showed if waste is sorted before disposal, out of the 30 respondents, 4(13%) indicated YES and 26(87%) indicated NO, meaning people are not sorting waste before disposal

The findings from the table revealed that the majority 24(80%) of respondents reused items from their wastes, and 6(20%) are not reusing waste items from their wastes.

From the above findings revealed that, 22 (74%) which is the highest are reusing plastic rubbers from their wastes 6(20%) are reusing cans 1(3%) reuses bottles and another 1(3%) are reusing other wastes.

From the table it is understood that 25(83%) the highest percentage took no action towards waste found on the street and 5(17%) will always pick wastes on floor and put in a nearby container

Through the table, 23(77%) are willing to reduce waste generated through help from council and 7(23%) indicated that they will not be able to do nothing towards reducing wastes generated.

Moreover the table indicated that, 24(80%) expresses willingness to pay for their wastes in future while 6(20%) are not willing to pay for their wastes as it is the sole responsibility of the city council.

Furthermore, the table showed that 28(93%) sees the necessity to work together to improve waste management and 2(7%) indicates unnecessary to work together to improve waste management.

Also from the table 18(60%) the highest number of respondents for this question said transportation is their major constraint,4(13%) showed that, the number of personnel is another constraint 4(13%) indicated community participation as a constraint 2(7%) showed the process and treatment as constraints and 2(7%) also indicated that, lack of equipment is another constraint.

This is seeking to know the individual responsible to collect waste from homes/stall/shops. Out of the 30respondents interviewed, 23(77%) of householders says they are doing it personally, 6(20%) says their house keepers, and 1(3%) says someone else in the home is taking the wastes for disposal.

The table specified that, 22(73%) showed containers are too far from their houses, 6(20%) illustrated that, the containers are too small to occupy the amount of waste generated in their area, 2(7%) showed containers produces pungent smell which most times disturb the breathing area around the vicinity.

From the above table 27(90%) showed local council has the primary responsibility to manage wastes,3(10%) believes that, neighborhood youth groups/CBOs/NGOs.

Apparently, 23(77%) indicated that, the available vehicles are not enough to transport wastes whiles.7 (23%) showed that the available vehicles are enough to do the job

In the table, 26(87%) showed there are no extra containers/cans/skips provided by council in their various houses and shops except those in strategic points and 4(13%) showed council provided containers at some shops

Similarly from the table,30(100%) showed that, there is no other organization or entity helping in the management of solid apart from city council.

Correspondingly 23(77%) applied open pit burning, 6(20%) uses open pit dumping, and 1(3%) of the total respondents are reusing certain wastes materials.

Likewise, 23(77%) showed 5 cans are located at the extreme end of the city, old Port Loko, 5(17%) showed 10 cans are located at the central business city, the central part of Port Loko, 2(7%) indicated that there are no dustbin cans available in their locality, apparently the interior part of the city, Sendugu

From the table, 26(87%) showed waste is taken to landfill, 4(13%) indicated that, the waste is taken to a skip as a primary collection center.

However 30(100%) showed the entire respondents indicated that, there is no fence around the landfill which poses more threats to the health and safety of residents around the landfill and the city in general.

From the table above, 28(93%) indicates that, the present landfill is absolutely not conducive as per public health laws and 2(7%) affirm it conduciveness

Nevertheless27(90%) demonstrated that people are always going to the landfill in search of used materials whilst 3(10%) shows people are not doing such.

The table shows that 23(77%) people are looking for plastic rubbers which are in turn used to put ginger beer and other food, 5(17%) showed that they are looking for bottles,2(7%) shows they are looking for cans which can be later used to make pots and cooking spoons by blacksmiths.

Table 2: represents Frequency and Percentage of respondents indicating the choice of current waste service city council to improve upon

Characteristics	Frequency	Percentage
Waste strategy		
Choice of current waste service		
waste containers to households	6	20%
waste containers to specific locations	0	0%
timely collection	3	10%
sensitization campaigns	1	3%
employ more workers	20	67%
TOTAL	**30**	**100%**

Figure 1: represents a bar chart of respondents indicating the choice of current waste service city council to improve upon
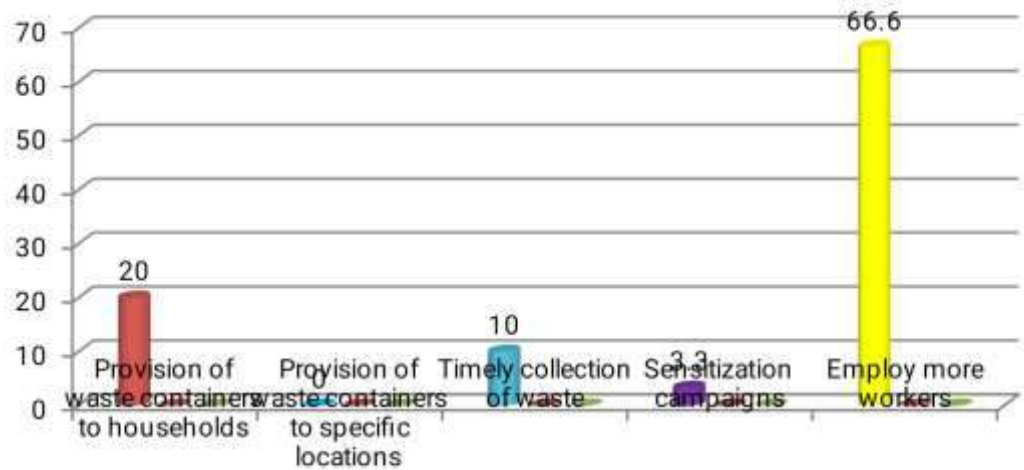
Source: field survey 2018

Table 2 Figure 1 illustrates the service the municipality to improve upon, it provides ways for the respondents to answer what is best needed to improve the present services. out of the five options listed,6(20%) indicated provision of waste containers to household is necessary,3(10%) showed timely collection of wastes,1(3.3%) sensitization campaigns are necessary and 20(66.6%) which is the highest frequency showed employing more workers to do the job is necessary.

Table 3: Shows frequency and Percentage on the necessity for public (city council) and private for partnership for sustainable waste management.

Character	Frequency	Percentage
Necessary to work together with partners?		
Ye	28	93%
No	2	7%
TOTAL	**30**	**100%**

Figure 2: Shows a pie chart representing respondents on the need to work together with other colleagues and city council for a sustainable waste management.
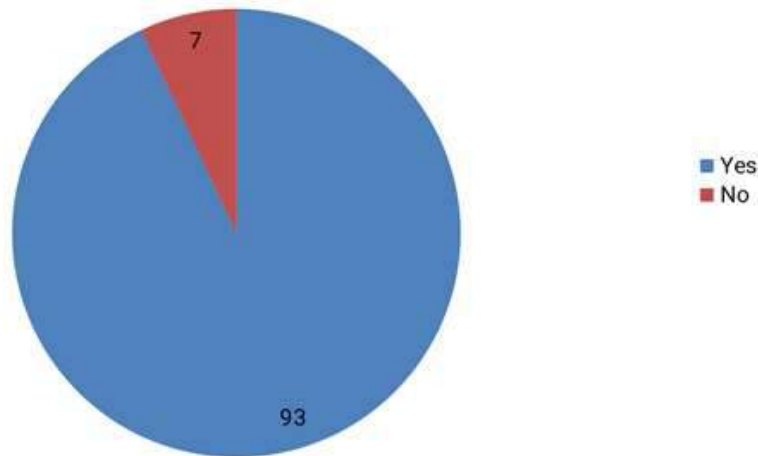
Source: field survey 2018.

Table 3 figure 2 showed commitment needed from residents, traders, market vendors and council for a better waste management.28(93%) shows they committed to work together to improve waste management and 2(7%) indicates unnecessary to work together to improve waste management.

Table 4: Shows frequency and Percentage from respondents on the primary responsibility for the collection of solid wastes.

Characteristics	Frequency	Percentage
Primary responsibility for collection		
Local council	27	90%
Private company	0	0%
Neighborhood groups	3	10%
TOTAL	**30**	**100%**

Source data: field survey 2018

Figure 3: Shows a bar chart from respondents on the primary responsibility for the collection of solid wastes.

Table 4 Figure 3 indicated the primary responsibility for the collection of wastes. 27(90%) showed local council has the primary responsibility to manage wastes,3(10%) believes that, neighborhood youth groups/CBOs/NGOs.

Table 5: Shows frequency and Percentage from respondents on the disposal of household refuse

Characteristics	Frequency	Percentage
How do you dispose wastes		
open pit burying	23	77%
Open pit dumping	6	20%
Recycling	1	3%
Composting for manure	0	0%
TOTAL	**30**	**100%**

Source: Field survey 2018

Figure 4: Shows a bar chart from respondents on the disposal of household refuse.
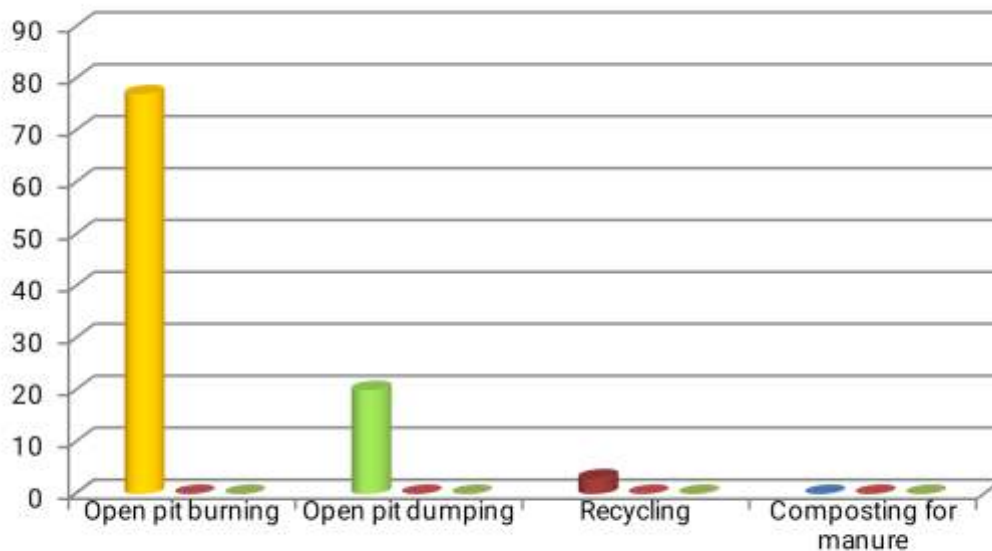
Source: field survey 2018

Table 5 Figure 4: Showed respondents indicated how they dispose of their waste when there are no recycling methods. 23(77%) showed they always apply open pit burning, 6(20%) indicated they uses open pit dumping, and 1(3%) they are reusing certain wastes material.

Table 6: Shows frequency and Percentage from respondents on the fencing of the landfill.

Characteristics	Frequency	Percentage
Landfill fenced		
Yes	0	0%
No	30	100%
TOTAL	**30**	**100%**

Source: field survey 2018

Figure 5: Shows a pie chart from respondents on the fencing of the landfill.

Table 6: indicated from respondents if the landfill is well fenced or not. By what was gathered, 30 (100%) of the total respondents stated that there is no fence around the landfill which poses more threats to the health and safety of residents around the landfill and the city in general.

CITY COUNCIL MAIN ANALYSIS

Characteristics	Frequency	Percentage
How do you collect waste		
House to house	0	0%
Dustbins /skips	10	100%
TOTAL	**10**	**100%**
People using beans correctly		
Yes	6	60%
somehow	3	30%
No	1	10%
TOTAL	**100**	**100%**
Segregation of wastes		
Yes	10	100%
No	0	0%
TOTAL	**10**	**100%**
Wastes segregated		
Reuse	4	40%
Recycle	0	0%
Burning	6	60%
TOTAL	**10**	**100%**
Constraints in managing waste		
Transportation	6	60%
Personnel	0	0%
Equipment	2	20%
Personal protective Equipment	2	20%
Processing/treatment	0	0%
Disposal	0	0%
TOTAL	**10**	**100%**
Limitations in managing waste		
People's attitudes	1	10%
Bins used for wrong purpose	5	50%
Lack of resources	2	20%
Vendors poor cooperation	2	20%
TOTAL	**10**	**100%**
Full measures for illegal disposal		
Yes	0	0%
No	10	100%
TOTAL	**10**	**100%**

Enough workers for the job

Yes	7		70%
No	3		30%
TOTAL		**10**	**100%**
Dustbins available in main city			
15	4		40%
20	4		40%
30 and above	2		20%
TOTAL	10		100%
Transport waste to landfill			
Motor vehicles(trucks)	4		40%
Tricycles	6		60%
Wheelbarrow	0		0%
Others	0		0%
TOTAL	**10**		100%

Source: field survey 2018

Table.7 shows holistic questions and answers from council respondents. 10 people were interviewed from administrators to waste collectors.

From the table, 10(100%) indicated that, city council do not provide cans/skips to shops and households but put in strategic locations.

Also from the table, 6 (60%) indicated that people are using the dustbins correctly, 3(30%) are not too sure whether people are using the bins and 1(10%) people are not using the bins correctly.

The table also showed 10(100%) that waste is always segregated before disposal.

In the table also indicated what people are doing with the segregated wastes 6(60%) says they are reusing it, 4(40%) indicates burning as the only option after segregation

From the table 6(60%) indicated transportation as a major constraint in managing solid wastes,2(20%) indicates equipment to do the job is a challenge, 2(20%) indicated personal protective equipment is a major constraint in managing solid wastes in the municipality

Within the table 1(10%) shows attitudes of people towards waste management is a major limitation in managing wastes at household level,5(50%) shows using the bins/skips for the wrong purpose is a challenge,2(20%) lack of affordable resources, 2(20%) lack of cooperation from vendors

Also in the table, 10(100%) indicated that, there are no applied measures to fight against illegal waste disposal, which poses great threat

From the table, 7 (70%) shows that there are enough workers to do the waste collection job, 3(30%) shows the workers are not enough to do the job

Number of wastes bins/skips available at strategic centers can also be seen in the table 4(40%) shows that there are 15 dustbins available, 4(40%) shows only 20 available and 2(20%) shows 30 and above as the available dustbins/skips in the main city

Also from table, 4(40%) shows that, motor vehicles (trucks) are the means of transporting wastes to the landfill. 6(60%) shows tricycles as the major means of transporting wastes to the landfill.

Table 8: Indicated frequency and percentage of respondents on how waste is collected

Characteristics	Frequency	Percentage
How do you collect waste		
House to house	0	0%
Dustbins /skips	10	100%
TOTAL	**10**	**100**

Source: Field Data 2018

Table 8 : Indicated respondents on how waste is collected. 10(100%) sowed all skips are fixed in strategic locations, no house to house collection indicated.

Table 9: shows Frequency and percentage on what is being done on segregated wastes

Characteristics	Frequency	Percentage
Wastes segregated		
Reuse	4	40%
Recycle	0	0%
Burning	6	60%
TOTAL	**10**	**100%**

Source: Field survey 2018

Figure 7: shows Pie Chart on what is been done on wastes segregated
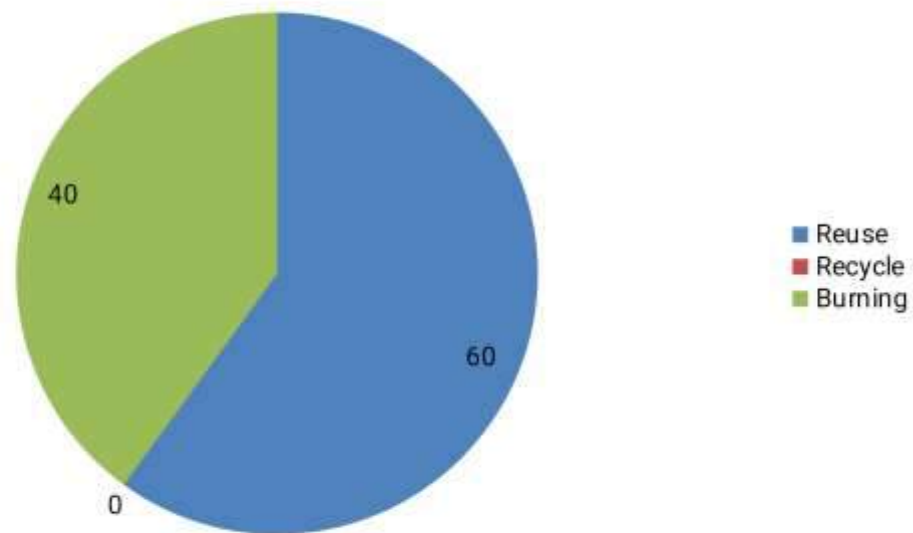
Table 9 Figure 7 indicated what people are doing with the segregated wastes 6(60%) showed they are reusing, 4(40%) indicates burning as the only option after segregation

Table 10: shows frequency and percentage on the constraints faced in managing waste

Characteristics	Frequency	Percentage
Constraints in managing waste		
Transportation	6	60%
Personnel	0	0%
Equipment	2	20%
Personal protective Equipment	2	20%
Processing/treatment	0	0%
Disposal	0	0%
TOTAL	**10**	**100%**

Source: Field survey 2018

Figure 8 indicated Pie Chart on the constraints in managing wastes
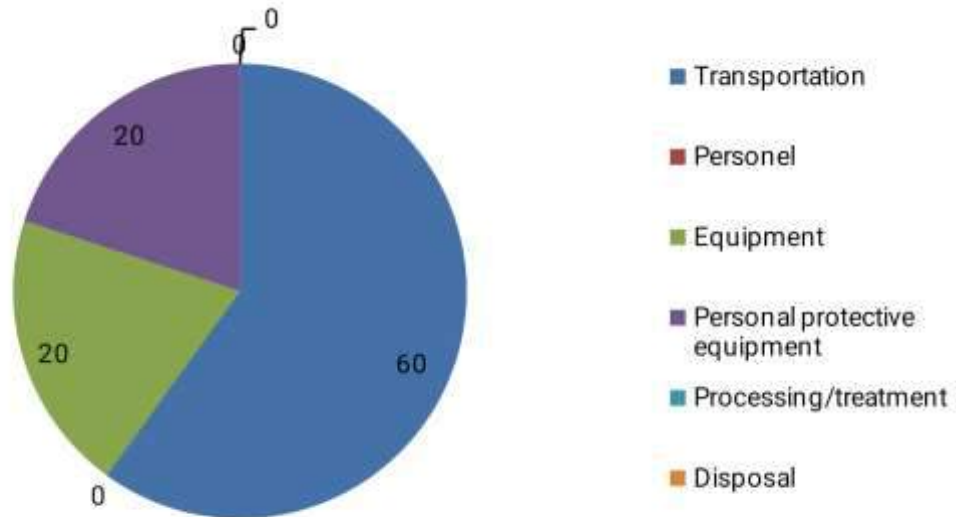
Table 10 Figure 8: shows the constraints faced in managing wastes 6(60%) indicated transportation as a major constraint in managing solid wastes, 2(20%) indicates equipment to do the job is a challenge, 2(20%) indicated personal protective equipment is a major constraint in managing solid wastes in the municipality

Table 11 shows frequency and percentage on the limitations in managing wastes at household level

Characteristics	Frequency	Percentage
Limitations in managing waste		
People's attitudes	1	10%
Bins used for wrong purpose	5	50%
Lack of resources	2	20%
Vendors poor cooperation	2	20%
TOTAL	**10**	**100%**

Source: field survey 2018

Figure 9: indicated a histogram on the limitations in managing wastes at household level
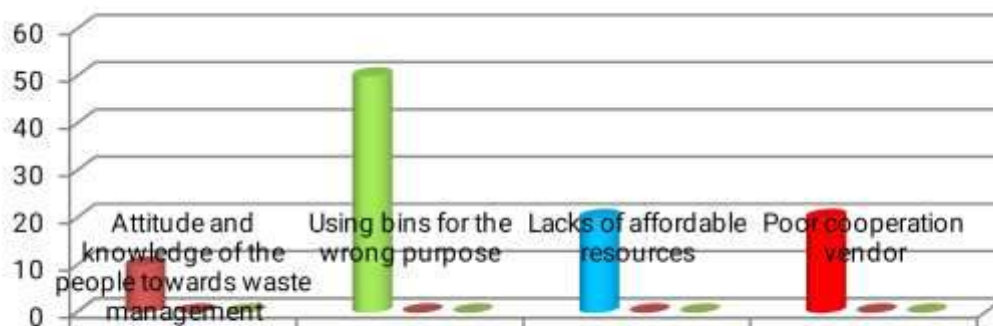
SourceSS

Table 11 figure 9 shows the limitations in managing wastes at household level 1(10%) shows attitudes of people towards waste management is a major limitation in managing wastes at household level,5(50%) shows using the bins/skips for the wrong purpose is a challenge,2(20%) lack of affordable resources, 2(20%) lack of cooperation from vendors

Table 12 illustrates frequency and percentage on how waste is transported to landfill

Characteristics	Frequency	Percentage
Transport waste to landfill		
Motor vehicles(trucks)	4	40%
Tricycles	6	60%
Wheelbarrow	0	0%
Others	0	0%
TOTAL	**10**	**100%**

Source: field data 2018

Figure 10 illustrates Pie Chart on how waste is transported to landfill
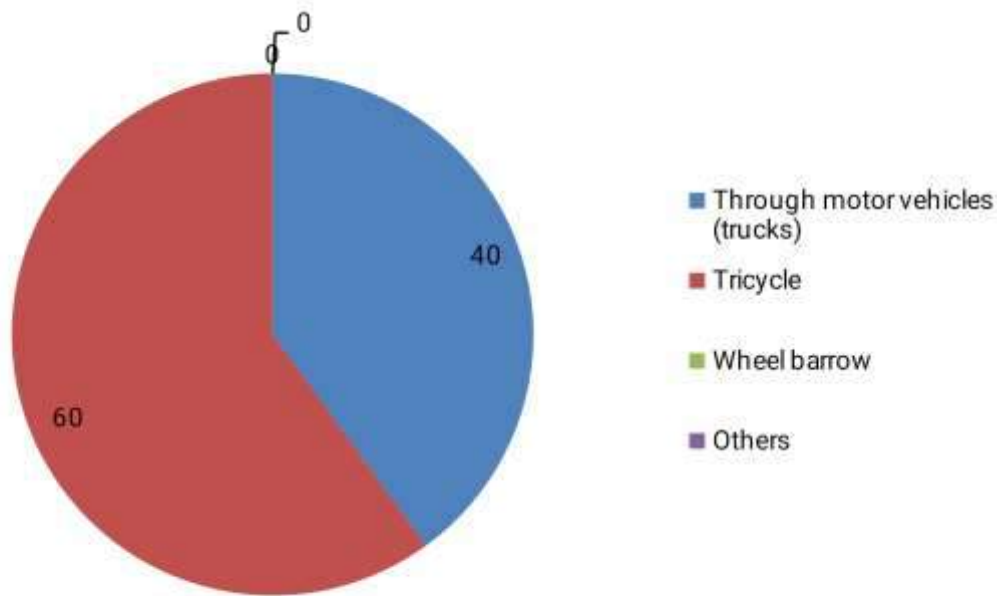
Table 12 Figure 10 illustrates on how waste is transported to landfill 4(40%) shows that, motor vehicles (trucks) are the means of transporting wastes to the landfill. 6(60%) shows tricycles as the major means of transporting wastes to the landfill.

SUMMARY

The results of the data analysis used the sample of respondents in various households and staff from city council on the research conducted based on the strategies and public participation on solid waste management in Port Loko municipality with special consideration on six (6) main streets in the main city. Excel Microsoft 2017 was used to predict the impact of the strategy and public participation on five outcome variables; waste strategy, transportation, public participation, dustbin availability and landfill

The study was based on five research questions. The first research question asked: what waste service would the council need to improve upon? Based on the respondents, the service which needs more improvement by the city council is the employment of more workers 20(67%) with the highest

percentage,6(20%) which indicated the provision of more waste containers had the second highest needed improvement,3(10%) says timely collection of waste also needs improvement. Sensitization campaigns 1(3.3%) is the least needed improvement. This shows that, there are very few workers employed by city council to do the waste management job, therefore, more improvement needed to add more workers to the waste collection management.

On the contrary from the results given by city council 7 (70%) shows that there are enough workers to do the waste collection job, 3(30%) shows the workers are not enough to do the job.

The overall estimation from what was given by the community people and the city council staff one could be able to reaffirm that, more workers are needed in order to have a sustainable waste management.

The second research question asked; what are the available means of transporting solid waste in Port Loko city? Based on the above results from the major stakeholders in waste management within the municipality (council staff), it was found out that 6(60%) shows tricycle is the most regular means

of transporting wastes, 4(40%) also indicated that, motor vehicles (trucks) are the second most regular means of transporting wastes to the landfill and wheelbarrows 0(0%) is not used at all. From the above results, tricycles are the major means of transporting wastes to the landfill.

Similarly, from the community people (household respondents and vendors) also gave major constraints in managing wastes which has a link to the research question. Transportation (18(60%) which shows the highest number of respondents and percentage illustrated that, transportation of solid wastes is a major constraint in the city. 4(13%)the second highest indicated the number of personnel to do the job are very small considering the largeness of the municipality and its population, although 4(13%) again says community participation is a major problem. 2(7%) said that the process and treatment is also another constraint, and 2(7%) also indicated that, equipment are lacking.

The third research question asked; what is the level of public participation towards solid waste management? From the above results, 28(93%) indicated that, the people are very much willing to work with counterparts and city council in the management of solid wastes and 2(7%) expressed their unwillingness to cooperate with city council and other vendor.

The fourth research question asked; what are the measures put in place for primary collection of solid waste? The results from the above analysis indicated that, dustbins/skips are used for the collection of solid wastes before being transported to the final landfill. However, the results indicated that the dustbins/skips are not enough considering the municipal population. Out of 30 respondents, 23(77%) said only five (5)cans/dustbins are located at the extreme end of the city old Port Loko 5(17%) said that, ten (10) cans are located at the central business city, the central part of Port Loko and 2(7%) denied that there are no dustbin/cans available in their locality, apparently the interior part of the city which is Sendugu section.

Similarly, the city council staff also gave different views on the allocation of dustbins/cans/skips at strategic locations 4(40%) shows that there are 15 dustbins/cans/skips are available for old Port Loko 4(40%) said that, twenty (20) are available for sendugu section and 2(20%) indicated that more than thirty (30) are placed in the main central city business center.

The final research question asked; How many landfills available for the disposal of solid waste? Based on the research, there is only a single landfill for the entire municipality for the final disposal of wastes. The major Environmental and Health concerns associated with poor landfill that is not to the standard of a sanitary landfill and even unfenced. Out of 30(100%) of all community respondents and 10(100%) of all council staff interviewed indicated that, the landfill is not conducive according to standards and as per public health needs. There are high tendencies for leachates and its potential for ground and surface water contamination. Leachate is the liquid that drains from a waste dumping site. Its chemical properties are determined by waste composition, apparently leads to waterborne diseases.

In many open disposal areas, fires can burn and smoulder over a prolonged period thereby releasing gases like methane, carbon monoxide, nitrogen oxide, sulphur oxide and dioxins into the atmosphere.

The research study revealed quite a number of negligence towards strategies, practices and attitudes towards solid waste management among the residents in Port Loko city.

LIMITATIONS OF THE STUDY
The study's exclusion of hospital wastes (medical wastes) and other office wastes (industrial wastes) was a significant limitation. The previously mentioned individuals did not receive a questionnaire. Regretfully, there is currently no way to evaluate how this limitation might affect study results. The study is subject to significant limitations that stem from the real-world circumstances, such as political instability, a dearth of baseline data, and researcher bias.

Political Emergencies: It was extremely difficult to get information from city council officials in the research area (Port Loko City), as a new administration was just elected in the recently concluded 2018 general elections. Instead, they had to direct me to contact the district council, which had been handling this for the previous years for the entire district, including the new city. Because my contact people were always changing, I was forced to interview the district council staff—the majority of whom are also new—as well as the municipal authorities as a whole. This made it difficult to gather data.

Lack of baseline data: Even though some studies have been carried out, in terms of Port Loko municipality as a whole, there was no study undertaken to study solid waste management system as a single entity.

Researcher bias: Since I was born and raised in Port Loko City, I am well-versed in the solid waste management situation that exists in the study area. Consequently, I was able to put myself in the people's shoes and comprehend the context of my goals with ease, all the while continuing to observe as an impartial third party. Additionally, I am acquainted with the local language, customs, and culture; these positive biases enabled me to thoroughly examine the context.

Some interviewees found it difficult to relate to me as a researcher because I am a native of Port Loko city.

RECOMMENDATIONS
Having looked at the current solid waste management scenario and issues related to it, the need for the development of a comprehensive and sustainable solid waste management plan is of paramount importance. As outlined, the current plan only covers one aspect of a sustainable waste management system, namely collection and dumping. This will allow the municipal authorities to take an iterative step towards a sustainable solid waste management plan.

In the meantime, there are certain steps that can be undertaken to jump start a long term planning process.

The findings of this study have implications for more research, as does the review of previous literature on public involvement and solid waste management tactics in Port Loko City. The following suggestions, which are from Sierra Leone's perceptive—ideally Port Loko city—may be helpful to other nations running programs of a similar nature. The discussion of a few of these ramifications follows.

Only data on solid wastes from households, vendors with special preferences, and city/district councils were included in this study. To enable direct comparison, future research should encompass medical wastes from hospitals, industrial wastes, and other waste types such as electronic and liquid wastes throughout the entire city. This would make it possible to portray the tactics and public involvement in solid waste management in Port Loko city in a more thorough and accurate manner. Additionally, more research should be done to evaluate other CBO and NGO-run organizations in the municipality that offer similar services.

Important information could be obtained by evaluating the effects over the same period and contrasting them with a local government-run program. In order to assess the impact of additional covariates, such as health regulations and awareness-raising campaigns for solid waste management, on wastes management outcomes, more research is required.

LIMITATIONS
It is possible to misquote the real data provided by respondents from the community and the staff of the city council. The central region of Port Loko city is comparatively small, and it is unclear how much SWM services are provided to other nearby communities. The research may not be entirely accurate due to the participation of both literate and illiterate individuals who assisted with data collection and answering.

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AN ASSESSMENT OF COMMUNICABLE DISEASE SURVEILLANCE IN KAILAHUN DISTRICT

Osman Justine Conteh
University of Makeni, Sierra Leone.

ABSTRACT

Disease surveillance is critical for recognizing and anticipating infectious disease epidemics. It collects health-related data from a community in order to detect and monitor disease epidemics in their early stages. Disease monitoring necessitates a large network of sentinel sites to follow infections throughout the community.

The study focuses on communicable illness surveillance in the Kailahun district. It looks into the surveillance reporting system for communicable diseases, the flow of surveillance information, the various components of individuals involved in surveillance activities, the challenges faced by the surveillance system in the Kailahun district, and the involvement of community members in surveillance activities, as well as ways to improve communicable disease surveillance in the Kailahun district.

This study employs a quantitative cross-sectional design for research. It consequently employs the cross-sectional study design. I picked a cross-sectional design for this study based on the data needed to address the research questions. As a result, I structured the study questions so that qualitative data would be collected to provide descriptive information, while quantitative data would be analyzed in tables and charts.

Infectious disease surveillance is widely acknowledged as the foundation of public health policy and practice. Surveillance statistics are critical for monitoring the population's health state, diagnosing diseases, and taking action to avoid future illness and contain public health problems. The need to strengthen disease surveillance and response systems is now widely recognized around the world.

INTRODUCTION

Surveillance is the ongoing systematic collection, analysis, and interpretation of health data. It includes timely dissemination of the resulting information to those who need it for action. Surveillance is also essential for the planning, implementation, and evaluation of public health practice (WHO,2011)

A well-functioning disease surveillance system provides information for planning, implementing, monitoring, and evaluating public health intervention programs. Early warning of epidemics is essential for effective and rapid control, while information on endemic communicable diseases is essential for monitoring the disease. Many countries have developed surveillance capacities to monitor diseases with a high burden, detect outbreaks of epidemic-prone diseases, and monitor progress toward national or international control or eradication targets. In this sense, surveillance of communicable diseases is a national function. Mahdi, T F et, al, 2015)

Sierra Leone introduced Integrated Disease Surveillance and Response (IDSR) strategy in 2003(MOHS, 2012) In 2012, a strategic plan covering 2012 and 2017 was developed. This strategic plan seeks to enhance the national capacity to define, detect and respond to priority diseases, conditions, and events by 2023. Implementation of outlined strategies shall lead to improved evidence-based decision-making and a culture that demands quality data and stakeholder accountability. This plan is aligned with the National Action Plan for Health Security (NAPHS) 2018 -2022 and other relevant strategic plans. An agreed-upon monitoring and evaluation framework will serve

as the basis for all stakeholders and partners to measure achievements, identify gaps and trigger the appropriate corrective actions MOHS, 2012)

Sierra Leone experienced the worst Ebola Virus Disease (EVD) outbreak in world history with the index case reported in the remote eastern part of the country; Kailahun bordering Guinea and Liberia. The outbreak rapidly spread from the sparsely populated east to the more densely populated largely urban and peri-urban western region. All districts reported at least one case of EVD. A weakened health system worsened by many deaths among healthcare workers and poor infection prevention and control were key drivers of this epidemic.WHO,2012)

LITERATURE REVIEW

Health information a key ingredient in policy formation and program planning has often proven to be a scarce commodity in places where it is needed most (David P and Haberlen S,2015). Communicable disease surveillance is an important source of health information. Communicable disease surveillance deals with contagious diseases (also called communicable diseases), which are diseases capable of being transmitted from one person or species to another. Contagious diseases are often spread through direct contact with an individual, contact with the bodily fluids of infected individuals, or with objects that the infected individual has contaminated (James Chin,2018). Surveillance is defined in many ways. According to one interpretation, surveillance means watching over with great attention, with authority, and

often with suspicion (Ghag S,2016). The commonly used definition for surveillance is a process of watchfulness over health events that may occur in a population. It has been defined as "the ongoing and systematic collection, analysis, and interpretation of health data in the process of describing and monitoring a health event" to support the planning, implementation, and evaluation of public health interventions and programs (WHO, 2016). More specifically, communicable disease surveillance is the continuous monitoring of the frequency and the distribution of disease and deaths due to infections that can be transmitted from human to human or from animals, food, water, or the environment to humans, and the monitoring of risk factors for those infections (Bonita R, et al,17). This definition means information for real action. Surveillance systems are networks maintaining their operation at different levels and providing information for disease prevention and control.

Surveillance reporting systems for communicable diseases
Effective communicable disease control needs effective response systems, which depend on effective disease surveillance. An effective surveillance system is a cornerstone in providing information for action on priority communicable diseases and plays a major role in public health decision-making. Surveillance provides data, which can be used for priority setting, policy decisions, planning, implementation, resource mobilization and allocation, prediction, and early detection of epidemics (Pluye P,2014)

The flow of surveillance information
The existing Sierra Leone eIDSR reporting structure was enhanced as follows: At the community level, community health workers were trained to actively look for signals, and either by home visits or through notifications, community health workers received information from informant networks in the community. Community health workers identified and selected people who were highly regarded in their community to serve as community informants, for sensitization and inclusion in the informant network. These informants included community leaders such as youth representatives, women's representatives, traditional healers, administrative authorities, and religious leaders. This innovation became slow and defunct due to a lack of funds to pay incentives to Community Health Workers (Iwelunmor J,2015)

For the Kailahun district, the Sierra Leone Red Cross Society is implementing a project called Community Epidemic and Pandemic Preparedness Program with funds from USAID. The SLRCS has been an auxiliary to over governments since its establishment and had been very committed to responding to disasters and disease events across the country. In this project, they have Community-based surveillance volunteers across the district. These volunteers are reporting to Supervisors who are also working with Peripheral Health Unit for alerts coming from these volunteers. As soon as volunteers identified the signal, they sent a text message with the code of the signal detected, which simultaneously notified the supervisor and the supervisor in return, will notify the project manager and health facility and epidemiologic surveillance officers in district and regional offices. The Volunteers and Community Health

Workers were instructed to send weekly text notifications, even when there were no signals to report; zero reports (Kailahun DHMT,2022)

In addition, every week, Supervisors completed notification forms with the total number of signals identified during the past 7 days. Every week, Supervisors sent both notifications which are known as Nyss, and the same alerts will also be escalated to the DHS2 by the district surveillance officer. When Red Cross Supervisors and staff at health facilities received text notifications from community health workers, the Supervisors or supervising nurse is responsible for initial triage and verification, either via telephone or by visiting the community. For triage, nurses first called volunteers or community health workers to obtain additional data. If the signal met the criteria for a priority disease or unusual health event, Supervisors and nurses visited communities and verified whether signals represented public health events necessitating further investigation. If an investigation was conducted and proven to be true it will be reported to the district epidemiologic surveillance officer by phone and entered into the Frontline SMS database. Following standard IDSR guidelines (not part of the community-based surveillance project), the district epidemiologic surveillance officers conducting the investigation determined if the case should be classified as a suspected case and whether specimens should be collected in collaboration with health facilities. Specimens collected by the nurse or rapid response team are then sent to one of the identified laboratories in the country to investigate infectious diseases.

The challenges faced by the surveillance system.
Public health is presently being confronted with major challenges, especially in middle-income and low-income countries containing longstanding infectious diseases and where problems are perpetuated by political unrest, poverty, and lack of adequate health and sanitation infrastructure, and the Kailahun district is not an exception. The challenges of population growth, urbanization, deforestation, pollution, global climate change, and global movement of populations have been associated with a shift in geographical distribution and accelerated diffusion of old and new pathogens resulting in an increased number of outbreaks. The health, social, economic, and political consequences associated with these emerging diseases are still significant to public health (Peters DH,2012)

Coordinated efforts to monitor and prevent misuse of antibiotics are crucial to reducing the spread of microbial resistance, which can arise due to factors such as self-medication, prescription of antibiotics for viral infection, and general overuse of antibiotics (Nyenswah T,2013)

The involvement of community people in surveillance activities.
Community involvement in health development is understood to refer to a process to establish participation between Government and local communities in the planning, implementation, and use of health services to increase local

self-reliance and social control over health care (Nyenswah T,2013)

Community involvement means that people, who have both the right and duty to participate in solving their health problems, have greater responsibilities in assessing health needs, mobilizing local resources, and suggesting new solutions, as well as creating and maintaining local organizations. Community participation is used loosely for different PHC activities which cut across the economic, learning, and political spheres. (Buehler JW,2014) While community activities in each of these spheres can contribute to improving the health conditions of poor people, they raise quite different issues, particularly as regards the organization of the ministry of health. The economic dimension of community participation dominates when community members contribute resources-materials, money, and labour-promoting activities, or when they are enlisted to carry out tasks delegated by the healthcare system: village health workers are a widespread example. In terms of learning, community participation is a two-way process involving both community members and health workers. When the 14 community shares in defining needs, carrying out tasks, and gathering and processing information relevant to health, community members and health workers learn from each other. Finally, community participation is a political process in so far as community members acquire a say in decision-making about health and healthcare issues that affect them, and a measure of control over the persons that are supposed to serve their needs. Community participation in this sense raises the most serious organizational problems, and even dilemmas, for ministries of health (Sauerborn R,2014)

METHODOLOGY
The study was conducted in the Kailahun district, one of the districts sharing borders neighbouring Guinea and Liberia. The headquarter of the district is Kailahun town with an estimated population of 16,751(Census, 2015) Kailahun lies approximately 63 miles from Kenema and about 230 miles east of Freetown.

The Population target will constitute members that conform to a designated specification.
The study population comprised the resident leaders. Resident leaders are the community leaders who will represent the

residents in a particular household. They are responsible for taking up issues affecting the residents and one of the issues the resident leaders are responsible for is the health of the inhabitants. They are the adult members of households and include all ages 18 years and above who could give information on surveillance activities.

Quantitative data was gathered through open-ended and closed-ended interviews. Data collection in the communities was followed by discussions with health workers deployed at various Peripheral Health Units (PHUs), Community Health Centres (CHC), and the District Health Management Team (DHMT) in Kailahun town. Generally, qualitative research methods rely on understanding many stakeholders' viewpoints, social construction, and theory generation (Creswell, 2017).

Certain communities were chosen as a case for this research due to their proximity to neighbouring Guinea and Liberia and er districts in Sierra Leone and the social interactions between these people. The case study approach was the most appropriate because a comprehensive approach to the communicable disease surveillance issues in these communities was required and information was readily available through existing collaboration with community members (Noor, 2008)

Description of Study Sample
This section of the report recapitulates the results of the quantitative component of the research. A total of thirty (30) respondents were selected in five big towns in the Kailahun district with a target population of 500 inhabitants and 25 health staff with a target population of fifty-four (53) total staff; both health facilities and DHMT district headquarter.
The questionnaire required respondents to answer questions relating to the independent variables of the survey. Thirty (30) respondents representing five big towns in the Kailahun district with a target population of 500 inhabitants participated in the study which represents 6% of the total participants. A population of Five hundred (500) represented the local people with a percentage of 6% while Twenty-Five (25) health staff with a target population of fifty-four (53) total number staff; both the higher ranks(DHMT) and the lower ranks (Health Facility level) were also interviewed representing (47.2%) of the total staff representing MOHS. The number of local people surpasses that of MOHS because they are most directly having issues of surveillance on communicable diseases.

RESULTS AND DISCUSSIONS
DESCRIPTIVE STATISTICS
Table 1: Frequency and percentage distribution of Community people (respondents) as part of the surveillance of communicable disease

Dependent variable	Dependent variable	Frequency	Percentage
	REPORTING SYSTEM		
	Presence of a surveillance system		
	Yes	6	20
	No	24	80
	TOTAL	**30**	**100%**
	INFORMATION		
	Source of information		

Community people	0	0
Media	2	7
Rumours	7	23
Health providers	21	70
Local leaders	0	0
DHMT	0	0
CHW	0	0
Others (Specify)	0	0
TOTAL	**30**	**100%**
Appropriate means of communication		
Email	0	0
Phone SMS	0	0
Phone Calls	20	67
Hand Delivery	10	33
Others	0	0
TOTAL	**30**	**100%**
Surveillance information reaches the community		
Meeting	2	7
Radio	24	80
Public Announcement with a megaphone	4	13
Newsletters/bulletin	0	0
Others	0	0
TOTAL	**30**	**100%**
Feedback from the health facility		
Within 24 hours	0	0
72 hours	15	50
48 hours	15	50
TOTAL	**30**	**100%**
INVOLVEMENT		
Involved in the surveillance system		
Yes	10	20
No	20	80
TOTAL	**30**	**100%**
Sensitization on surveillance systems		
Yes	0	0
No	30	100
TOTAL	**30**	**100%**

Source: Field data, 2023

Table 1 shows the totality of results which indicates the characteristics of the respondents in the Kailahun district. The table indicates that there are a total number of 6(20%) respondents who must have known the existence of surveillance reporting systems in the district, whilst 24(80%) have no knowledge about the existence of surveillance systems in the district.

The table also illustrates the flow of surveillance information in the district. The results indicate that the main source of surveillance information is from health workers 21(70%), rumours 7(21%) also played a key role and the media 2(7%) is also a means of getting surveillance information.

When asked about the appropriate means of communicating surveillance information, the respondents indicate that phone calls 20(67%) are the most accessible and appropriate means of passing information, but also state that hand delivery/oral communication 10 (33%) could also be another means of communication.

The table also shows that surveillance information from the Ministry of Health could best be passed through radio 24(80%), public service announcements/Megaphones 4(13%) and

meetings 2(7%) could also be applied to deliver surveillance information.

The table through the respondents indicates that there is a tie in the feedback from health facilities on the status of a suspected patient is received within 72hrs 15 (50%) and 4hrs 15(50%)

The findings from the table justify that, the involvement of community people in the surveillance is very low with a No 20(80%) whilst a few community stakeholders indicated a Yes 10(20%) that they have been involved. However, the respondents also stated that there is No 30(100%) sensitization on the surveillance activities in the district.

Table 2: represents the Frequency and Percentage of respondents indicating the present surveillance system in Kailahun district.

Characteristics	Frequency	Percentage
REPORTING SYSTEM		
Presence of a surveillance system		
Yes	6	20
No	24	80
TOTAL	**30**	**100%**

Source, field data 2023

Figure 1: Do you aware of the presence of a surveillance system in the district

presence of a surveillance system in the district
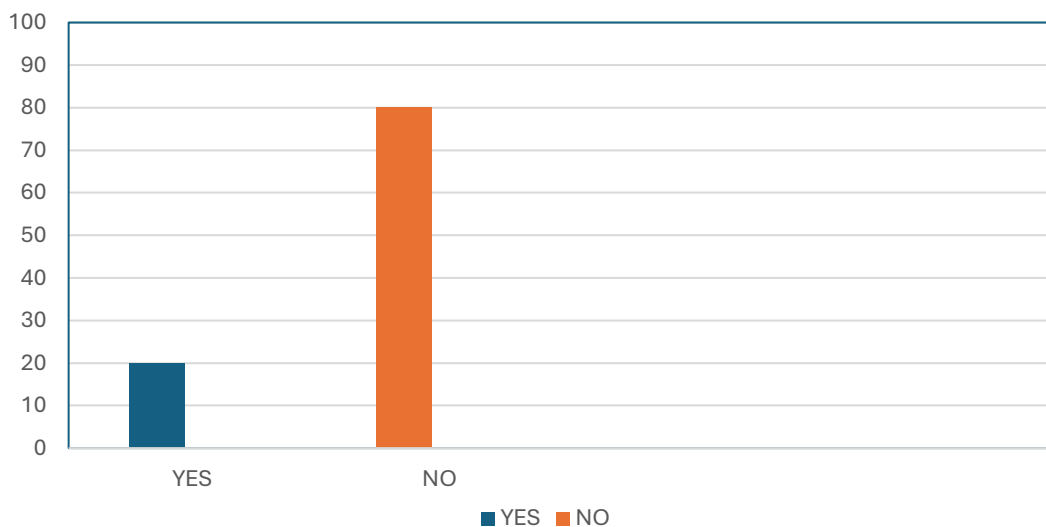
SOURCE: Field Data, 2023.

Table 2 and figure 2 above illustrates out of 30(100%) respondents, A total of 6 (20%) of the respondents are aware of the presence of a surveillance system in their district. While 24(80%) were not aware of the presence of a surveillance system available in their district.

Table 3: Shows frequency and Percentage of the source of information of surveillance activities in the Kailahun district.

Characteristics	Frequency	Percentage
INFORMATION		
Source of information		
Community people	0	0
Media	2	7
Rumours	7	23
Health providers	21	70
Local leaders	0	0
DHMT	0	0
CHW	0	0
Others(Specify)	0	0
TOTAL	**30**	**100%**

Source; field data 2023

Figure 3: What is the source of information for most diseases in your community?
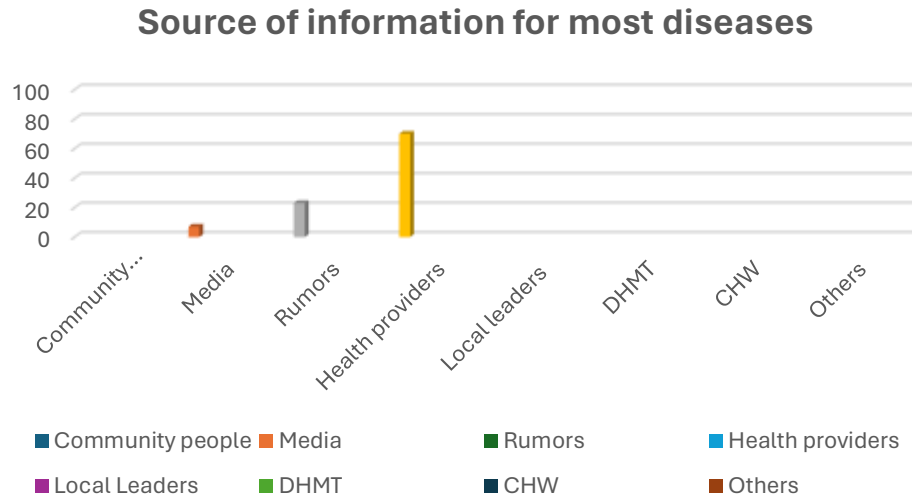
Source of field data, 2023.

As seen in table 3 and figure 1.2 above, 2(7%) of the respondents choose the media as their source of information, while 7(23%) of the respondents receive their information from rumours. Only 21(70%) said their source of information is from health providers.

Table 4: **Shows frequency and Percentage of how surveillance information reaches the community**

Characteristics	Frequency	Percentage
Surveillance information reaches the community		
Meeting	2	7
Radio	24	80
Public Announcement with a megaphone	4	13
Newsletters/bulletin	0	0
Others	0	0
TOTAL	**30**	**100%**

Source field data, 2023.

Figure 1.4: How does surveillance information reach the community
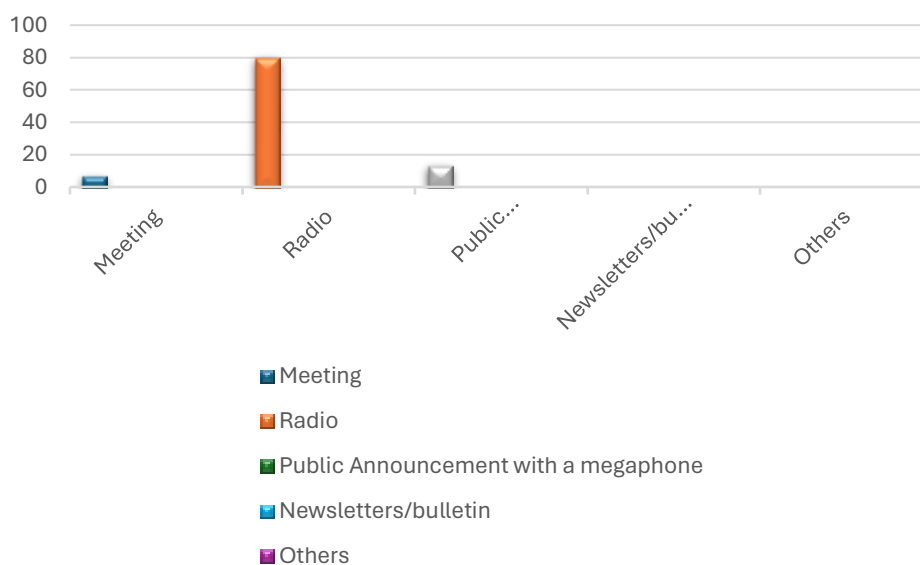
Source field data, 2023.

Table 4 and figure 4 above illustrate that a total of 2(7%) of the respondents said that surveillance information reaches them through meetings. While 24(80%) indicate that surveillance information normally reaches them through radio. and the remaining 4(13%) of the respondents said that surveillance information normally reaches them via public announcements via megaphone.

Table: 5 Shows the frequency and Percentage of how long it takes to receive feedback from the health facility

Characteristics	Frequency	Percentage
Feedback from the health facility		
Within 24 hours	0	0
72 hours	15	50
48 hours	15	50
TOTAL	**30**	**100%**

Source field data, 2023.

Figure 5: How long does it take to get feedback from the health facility

Duration to get feedback from the health facility

50% 50%

■ Within 24 hours ■ 72 hours ■ 48 hours
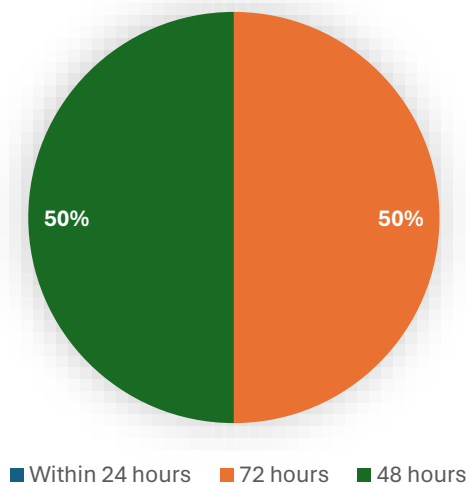
Source field data, 2023

As seen in table 5 and figure 5 above, out of 30(100), A total of 15 (50%) agreed that it only takes 72 hours for them to get feedback from the health facility, while 15 (50%) of the respondents said they normally receive feedback from health facility within 48 hours.

Table: 6 Shows the frequency and Percentage of how long it takes to receive feed feedback from the health facility

Characteristics	Frequency	Percentage
INVOLVEMENT		
Involved in the surveillance system		
Yes	10	20
No	20	80
TOTAL	**30**	**100%**

Source field data, 2023.

Figure 6: Are you part of the surveillance system of the district

involvement into the surveillance system
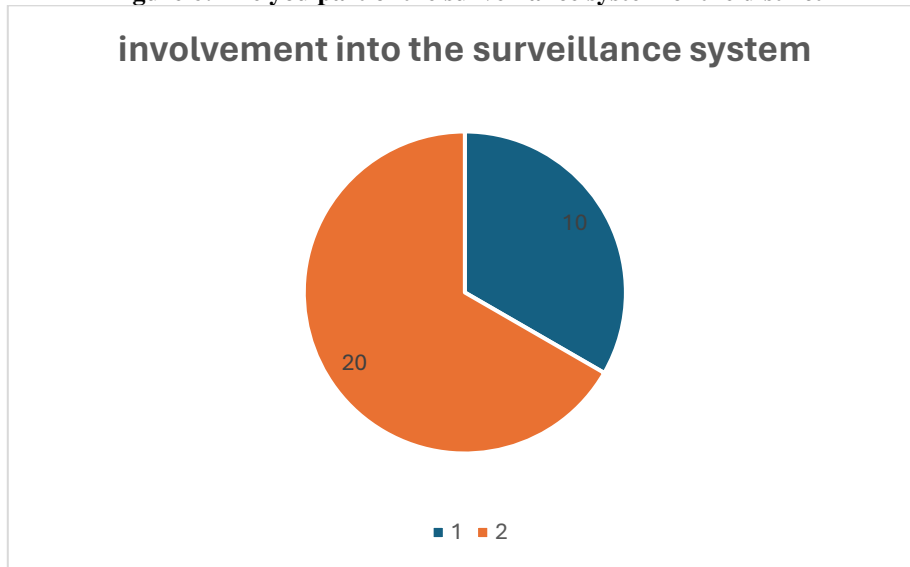
Source field data, 2023.

Table 6 and figure 6, above illustrate that 10(20%) agreed that they are part of the surveillance system, and 20(80%) respondents agreed that they are not part of the surveillance system of the district and that they have never been involved in any surveillance activities.

Table: 7 Shows the frequency and Percentage on if people who were ever sensitized to surveillance of communicable diseases

Characteristics	Frequency	Percentage
Sensitization on surveillance systems		
Yes	0	0
No	30	100
TOTAL	**30**	**100%**

Source field data, 2023.

Figure 7: Have you ever been sensitized to how surveillance systems work in your community?

sensitized to how surveillance systems work in your community
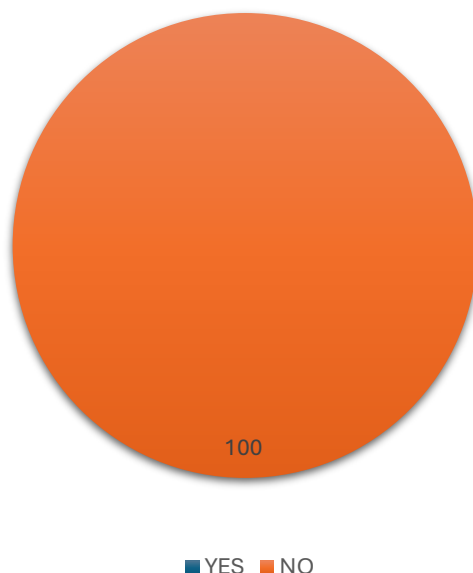
Source field data, 2023.

Table 7 and figure 7 above highlight that 30(100%) agreed that they have never been sensitized on how surveillance systems work in their various community.

Table 8 shows the frequency and Percentage of the most appropriate means of passing surveillance information to the public.

Characteristics	Frequency	Percentage
Appropriate means of communication		
Email	0	0
Phone SMS	0	0
Phone Calls	20	67
Hand Delivery	10	33
Others	0	0
TOTAL	**30**	**100%**

Source; field data 2023

Figure 8: Which means of communication is the most appropriate to pass surveillance information in your community
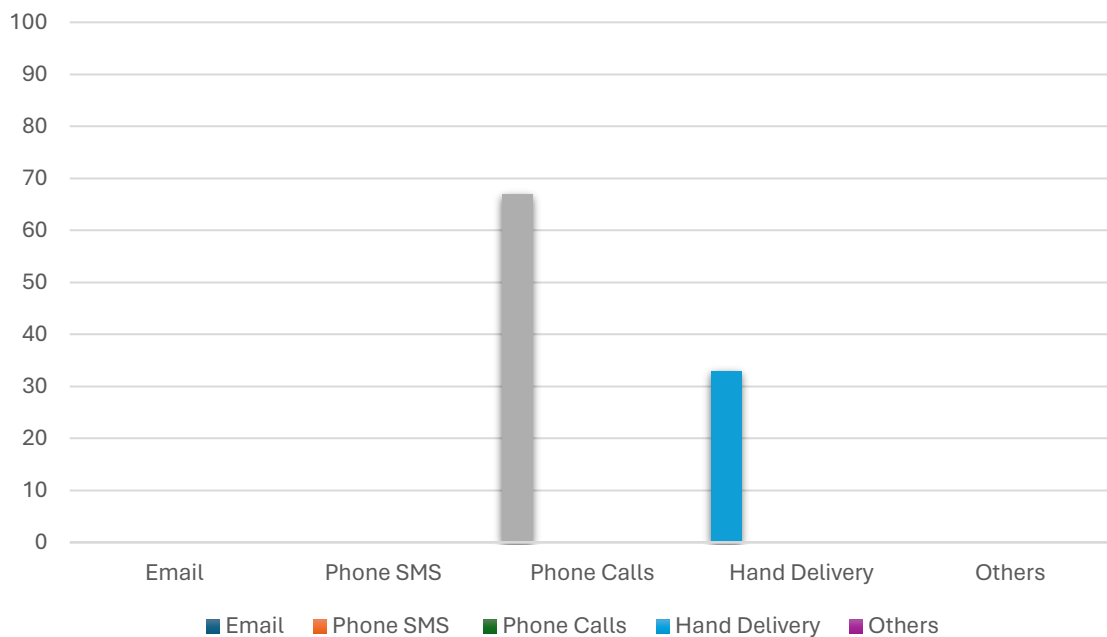
Source field data, 2023.

Table 9 and Figure 9 above highlight the means of communication that is most appropriate to pass surveillance information. A total of 20(67%) of the respondents choose phone calls as their appropriate means to pass surveillance information. While 10(33%) select hand delivery as their means of passing surveillance information.

MOHS/DHMT MAIN ANALYSIS

Characteristics	Frequency	Percentage
Mandatory surveillance of diseases		
Yes	25	100
No		
TOTAL	**25**	**100%**
Manual for diseases surveillance		
Yes	25	100
No		
TOTAL	**25**	**100%**
Availability of IDSR reporting tools		

Case-based reporting form/IDSR Notification form	21	84
Weekly reporting form		
Line listing form		
Suspected outbreak/Rumor logbook	4	16
TOTAL	**25**	**100%**
Suspected outbreak reported in 2022		
EVD		
COVID-19	20	80
Cholera		
Measles	5	20
Polio		
Others, specify		
TOTAL	**25**	**100%**
Source of information for the outbreak		
Data analysis		
Media		
Rumours	10	40
Healthcare providers	11	44
Local leaders		
DHMT		
CHW	4	16
Others		
TOTAL	**25**	**100%**
Time is taken for DHMT to respond		
Within 24hrs		
24-48hrs	22	88
More than 48 hours	3	12
TOTAL	**25**	**100%**
Epidemiological week starts and ends		
Monday, end Sunday	25	100
Tuesday, end Saturday		
Wednesday, end Sunday		
TOTAL	**25**	**100**
Surveillance information recorded		
Paper form		
Electronic(form installed into phone tablet, text messages, phone call)	25	100
TOTAL	**25**	**100%**
Feedback to health facilities from the laboratory		
Yes all	2	8
Yes some	23	92
No		
TOTAL	**25**	**100%**
The turnaround time to receive feedback		
Within 24 hours		
72 hours	25	100
48 hours		
TOTAL	**25**	**100%**

Those involved in the surveillance system		
Nurses	10	40
Community Health Workers	10	40
Community Health Animal Workers		
Traditional Healers		
Local authorities/ local people	5	20
TOTAL	**25**	**100%**
Major challenges faced in conducting surveillance activities		
Vehicle	10	40
Road network		
Fuel	5	20
Mobile network coverage		
Cooperation from the people	10	40
TOTAL	**25**	**100%**
Supportive supervision of health facilities in 2022		
Yes	19	76
No	6	24
Don't know		
TOTAL	**25**	**100%**
Means of communication used to send Surveillance reports to the regional office		
Email	15	60
Phone SMS	5	20
Phone calls	5	20
Hand Delivery		
Others, specify		
TOTAL	**25**	**100%**
Does the health facility provide laboratory services?		
Yes	10	40
No	15	60
Not applicable		
TOTAL	**25**	**100%**

Source, field data 2023

Table.9 shows holistic questions and answers from District Health Management Team. 25 people were interviewed from both health facilities and the headquarters town.

From the table, 25(100%) indicated that there is a mandatory surveillance system for communicable diseases

Also from the table,25 (100%) indicated that there are available manuals at all health facilities to teach the health staff about disease surveillance and how to investigate and record cases.

The table also showed 21(84%) of the health facilities have case-based reporting/IDSR Notification forms and 4(16%) confirmed that the facilities have suspected outbreak/rumour logbooks.

In the table also 20(80%) say they have received COVID-19 as the highest suspected case in 2022, whilst 5(20%) received measles as a suspected case in 2022.

From the table 11(44%) said the only source of information for suspected outbreaks is through nurses, 10(40%) indicated rumours as the best source of information, and 4 (16%) stated that information can also be sourced through Community Health Workers (CHW)

Table 22(88%) shows that 24hrs is the turnaround time for DHMT to respond to disease alerts at health facilities and communities, and 3(12%) stated that it takes 48hrs for DHMT to respond to disease alerts from communities.
The table also shows that 25(100%) confirmed that the epi-week starts on Monday and ends on Sunday.
Also in the table, 25(100%) indicated that electronic through phone tablets are used to record and report surveillance information at the health facility level.

From the table, 23 (92%) show that receive feedback from the laboratory after a suspected case, and 2(8sayays they used to receive feedback from the laboratory for all suspected cases reported.

Apparently from the table, 25(100%) say the turnaround time to receive feedback from the laboratory is within 72hrs.

The table illustrated that nurses 10(40%) are mostly involved in surveillance activities, although another 10(40%)also show that, the Community Health Workers (CHW) also form a great basis for surveillance of communicable diseases whilst, 5(20%) indicated local authorities/ community people also played a pivotal role towards surveillance of communicable diseases.

When asked about major challenges, the table shows that vehicle 10(40%) and fuel 5(20%) are their greatest challenges to conduct surveillance activities, although10(40%) stated that cooperation from the local people to report the sick and provide accurate information during contact tracing is a major challenge

It was also revealed in the table that 19(76%) confirmed that the DHMT conducted supportive supervision in 2022, and 6(24%) says no supportive supervision was done in 2022

From the table, the means of communication used to send surveillance reports to the regional offices are Email 15(60%), Phone SMS 5(20%) and hand delivery 5(20%)

Regarding the availability of laboratories at health facilities, the t 15(60%) say they are no laboratories at the health facility level whilst 10 (40%) say their laboratories are at the Community Health Centre level although they cannot perform all tests for priority diseases.

Table 10: Indicated frequency and percentage of respondents on the presence of mandatory surveillance of all priority diseases.

Characteristics	Frequency	Percentage
Mandatory surveillance of diseases		
Yes	25	100
No		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 10: Is there mandatory surveillance for any diseases

100%

■ YES ■ NO
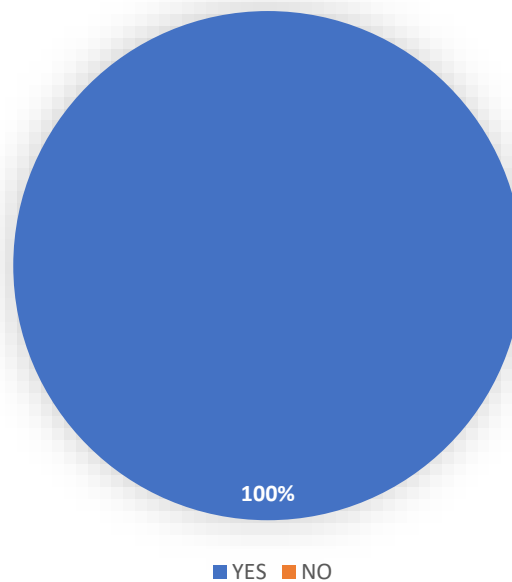
Source field data, 2023.

Table 10 and figure 10, above illustrate that all twenty-five (100%) respondents agreed that there is mandatory surveillance for any diseases. This reveals that the DHMT team are working efficiently in the surveillance of any diseases at the community level.

Table 11: Indicated frequency and percentage of respondents on the presence of disease surveillance manuals.

Characteristics	Frequency	Percentage
Manual for diseases surveillance		
Yes	25	100
No		
TOTAL	**25**	**100%**

Source; field data 2023

Figure 11: Is there a manual for surveillance?

■ YES ■ NO
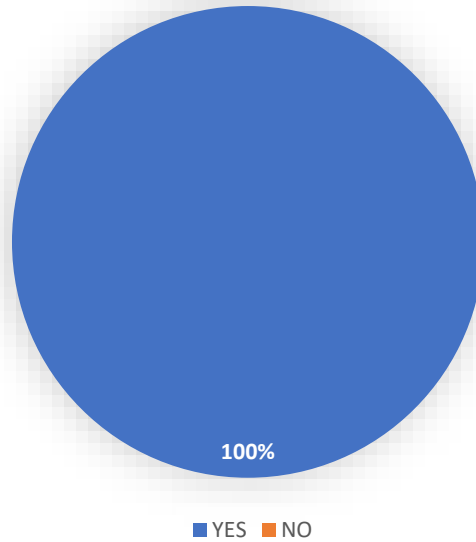
Source field data, 2023.

Table 11 and figure 11, above demonstrate that all twenty-five (100%) respondents said that there is a manual for surveillance while executing their surveillance work at the community level. This reveals that the DHMT team has a low preferred manual for the surveillance of various diseases.

Table 12: Indicated frequency and percentage of respondents on the presence of disease surveillance manuals.

Characteristics	Frequency	Percentage
Availability of IDSR reporting tools		
Case-based reporting form/IDSR Notification form	21	84
Weekly reporting form		
Line listing form		
Suspected outbreak/Rumor logbook	4	16
TOTAL	**25**	**100%**

Source, field data 2022

Figure 12: Are the following IDSR reporting tools available at the health facility

■ Case-based reporting form/IDSR Notification form

■ Weekly reporting form

■ Line listing form

■ Suspected outbreak/Rumor logbook
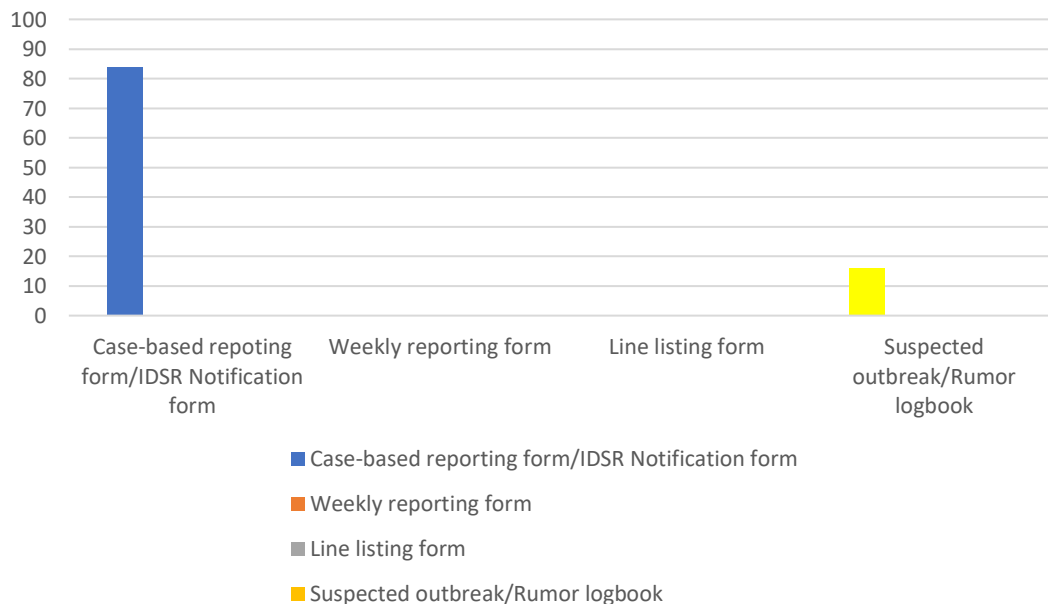
Source field data, 2023.

As seen in table 12 and figure 12 above, out of 25(100), A total of 21 (86%) agreed that the IDSR reporting tools are available at the health facility, while 4 (16%) of the respondents disagreed that the following IDSR reporting tools are not available at the health facility.

Table 13: Indicated frequency and percentage of respondents on the suspected outbreak reported in 2022

Characteristics	Frequency	Percentage
Suspected outbreak reported in 2022		
EVD		
COVID-19	20	80
Cholera		
Measles	5	20
Polio		
Others, specify		
TOTAL	**25**	**100%**

Source; field data 2022

Figure 13 suspected outbreak reported in 2022.
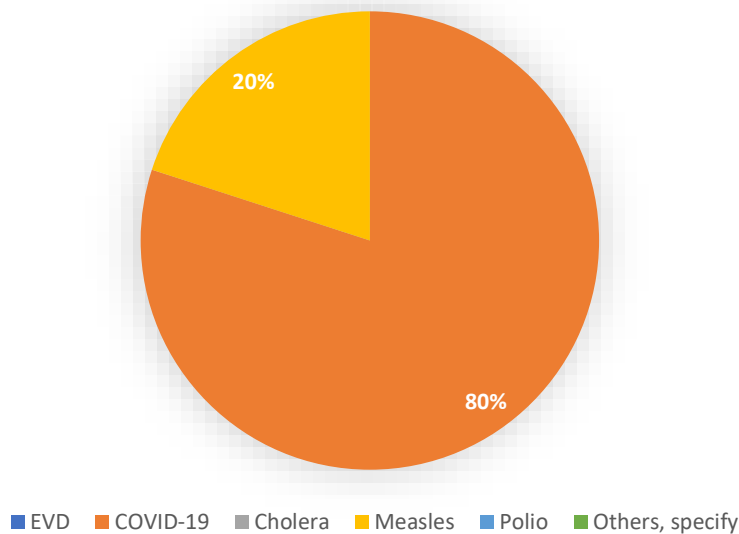
Source field data, 2023.

Table 13 and figure 13 above mention that 20(80%) of the respondents, select Covid-19 as the suspected outbreak disease in 2022 for their health facility. While 5(20%) select measles as their suspected outbreak disease in 2022.

Table 14: Indicated frequency and percentage of respondents on the suspected outbreak reported in 2022.

Characteristics	Frequency	Percentage
Source of information for the outbreak		
Data analysis		
Media		
Rumours	10	40
Healthcare providers	11	44
Local leaders		
DHMT		
CHW	4	16
Others		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 14: Source of information for the last outbreak
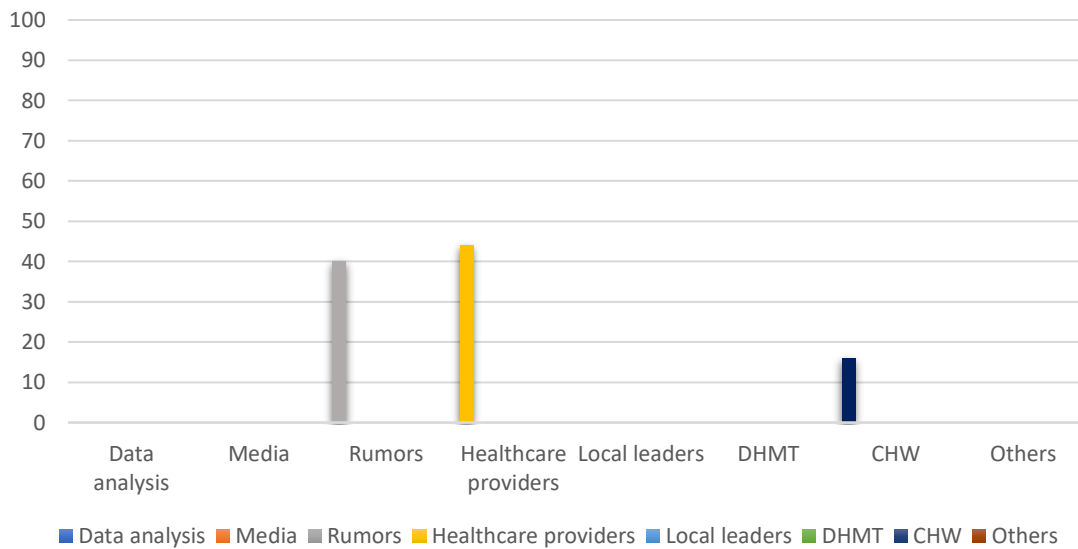
Source field data, 2023.

As seen in table 14 and figure 14 above, 10(40%) of the respondents said that rumours were their source of information for the last outbreak, while 11(44%) of the respondents revealed that healthcare providers were their source of information for the last outbreak, Only 4(16%) said that they receive their information from Community Health Workers within their various communities.

Table 16: Indicated frequency and percentage of respondents on the time taken for DHMT to respond to disease alerts. suspected outbreak reported in 2022.

Characteristics	Frequency	Percentage
Time is taken for DHMT to respond		
Within 24hrs		
24-48hrs	22	88
More than 48 hours	3	12
TOTAL	**25**	**100%**

Source, field data 2023

Figure 16: Time taken for DHMT to respond to the reported outbreak.
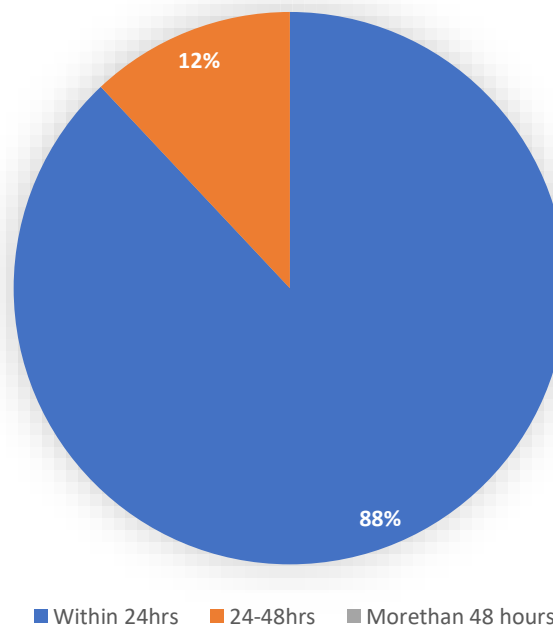
Source field data, 2023.

Table 16 and Figure 16 above illustrate that out of twenty-five respondents, a total of 22(88%) said it takes 24-48 hours for the DHMT team to respond to reported outbreak issues. and 3(12%reveals that it takes more than 48 hours for DHMT to respond to any reported outbreak case. This simply implies that the DHMT team are working relentlessly in addressing community outbreak diseases within a day or two.

Table 17: Indicated frequency and percentage of respondents on the turnaround epidemiological week.

Characteristics	Frequency	Percentage
Epidemiological weeks start and ends		
Monday, end Sunday	25	100
Tuesday, end Saturday		
Wednesday, end Sunday		
TOTAL	**25**	**100**

Source, field data 2023

Figure 17: When does the epidemiological week start and end?
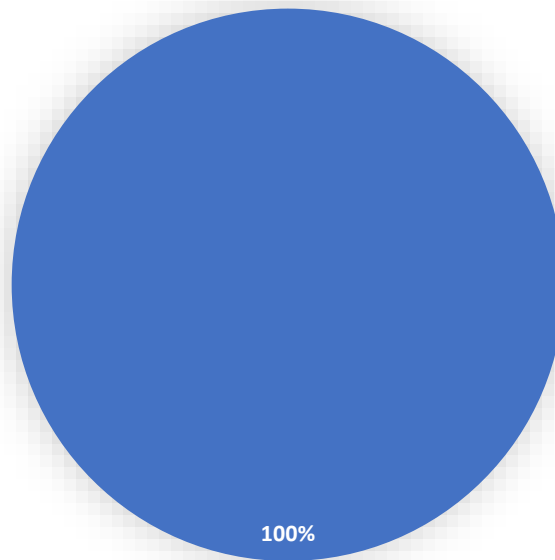
■ Monday, end Sunday ■ Tuesday, end Saturday ■ Wednesday, end Sunday ■ Thursday, end Monday

Source field, data 2023.

Table 17 and figure 17 above, depict that of all the twenty-five respondents, 25(100%) of the respondents strongly agreed that epidemiological week starts on Monday and ends on Sunday.

Table 18: Indicated frequency and percentage of respondents on how surveillance information are been recorded.

Characteristics	Frequency	Percentage
Surveillance information recorded		
Paper form		
Electronic (form installed into phone tablet, text messages, phone call)	25	100
TOTAL	**25**	**100%**

Source, field data 2023

Figure 18: How is surveillance information recorded in your district?

■ Paper form ■ Electronic(from installed into phone tablet, text messages, phone call
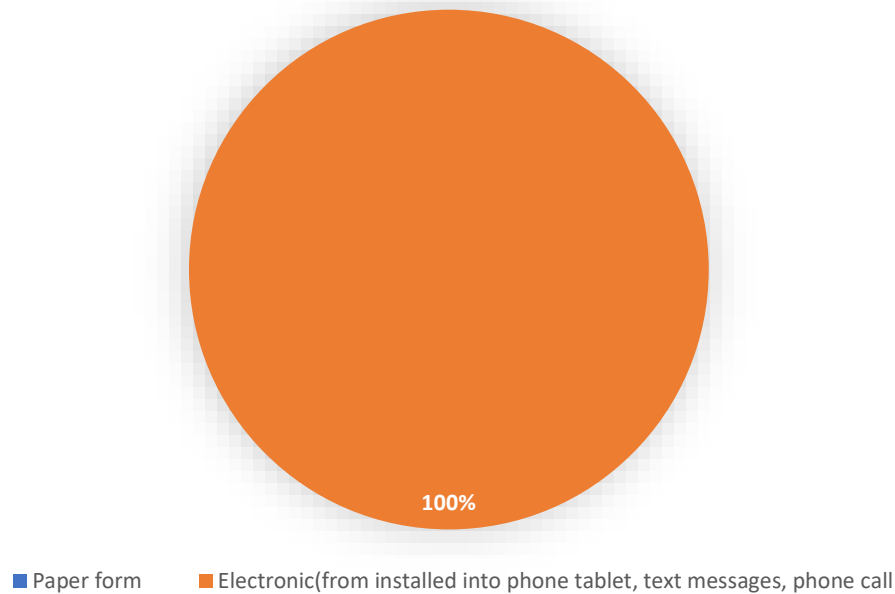
Source field data, 2023.

Table 18 and figure 1.18 above show that out of twenty-five respondent which made up the DHMT team, 25 (100%) said surveillance information is recorded via electronic (from installed into phone tablet, text messages, phone calls).

Table 19: Indicated frequency and percentage of respondents on feedback to health facilities from laboratories.

Characteristics	Frequency	Percentage
Feedback to health facilities from the laboratory		
Yes all	2	8
Yes some	23	92
No		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 1.19: Do you give feedback to health facilities from the laboratory for specimens sent to the lab in 2022

■ Yes all ■ Yes some
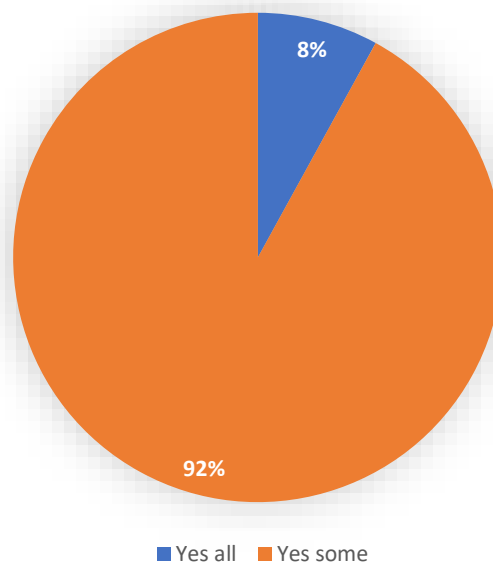
Source field data, 2023.

Table 19 and Figure 19 above show the level of feedback to health facilities from the laboratory for specimens sent to the lab in 2022 respondents. However, 2(8%) of respondents said Yes, the laboratory at the regional level gives feedback to health facilities from the laboratory for specimens sent to the lab. While the remaining 23(92%) respondents said Yes some gave feedback to a health facility for specimens sent to the lab.

Table 20: Indicated frequency and percentage of respondents on turnaround time on feedback to health facilities from the laboratory.

Characteristics	Frequency	Percentage
The turnaround time to receive feedback		
Within 24 hours		
72 hours	25	100
48 hours		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 20: If yes, how long does it take to send feedback from the laboratory (turnaround time) to the health facility?

100%

■ Within 24 hours   ■ 72 hours   ■ 48 hours
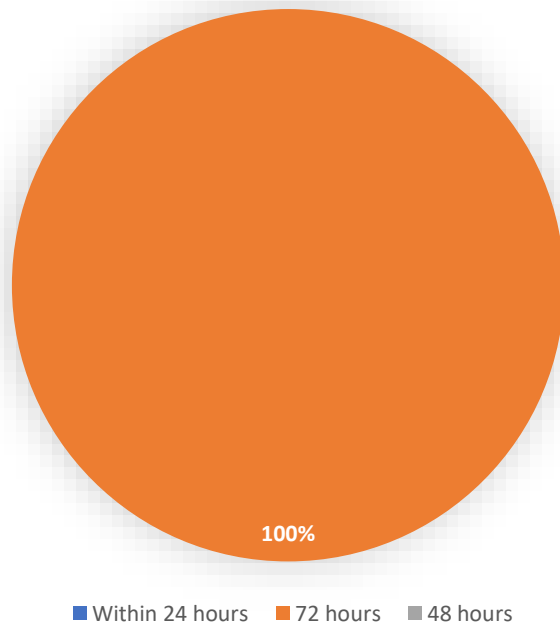
Source field data, 2022.

Table 20 and figure 20 above illustrate that all twenty-five 25(100%) respondents agreed that it takes 72 hours to send feedback from the laboratory (turnaround time) to the health facility. This reveals that patients had to wait for about three days for their samples to be sent to the health facility.

Table 21: Indicated frequency and percentage of respondents on those who are involved in the surveillance activities in the district.

Characteristics	Frequency	Percentage
Those involved in the surveillance system		
Nurses	10	40
Community Health Workers	10	40
Community Health Animal Workers		
Traditional Healers		
Local authorities/ local people	5	20
TOTAL	**25**	**100%**

Source, field data 2023

Figure 21: Who is involved in the surveillance system of the district

Source field data, 2023.

Table 21 and Figure 21 above show people that are involved in the surveillance system. However, 10(40%) of respondents were nurses within health facilities. While 10(40%) of the respondents are community health workers, and the remaining 5 (20%) are Local authorities/Local people.

Table 22: Indicated frequency and percentage of respondents on the major challenges faced in the conduct of surveillance activities.

Characteristics	Frequency	Percentage
Major challenges faced in conducting surveillance activities		
Vehicle	10	40
Road network		
Fuel	5	20
Mobile network coverage		
Cooperation from the people	10	40
TOTAL	**25**	**100%**

Source, field data 2023
Figure 22: What are the major issues and challenges that may affect your routine surveillance activities?
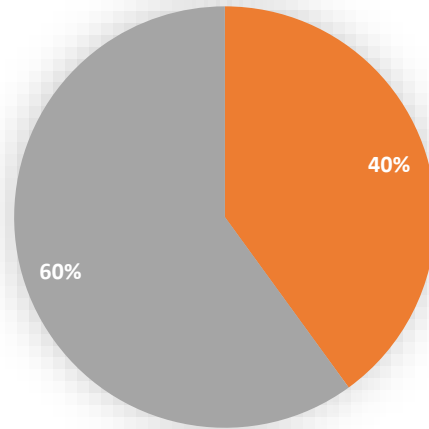
- ■ Inadequate supportive surpervision
- ■ Indequate/inconsistency of airtime
- ■ Inadequate transport means
- ■ Inadequate IDSR reporting tools
- ■ Poor telephone network
- ■ Other specify
- ■ No challenges

Source field data, 2023.

Table 22 and Figure 22 above illustrate the major issues and challenges that may affect the daily routine surveillance activities of respondents. A total of 10(40%) of the respondents mention inadequate/inconsistent airtime, and 15(60%) highlight inadequate transport means as part of their major issues and challenges for the study.

Table 23: Indicated frequency and percentage of respondents on the supportive supervision to the health facilities in 2022

Characteristics	Frequency	Percentage
Supportive supervision of health facilities in 2022		
Yes	19	76
No	6	24
Don't know		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 23: DHMT provide supportive supervision to this health facility in 2022

- ■ Yes ■ No
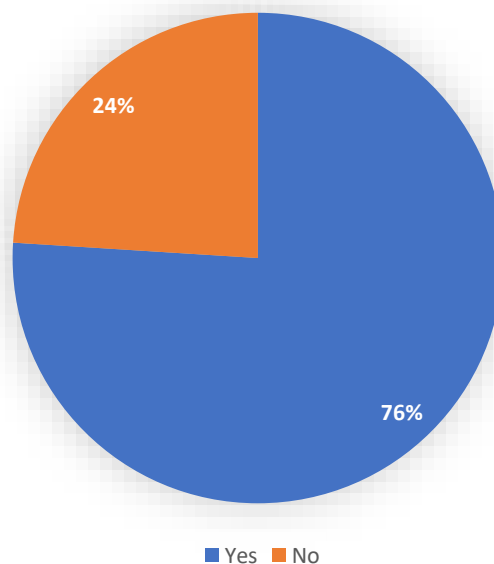
Source field data, 2023.

As seen in table 23 and figure 23 above, out of 25(100), A total of 19 (76%) agreed that DHMT provides supportive supervision to this health facility, while 6 (24%) of the respondents disagreed that DHMT does not supportive supervision to this health facility in 2022.

Table 24: Indicated frequency and percentage of respondents on the means of communication to send surveillance information to the regional office.

Characteristics	Frequency	Percentage
Means of communication used to send Surveillance reports to the regional office		
Email	15	60
Phone SMS	5	20
Phone calls	5	20
Hand Delivery		
Others, specify		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 24: Which means of communication does the DHMT use to send Surveillance reports to the regional office?
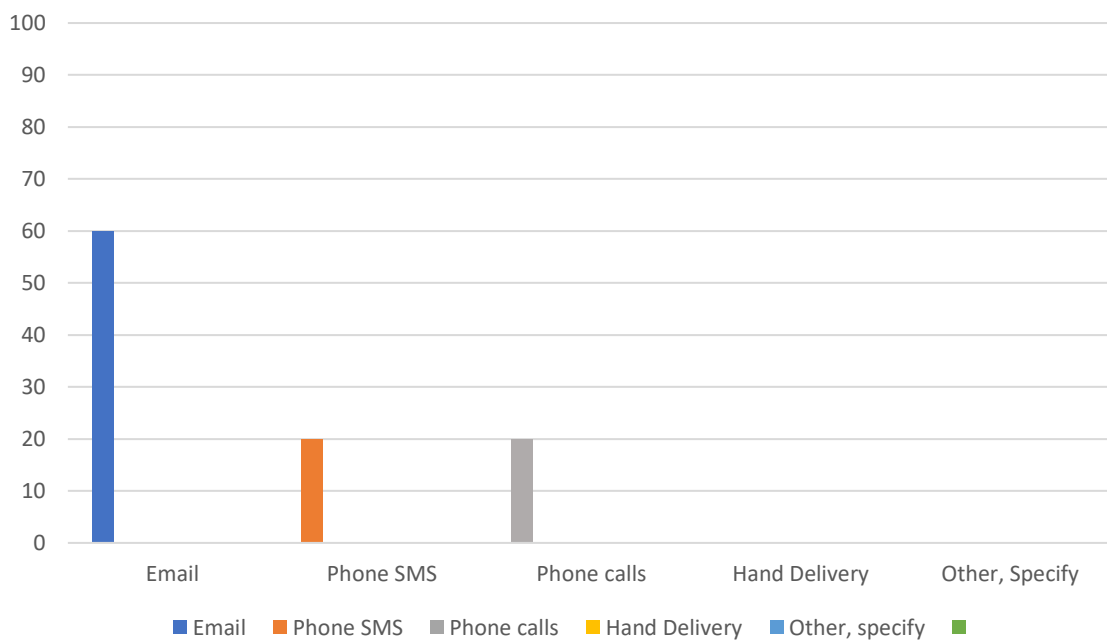
Source field data, 2023.

Table 25 and figure 25 above illustrates out of 15(60%) of the respondents choose email as their means of communication used by the DHMT to send surveillance report to the regional office, A total of 5(20%) of the respondents state phone SMS as their means of sending surveillance reports to the regional office, While the remaining 5(20%) of the respondents selects phone calls as their means of sending surveillance reports to the regional office.

Table 26: Indicated frequency and percentage of respondents on the provision of laboratory services by health facilities.

Characteristics	Frequency	Percentage
Does the health facility provide laboratory services?		
Yes	10	40
No	15	60
Not applicable		
TOTAL	**25**	**100%**

Source, field data 2023

Figure 26: Does the health facility provide laboratory services?
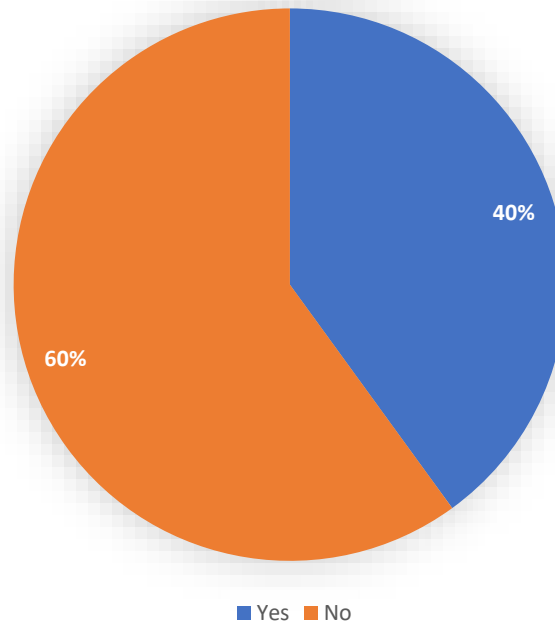
Source field data, 2023.

Table 26 and figure 26 above demonstrate that 10(40%) said their health facility provides laboratory services at the community level. While the remaining 15(60%) of the respondents disagreed that the health facility doesn't provide laboratory services at the community level.

RECOMMENDATIONS

Existing institutional arrangements. This will enable the district to identify potential collaborators, such as community organizations, NGOs etc. with which the District Health Management can get into partnerships for solving the issues of surveillance of communicable diseases.

Public Participation: The active involvement of the people in policy formulation, implementation, and evaluation of communicable diseases is necessary.

Education and awareness: There should be a continuous awareness program in place so that every person gets well accustomed to the operations of the surveillance systems in the district. There should also be public education so that people are not only made aware of the new surveillance system but also can understand the reasons behind being part of the structures of the surveillance system in the district to ensure sustainability.

LIMITATIONS

There is the possibility of misreporting the actual information given by community respondents, the health workers, and the District Health Management Team staff. The number of health facilities targeted is relatively smaller compared to the total number of health facilities in the Kailahun district. The inclusion of literate and illiterate traditional people who helped in the answering and collection of data could also be limited to the research, and not be 100 accurate.

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AGRICULTURAL PRODUCTIVITY OF GONDIA DISTRICT IN MAHARASHTRA STATE

Dr. Sitaram Uttamrao Anpat

Head, Department of Economics, C.J. Patel College, Tirora, Dist:- Gondia, Maharashtra, India

ABSTRACTS

In this present study to analysis of agricultural productivity of Gondia district in Maharashtra state. Vidharbha region, Maharashtra has been selected as an area unit of investigation. Agriculture is the principal occupation and more than 80% of the total population depends on it as a way of living. For the smooth development of agriculture and high yielding of crop needs of labours are being felt time to time. Though, many modern agricultural tools or equipment's are available in the modern era, but still for the operating skilled persons are required. But, nowadays interest on working in the field is declining. Labours are moving towards the cities in search of jobs which can give them huge wages. In order to examine its impact on agriculture, the Gondia district can be taken up as an ideal unit of investigation. The agriculture operations and the agro-ecological conditions of the district are congenial both for the production of crops and human occupation

KEY WORDS: *Agriculture productivity, technological advancement, cropping pattern, Irrigation*

INTRODUCTION

India is an agricultural country. Main occupation of Indian rural people is farming. Agriculture is the main occupation of India from thousands of year. Even today about 69% of population depends on agricultural sector for their livelihood [1,2,3,4,5]. They are involved in the farming activities and allied business sectors, 60% of rural population is directly associated in this sector. But despite a steady decline (GDP), agriculture remains the largest economic sector in the country. In India, the importance of agriculture arises out of the position the agrarian sector occupies in the overall economic growth of the country [6,7,8,9,10,11,12]. Agriculture, being the largest sector of the economy plays a crucial role in the country's economic development by providing food and raw material, employment to a large proportion of population, capital for its own development and surplus for national development [13,14,15,16,17,18,19,20]. Such a situation must have continued even after small urban settlements produce for those directly dependent upon agriculture but even for urban dwellers [21,22,23,24,25].

Agriculture in India is the vertical backbone of the country and is regarded as the largest sector of the country's economic activity. It is the major sector of the State economy, in which the majority of people earn their livelihood.

SIGNIFICANCE OF THE STUDY

Gondia is also known as rice city, as it is a rice producing district. The present research work has been undertaken to examine the status of the agriculture productivity of the study region. The study will suggests that agricultural extension system of the district/ state/ country should be geared-up, to bring out farmers from the conventional methods of cultivation and to educate them on adoption about agriculture productivity technologies and implements cooperatively. In addition, agricultural jobs should be made more remunerative by increasing the wages at least as par with other jobs available locally.

STUDY REGION – BRIEF INTRODUCTION

Gondia district came into existence on 1st May 1999, separating from Bhandara district . Administratively it is divided into eight Tahsils Gondia district lies in the northeast corner of Maharashtra state. Beyond northern boundary, there is Balaghat district of Madhya Pradesh, beyond Western boundary there is Bhandara district (M.S.) Rajnandgaon district of Chattisgarh to east and Gadchiroli (M.S.) to the south. The district headquarter is situated at Gondia situated on Mumbai – Kolkata route which is 1060 Km. from Mumbai, capital of state. Gondia known as the district of lakes and the city of rice, resplendent with natural beauty, as it is a rice producing district and has about 250 rice mills near the vicinity of city. It lies between $20^0 39'$ to $21^0 38'$ north latitude and $79^0 27'$ to $80^0 42'$ East longitude. The total area of the district is 5641 sq. kms. Gondia district occupies only 1.83% of the total area of Maharashtra state. According to 2011 census the total population of the district is 1322331. (Fig.1) The district has a physical variety. There are hilly areas as well as alluvial place. The hilly areas are common in many parts of the district. In the north west part of the district [26,27,28,29,30].

LOCATION MAP
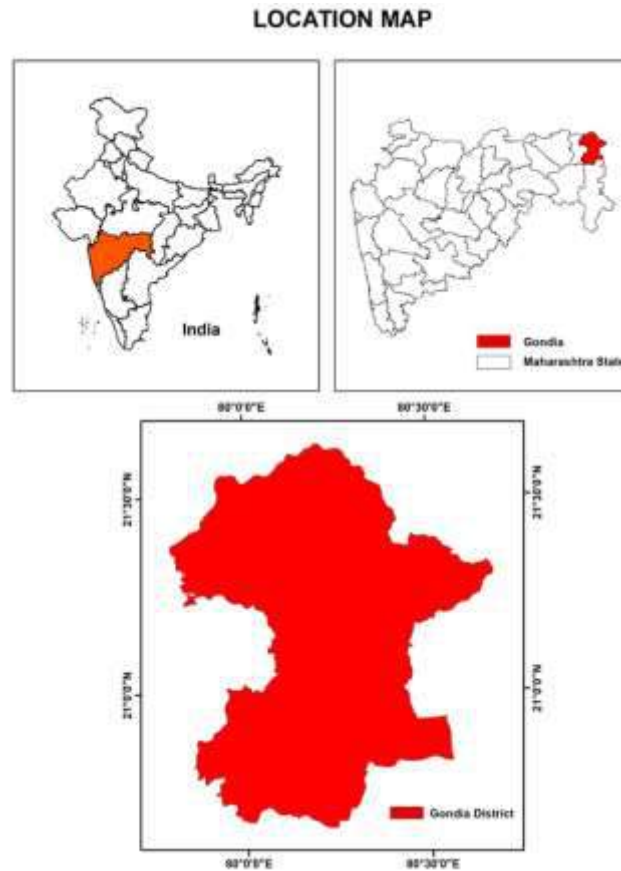
Fig.1. Gondia District

There are "Gaimukh" hills and in the south west there are Pratapgarh ranges. Navegaon hills are the central parts. There are Chichgarh hills in Deori Tahsils while Darekasa hills are in the north east. These hills are really part of the district, the extensions of Satpura mountain ranges. Among these hilly areas there are several river basins. Wainganga is the main river and it forms the district boundary in the north east and central parts of the district. Both are the major tributaries of river Wainganga. It forms boundary in the north. There is another river Pangoli which flows towards north and it joins the Baghriver. In the central part Chulbandh and Gadvi in the other parts are important rivers [31,32,33]. Thus the hills and rivers have resulted into topographic differences. Most of the hilly areas are covered with forest while rice is cultivated in river basin. The average annual rainfall in the district is 1300 to 1500 mm. The lowest rainfall among is over north western part. It increases toward east and south where the hilly areas lie. In the district, the length of the broad gauge railways is 206 kms., similarly there are 465 km roads in the district. Mumbai, Kolkatta N.H. No. 6 passes through the district. These transport facilities have positive as well as negative effects on forest activities. Products like lumber are transported by railways but road development and other human activities are distinctive. Gondia District shows a great variation in natural factors. The distribution of population is generally affected by physical and social factors. Therefore it is necessary to review this background. In the northern part of the district there are Gaimukh hills. Similarly in the north east there are Darekasa

hills. In the south east there are Chichgarh hills while Navegaon hill lie in the south central parts of the district. The maximum height in this area is 611 meters from the sea level. Wainganga, Pangoli and Bagh are the important rivers in the north. Chulbandh valley in the west central part. Valley of the Bagh in the east and valley of Gadhavi river in the southern part are important. Apart from this there are several several tanks of various sides.The district has a primarily agriculture-based economy. Gondia district of Vidharbha region, Maharashtra has been selected as an area unit of investigation. Agriculture is the principal occupation and more than 80% of the total population depends on it as a way of living. For the smooth development of agriculture and high yielding of crop needs of labours are being felt time to time. Though, many modern agricultural tools or equipment's are available in the modern era, but still for the operating skilled persons are required. But, nowadays interest on working in the field is declining. Labours are moving towards the cities in search of jobs which can give them huge wages. In order to examine its impact on agriculture, the Gondia district can be taken up as an ideal unit of investigation. The agriculture operations and the agro-ecological conditions of the district are congenial both for the production of crops and human occupation.

OBJECTIVES OF THE STUDY
- To assess the influence on the cropping pattern in the district,
- To assess the status of agriculture productivity in the district.

- To identify the thesil wise agriculture productivity in the study region.
- To see the changes of agriculture productivity if any in the study region.

REVIEW OF LITERATURE

The examined the multiplexity of livelihoods in rural Africa. The income diversification efforts of most rural dwellers over the past decade have been directed at meeting daily needs amidst declining returns to commercial agriculture. Individuals and households have experimented with new forms of livelihood, expanding their non agricultural income source, while retaining their base in subsistence farming. Had conducted a study on rural farm and non-farm employment in West Godhavari district. The results of the study revealed that agriculture plays a leading role ingeneration of employment. The share of male workforce in agriculture tended to decline, while its share in non-agriculture employment has shown an increase. In his study on the employment of landless laborers in Aligarh district of Uttar Pradesh has revealed that due to the distress phenomenon of unemployment the laborers undertook non-farm work either inside the village or as daily commuters to nearby city area or as seasonal migrants to some far off urban centers. Inside the village they worked as loaders, rag pickers, basket makers, constructional workers, in match industries, pot makers and as weavers.

DATABASE METHODOLOGY
Sampling Procedure

Since the basis purpose of the present study it to examine the impact of agriculture productivity in the study region. Since Gondia district has eight talukas(Tirora, Goregaon, Gondia, Amgaon, Salekasa, Sadak Arjuni, Arjuni Morgaon and Deori), eight thesil were selected for the study. The sample farmers were post-stratified crop wise,viz. paddy, wheat, green gram and oilseed etc., carry out the analyses.

Database

The information related to available agricultural productivity of various crops in the district, cropping pattern and crop-wise area coverage in the district (2008- 09 to 20011-12) was obtained from the secondary sources, viz., Office of the Assistant Director of Agriculture, District Statistics Office in Gondia District.

Results and Discussion

Agriculture is the most important sector of our economy which contributes about 45% of the national income, provides employment to about 70% of our population and contributes substantially to under export earnings. The success story of Indian agriculture is well-known and universally regarded as a model for agriculture growth and development in the third world. India's agricultural has been "galvanised into a quantum jump- the leap we called the Green Revolution". India is basically predominately agricultural country where above 75% of population is directly dependent on the agriculture. Out of the total agricultural land 76% agricultural land is occupied by small and marginal farmers. Any agricultural land is evaluated on the basis of their productivity level. Agricultural productivity provides an opportunity to ascertain the ground reality, the real cause of agricultural backwardness of a region. The delimitation of the areas of low, medium and high productivity, agricultural plans may be formulated to remove and minimize the regional inequalities [34,35,36,37].

Productivity of Rice in the district

Rice is the main food crop of the district as the climatic terrain and soil conditions are very much suitable for the crop. In the year 2011-2012 the total production of the rice in the district was 27554 m.tonnes while area under rice in the district was 180867 [38]. In the year 2008-09 the production was slightly lower and it was 17316 out of the 182650 hect. are under the crop. In comparison with the regional average maximum productivity of rice in the district was in Salekasa and Arjuni Morgaon where it was 44% More than the regional average, out of the aggregate district Amgaon, Salekasa, Sadak Arjuni, Arjuni Morgaon and Deori are above regional average in the year 2011-12. In comparison to these talukas Tirora, Gondia and Goregaon productivity is below the district average which was minimum in Gondia taluka which was only 50% of the district average. The reason for this discrimination is due to comparative low rainfall and irrigated area. In the high productivity Zone Paddy is grown on the basis of irrigation facilities (Table 1 & Fig. 2 & Fig. 3).

Table 1. Gondia district: Productivity of Rice (2008-09 to 2011-12)

Sr.No.	Taluka	Productivity of Rice 2008-09	Productivity of Rice 2011-12
1	Tirora	0.68	0.73
2	Goregaon	1.19	0.90
3	Gondia	0.52	0.55
4	Amgaon	1.00	1.23
5	Salekasa	1.66	1.44
6	Sadak Arjuni	1.58	1.12
7	ArjuniMorgaon	1.60	1.43
8	Deori	0.81	1.04
Total		**182650**	**17316**

Source: Socio-Economic Bulletin Gondia District - 2008-2009, 2011-2012
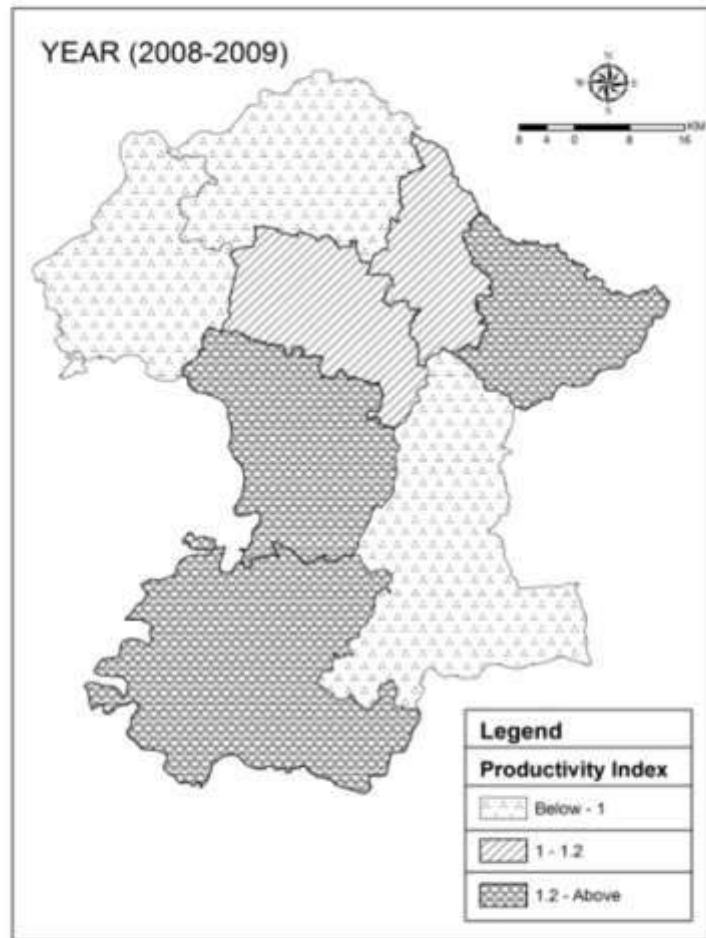
Fig. 2. Gondia District: Productivity Of Rice (2008-2009)
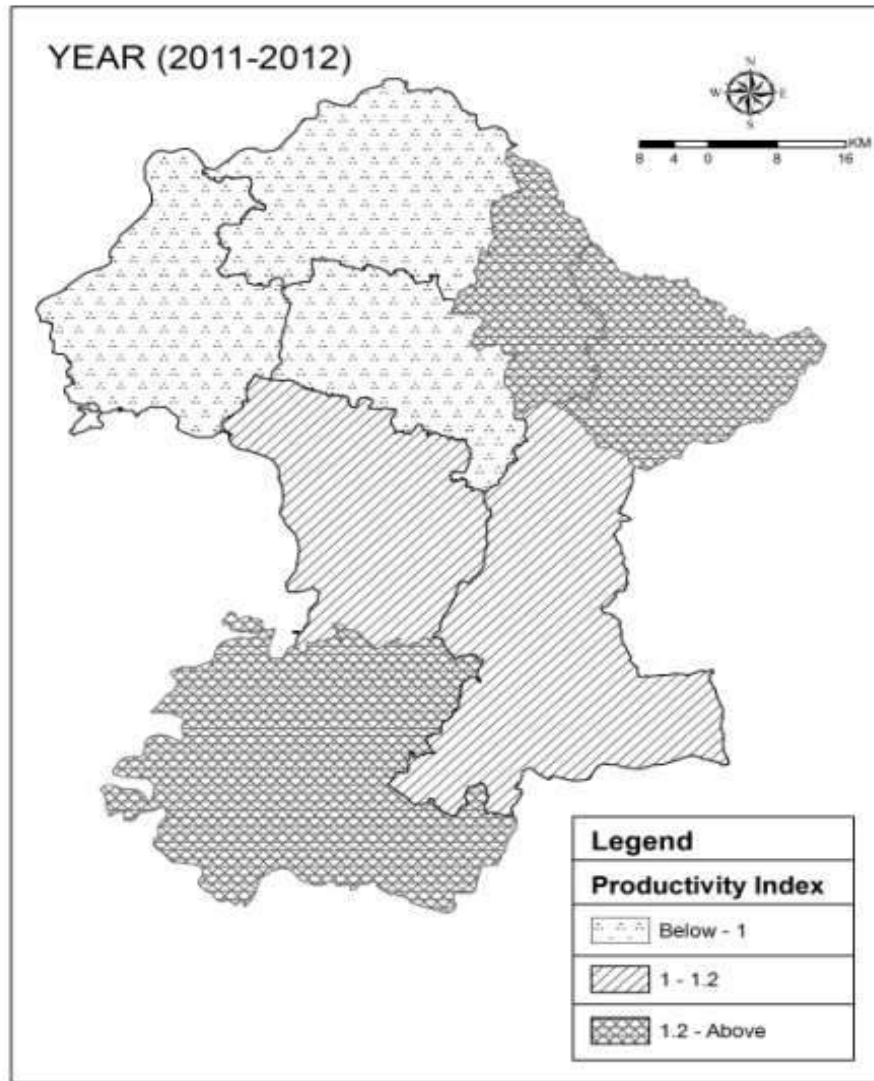
Fig. 3. Gondia District: Productivity of Rice (2011-2012)

Productivity of Wheat

Wheat is the major Rabi crop which is economically important crop though area under this crop is not very high in the district. The crop is produced only where irrigation facilities are available. In the year 2008-2009 9824 m.tonnes production was taken out of 4365 Hect area. In the year 2011-12 Arjuni Morgaon and Salekasa were far below the average district productivity and it was only 0.39 in Morgaon and 0.86 in Salekasa. The reason for this low ratio is that cultivation of these talukas grown paddy in the winter so land is not free for wheat. Deori 2.89 times More productivity than district average while Tirora, Goregaon, Gondia, Amgaon shows moving high productivity level. In the year 2011-12 though the production of wheat in the district increased about 2000 tonnes but area under the crop decreased as it was 9824 in 2008-09 decreased up to only 40%. Production was zero in the Salekasa tahsil and progressive growth in the productivity was counted only in the Deori and Sadak Arjuni where it was accounted 2.94 and 2.08 successively. In the remaining taluka it was less than district aggregate performance. (Table 2 & Fig. 4 & Fig. 5)

Table 2. Gondia district: Productivity of Wheat (2008-09 to 2011-12)

Sr.No.	Taluka	Productivity of Wheat 2008-09	Productivity of Wheat 2011-12
1	Tirora	1.36	0.59
2	Goregaon	1.19	0.52
3	Gondia	1.48	0.94
4	Amgaon	1.38	1.14
5	Salekasa	0.86	--
6	Sadak Arjuni	1.06	2.08
7	Arjuni Morgaon	0.39	0.81
8	Deori	2.89	2.94
	Total	**10.61**	**9.02**

Source: Socio-Economic Bulletin Gondia District - 2008-2009, 2011-2012
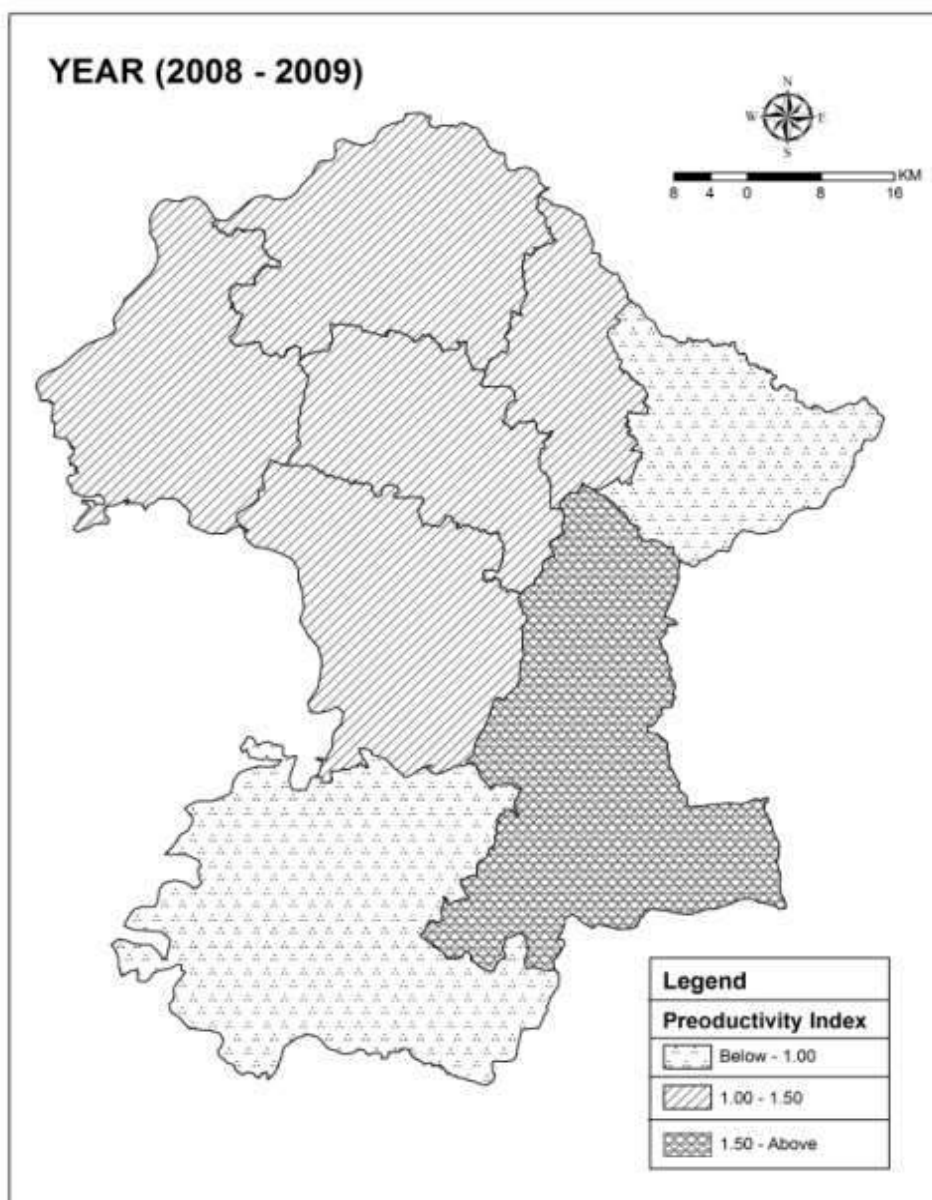
Fig. 4. Gondia District: Productivity of Wheat (2008-2009)
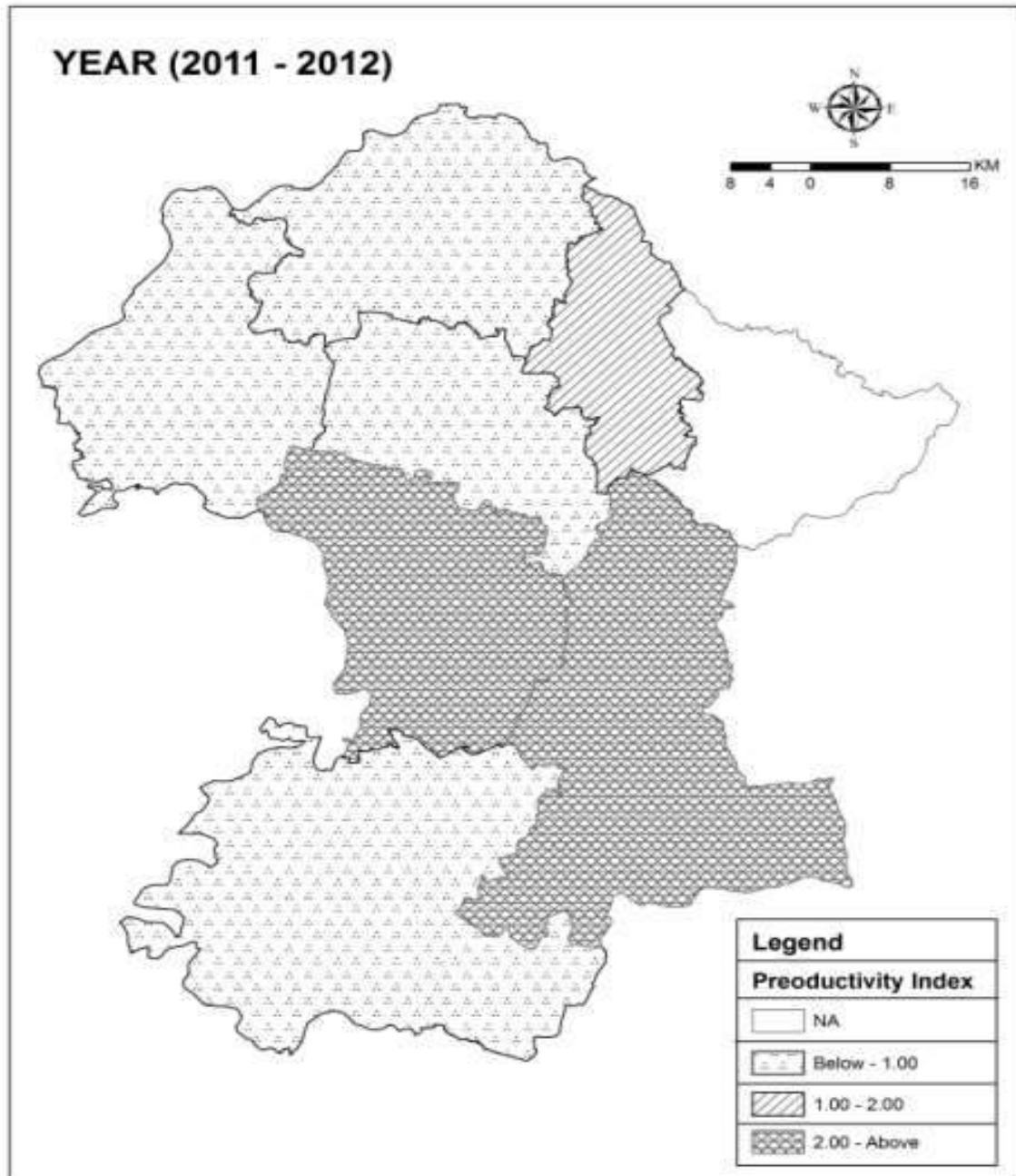
Fig. 5. Gondia District: Productivity of Wheat (2011-2012)

CONCLUSION

Out of the total area of the district 26% is occupied by forests, 8% is not available for cultivation, 3.4% is barren and uncultivated land, 9.2% is fallow land. Net sown area is 43.2% of the total 47% available for cultivation and rest is cultivable land but not in use. Two main crops mainly Kharif and Rabi are sown in the district. Main Kharif crops are Rice, wheat, green gram, and oilseeds and main Rabi crops are Wheat and green gram. Agriculture productivity is an input output ratio. At present the measurement of agricultural productivity, the question of sustainability of soil, health of ecosystem and social acceptability have become increasingly important. Agricultural productivity of a micro region is closely influenced by a number of physical, socio-economic, political, institutional and organizational factors Agricultural productivity is a function of interplay of physical and cultural variables and it manifests itself through per hectare productivity. The measurement of agricultural productivity helps in knowing the areas that are performing rather less efficiently in comparison to the neighboring areas. By delimiting the areas of low, medium and high productivity, agricultural plans may be formulated to remove and minimize the regional inequalities.

FINDINGS

- In the year 2011-2012 the change in fertilizers application and production indicates that though change in both the variables is in the same direction, but till now the cultivators of the district is not having the proper orientation regarding the use and application of chemical fertilizers. There is a need to create awareness regarding the importance of chemical fertilizers to increase the level of production.

- Though the district is known as the lake district of the Maharashtra, but the facility of irrigation is basically by tanks, which are seasonal in nature, that's why the water is available only for the Kharif crop.

- The role of technological advancement in the district has been tested with reference to the productivity level. The technological equipments like Iron Plough, tractor, harvesters, water pumps, thresure are utilized to make the agricultural procedure faster. The result indicate that the impact is increasing with reference to time span though at the very slow rate and it requires a lot of awareness and innovativeness to state the importance of this mechanization.

- Various major, medium and minor irrigation projects are working in the district to increase the irrigated area.

- Irrigation is the factor on which the implementation of HYV, Chemical fertilizers and plant protection measures are implemented and as a result of these factors agriculture level of advancement can be increased. There is a need of policy paper so that the level of agricultural productivity and cultivators can be enhanced.

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SYSTEMIC LUPUS ERYTHEMATOSUS: UPDATE ON THE DIAGNOSIS, PREVALENCE, CLINICAL MANAGEMENT, INFLAMMATORY MARKERS, NEW HORIZONS IN THE PATHOGENESIS, MANIFESTATIONS AND PROGRESS IN TREATMENT

Bryam Esteban Coello García[1], María Paula Cantos Pesántez[2],
Vicente Xavier Vicuña Carbaca[3], Ricardo Andrés Vargas Álvarez[4],
Vanessa Jazmín Mañay Betancourt[5], Johanna Paola Gaibor Barriga[6],
Martha Giovanna Herrera Moreno[7], Danny Germán Guamán Carchipulla[8].

[1]*Postgraduate Doctor in Orthopedics and Traumatology at Faculdade de Ciências Médicas Minas Gerais. Belo Horizonte - Brasil. ORCID https://orcid.org/0000-0003-2497-0274*
[2]*General Practitioner in Independent Practice, Faculty o-f Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0009-0009-5984-3735*
[3]*General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCID https://orcid.org/0000-0003-0261-392X*
[4]*Resident physician in "Hospital General Julius Doepfner de Zamora, faculty of Medical Sciences, Universidad de Guayaquil. Guayas-Ecuador ORCID https://orcid.org/0009-0003-1929-6825*
[5]*General Practitioner at "Hospital Básico Edgar Arcos", Faculty of Medical Sciences, Universidad Regional Autónoma de Los Andes UNIANDES. Ecuador ORCID https://orcid.org/0009-0000-7103-1400*
[6]*General Practitioner at "Hospital Saludesa",faculty of Medical Sciences, Universidad Católica de Cuenca. Ecuador ORCID https://orcid.org/0000-0002-6991-5845*
[7]*General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCIDhttps://orcid.org/0009-0006-5017-9696*
[8].*General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador ORCIDhttps://orcid.org/0009-0008-5858-1887*

*Corresponding Author: Bryam Esteban Coello García,**Address:** Rua Tiradentes 266.Campo Belo. Minas Gerais. Brasil, **Postal Code:** 37270-000*

SUMMARY

Introduction: *Systemic lupus erythematosus (SLE) is a systemic autoimmune disease with multisystem involvement, generating chronic inflammation and damage of more than one organ. It is usually clinically and serologically diagnosed with the presence of autoantibodies. "Lupus" is a Latin term meaning "wolf", due to the fact that the typical facial eruptions of the pathology are very similar to the bite marks of a wolf.*

Objective: *to detail the current information related to systemic lupus erythematosus, description, etiology, epidemiology, pathophysiology, histology, classification, clinical manifestations, treatment and differential diagnosis.*

Methodology: *a total of 45 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 35 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: lupus, SLE, autoimmune, multisystemic.*

Results: *Familial segregation and high concordance rates in identical twins strongly suggest a genetic contribution to SLE, however there is no obvious pattern of inheritance. Females have 10 times the risk of developing SLE compared to males. Lupus in males is less common but has a propensity to be more severe. About 80 to 90% of individuals with SLE show musculoskeletal involvement in the*

course of the disease, ranging from mild arthralgias to deforming arthritis. Avascular necrosis with or without the use of steroids may occur in 10% of individuals with SLE and is most often bilateral and affects the hip joints.

Conclusions: systemic lupus erythematosus presents a wide range of clinical and histopathologic manifestations. Adequate education of affected individuals with systemic lupus erythematosus about the possible clinical manifestations can lead to early recognition and intervention, which may prevent potential significant organ damage. The role of markers and autoantibodies in the differential diagnosis of the pathology is essential. Treatment of SLE is aimed at preventing organ damage and achieving remission. The choice of treatment will depend on the altered organ system(s) and the extent of the involvement. Education of the affected individual, physical measures, lifestyle and emotional support play an important role in the comprehensive treatment of SLE.

KEY WORDS: *lupus, SLE, autoimmune, manifestations, treatment.*

INTRODUCTION

Systemic lupus erythematosus (SLE) is a systemic autoimmune disease with multisystem involvement, generating chronic inflammation and damage of more than one organ. It is usually clinically and serologically diagnosed with the presence of autoantibodies. "Lupus" is a Latin term meaning "wolf", due to the fact that the typical facial eruptions of the pathology are very similar to the bite marks of a wolf. The pathology presents multiple phenotypes, with different clinical manifestations, ranging from minor mucocutaneous presentations to multi-organ and major central nervous system involvement. Different immunopathological pathways play a role in the pathogenesis of SLE. Many pathogenic autoantibodies are known, however, the exact pathogenesis is still not well understood. The diagnosis of systemic lupus erythematosus can be challenging and although there are several categorization schemes and criteria, its usefulness clinically is a matter of debate. The treatment of SLE is performed according to its affection in the organ systems. At the moment there are multiple agents that have proven to be effective in the treatment of SLE, but it still presents a significant risk of morbidity and mortality in affected individuals(1-3).

METHODOLOGY

A total of 45 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 35 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: lupus, SLE, autoimmune, multisystemic.

The choice of bibliography exposes elements related to systemic lupus erythematosus, description, etiology, epidemiology, pathophysiology, histology, classification, clinical manifestations, treatment and differential diagnosis.

DEVELOPMENT
Description and Etiology

Systemic lupus erythematosus (SLE) is a complex multisystem autoimmune disease of wide clinical heterogeneity and significant potential for morbidity and mortality. At the moment of unknown etiology, however, it presents multiple immunological, endocrine, genetic and environmental factors important in its etiopathogenesis(4).

Familial segregation and high concordance rates in identical twins strongly suggest a genetic contribution in SLE, however there is no obvious pattern of inheritance. Concordance rates between identical twins of about 50% have been reported, as well as more than 100 gene loci with polymorphisms related to polygenic SLE (and more than 30 genes have been shown to give rise to monogenic forms of SLE or SLE-like phenotype. These genes are related to the activation of the immune system in response to foreign antigens, the activation of the innate and adaptive immune systems, as well as the generation of autoantigens. Among other infrequent genetic mutations, however, considered at very high risk for the development of SLE are deficiencies of early complement components with a greater than 90% risk C1q, C1r, C1s, with a 50% risk C4, with a 20% risk C2 and TREX1. Some of the other associated genes are TNFAIP3, STAT-4, STAT-1, TLR-7, HLA-DRB1, HLA-DR2, HLA-DR3, HLA-DRX, IRAK1/MECP2, IRF5-TNPO3, ITGAM, among others. Usually the most frequent genetic predisposition is in the major histocompatibility locus (MHC), which includes genes for antigen presenting molecules.

There are studies which report that women have 10 times more risk of developing SLE compared to men, and the risk of SLE increases 14 times in Klinefelter syndrome 47, XXY, presenting a possible association with genes of the X chromosome. However, the specific genes have not yet been validated(1,5).

Being female, in addition to hormonal influence are notable risk factors for lupus erythematosus, because estrogen triggers CD8+ and CD4+ T cells, macrophages, B cells, thymocytes, the release of some specific cytokines such as IL-1, HLA expression and endothelial cell adhesion molecules such as ICAM and VCAM. Also, estrogens and prolactin stimulate autoimmunity, increase the manufacture of B-cell activating factor and modulate the activation of lymphocytes and plasmacytoid dendritic cells (pDC). Use of estrogen-containing contraceptives as well as postmenopausal hormone replacement therapy sometimes lead to flares in individuals with Lupus erythematosus. There are multiple environmental triggers of SLE, as well as many drugs that generate a lupus-like phenomenon by demethylating DNA and altering self-antigens. Ultraviolet rays and sun exposure also generate increased cell apoptosis and are triggers for SLE. In addition, multiple viral infections have been implicated and molecular mimicry is thought to be the underlying mechanism.

Other probable risk factors include alfalfa sprouts, silica exposure, vitamin D deficiency, canavanine-containing foods, and other viral infections(1,6,7).

Epidemiology

Multiple prevalence and incidence rates of SLE have been reported and vary according to population differences. Studies show prevalences of 72.1 to 74.4 per 100,000 persons and incidence rates of 5.6 per 100,000 persons/year in mostly Caucasian and African-American populations. African Americans have higher rates, and the disease is more prevalent in Asian and Hispanic populations compared to Caucasians. The pathology usually presents at a younger age and is more prominent in African Americans. SLE occurs more commonly in African Americans and Asians compared to whites. Although lupus nephritis is more common in Asians than in Whites, the 10-year outcome and survival rate is seen to be more favorable in Asians(8-10).

Approximate SLE rates are between 24% and 56% in monozygotic twins, whereas in dizygotic twins the rate is about 2% to 4%(11).

SLE predominantly affects women of childbearing age, with a female to male ratio of 9 to 1 according to some literature and 10 to 1 in others. However, the risk decreases after menopause, but remains twice as high compared to men. Several clinical trials and some meta-analyses have shown that lupus in males is less frequent but has a propensity to be more severe. Also, male individuals are more likely to present with cytopenias, neurological involvement, thrombosis, renal disease, serositis, skin manifestations, cardiovascular disease, hypertension and vasculitis than females. Age plays an important role in SLE and although the pathology is more common in women of childbearing age, it has also been reported in the pediatric and elderly population. Systemic lupus erythematosus is more severe in children compared to adults, usually manifesting with malar rash, hematologic abnormalities, nephritis, pericarditis and hepatosplenomegaly. However, they have a more insidious onset in older people, showing more pulmonary involvement, serositis and less malar rash, Raynaud's syndrome, nephritis and neuropsychiatric complications(1).

Pathophysiology

The pathogenesis of systemic lupus erythematosus is complex and its understanding is advancing periodically. A breakdown of tolerance in genetically susceptible individuals to exposure to environmental factors leads to activation of autoimmunity. Cellular damage originating from infectious and other environmental factors exposes the immune system to autoantigens leading to activation of T and B cells, which become self-sustained by a chronic self-directed immune response. Complement activation, cytokine release and autoantibody manufacture result in organ damage.

Both the innate and adaptive immune systems play a specific role in the pathogenesis of SLE. Activation of the innate immune system is Toll-like receptor (TLR) dependent or independent. These cell membrane-bound TLRs (TLR 2, 4, 6) are activated upon exposure to extracellular DNA and RNA from decaying cells, leading to subsequent activation of the interferon regulatory family IRF-3, NF-κB and MAP.Which are kinases, acting as transcription factors for the manufacture of proinflammatory mediators such as IFN-b. In contrast, endosomal TLRs (TLR 7, 9) are activated by single-stranded RNA and demethylated DNA, leading to the generation of interferon alpha and RNA-binding autoantibodies, such as antibodies against Ro La, Sm and RNP. The TLR-independent pathway is activated by intracytoplasmic RNA sensors (RIG-1, MDA-5) and DNA sensors (IFI16, DAI) leading to activation of IRF3 and NF-κB. Both self DNA/RNA and foreign DNA/RNA, such as from viruses, can generate this activation. NETosis, a term used to describe the sequence of cellular events that led to the active release of TEN has recently gained attention in the pathogenesis of SLE. Following activation by multiple factors such as activated platelets, cytokines and vascular endothelial cells, neutrophils systematically release their nuclear aggregates extracellularly, which can subsequently stimulate the manufacture of interferon alpha by dendritic cells, mediate thrombosis and vascular damage, as well as being autoantigens for T lymphocytes.

T lymphocytes and B lymphocytes also play a notable role in the pathogenesis of SLE. Antigens derived from apoptotic and damaged cells are presented to T cells via antigen presenting cells. T cells in SLE show distorted gene expression leading to the generation of multiple cytokines. These T cells make less IL-2, leading to altered regulatory T cell production. Increased IL-6, IL-10, IL-12 and IL-23 upregulate mononuclear cell production, while increased IL-17 and IL-21 lead to more T-cell production. Increased Interferon-γ leads to defective T-cell manufacture. T cells lead to activation of autoreactive B cells by elaboration of CD40L and cytokines, resulting in autoantibodies. Toll-like receptors, interacting with DNA and RNA, produce activation of these B cells, as well as intranuclear complexes presenting nucleic acid and proteins are the most notable antigens leading to B cell activation.All these autoantibodies are pathogenic and cause organ damage by deposition of immune complexes, complement and neutrophil activation, modifying cell function, as well as generating apoptosis and cytokine production. In addition to that, autoreactive B cells in SLE, stimulated by autoantigens, are not eliminated simply because of a deficiency of the process involved in the functional neutralization of autoreactive B cells. In addition, B cells can be used as antigen-presenting cells by successfully activating T cells by presenting internalized soluble antigens to T cells, forming a circuit in which B and T cells activate each other, resulting in further autoimmunity(12-16).

Histopathology

Tissue pathology in SLE can present with a variety of aberrant immunologic mechanisms, including immune complexing, autoantibody generation, and immunologically mediated tissue injury. The LE body or hematoxylin body is a characteristic hallmark of SLE pathology, usually seen in the lungs, heart,

lymph nodes, kidneys, spleen, serous and synovial membranes. The pathology of skin lesions in SLE allows to observe the generation of immune complexes that perform tissue damage, vascular and perivascular inflammation and chronic infiltration of mononuclear cells. Edema and erythrocyte extravasation can be seen in all SLE lesions. Immunofluorescence reveals deposition of immunoglobulins IgG, IgA and IgM and complement components along the dermal-epidermal junction. Vasculitis is common in SLE and vascular lesions may demonstrate various pathologies. In SLE, central nervous system pathology shows intracranial small vessel involvement with thrombotic lesions with or without perivascular inflammation and endothelial proliferation. Infrequently, necrotizing vasculitis is shown, in addition to having evidenced thromboembolism due to Libman-Sacks endocarditis.

Valvular involvement leads to Libman-Sacks endocarditis, which is a sterile warty endocarditis, affecting the mitral valve usually with vegetations. The pathology shows necrotic cell debris, protein deposits, platelet thrombi and mononuclear cells. Pericarditis with fibrinous exudate is frequent showing fibrinoid necrosis and perivascular infiltration of mononuclear cells. Lymphadenopathy shows plasma cell infiltration of interfollicular areas, necrosis of paracortical T-cell areas and follicular hyperplasia with giant cells. Splenomegaly presents an onion skin lesion with multiple concentric rings of perivascular collagen.

Individuals with lupus pneumonitis present interstitial pneumonitis, alveolar wall lesion, alveolitis, edema and hemorrhage. Lupus nephritis can attack glomeruli, tubules, interstitium and vessels with immune complex deposition.

There are 6 classes of lupus nephritis, each with unique pathologic features, which has given a different treatment point for each class, so it is crucial to know the World Health Organization classification criteria for lupus nephritis prior to treatment.
Class I: minimal mesangial lupus nephritis.
Class II: mesangial proliferative lupus nephritis.
Class III: focal lupus nephritis.
Class IV: diffuse segmental or diffuse global lupus nephritis.
Class V: membranous lupus nephritis.
Class VI: advanced sclerosing lupus nephritis(1,17,18).

Clinical Manifestations
SLE is a multisystem disease with multiple phenotypes. The clinical features may differ from an extremely mild disease with mucocutaneous involvement only to a major, life-threatening disease with multisystem involvement. All organ systems can be altered in SLE. Sometimes an autoantibody profile can help predict disease progression. Some investigations found serologic abnormalities prior to clinical onset of the disease, which was called preclinical lupus or more specifically called when the affected individual presents serologic abnormalities compatible with SLE and some clinical features without SLE criteria.

Constitutional symptoms: constitutional symptoms are present in about 90% of individuals with SLE. General malaise, fever, fatigue, weight loss and anorexia are common. A little more than 40% of those affected with the disease may present with a lupus flare as a cause of fever, however it is important to rule out infections first.

Mucocutaneous Manifestations: more than 80% of individuals affected with SLE have mucocutaneous involvement, these are usually specific to lupus:
- Subacute cutaneous lupus erythematosus (SCLE): includes annular and papulosquamous, the rash of which is a photosensitive, generalized, non-scarring and non-indurated eruption. Sometimes it can be papulosquamous similar to psoriasis or an annular/polycystic lesion with central clearing and peripheral desquamation. SCLE lesions may remain for many months, however they usually recover without scarring. The rash is seen in individuals with a positive anti-Ro antibody (SSA) up to 90% of the time. It can also be caused by some drugs such as hydrochlorothiazide and is common in individuals with Sjogren's syndrome and rheumatoid arthritis.
- Acute cutaneous lupus erythematosus (ACLE): includes localized, malar and generalized lupus, the characteristic lesion is the malar rash or butterfly rash, a raised, pruritic erythematous rash affecting the cheeks and bridge of the nose. The rash may be macular or papular and respects the nasolabial folds. It usually has an acute onset, however, it may occur over many weeks and give induration and desquamation. The malar rash may fluctuate with lupus disease activity. In addition other eruptions at this location that can be differentiated are seborrheic dermatitis, rosacea, erysipelas and perioral dermatitis. Acute generalized cutaneous lupus erythematosus leads to a generalized maculopapular or macular rash with a photosensitive pattern.
- Chronic cutaneous lupus erythematosus erythematosus (CCLE): which includes classical discoid lupus erythematosus (CDLE), being the most common form of chronic cutaneous lupus erythematosus (CCLE). It may present with or without SLE and may be localized or generalized. The changes are erythematous disc-like papules or plaques with adherent scaling and central clearing. SLE heals with scarring and is associated with permanent alopecia when found on the scalp. Mucosal lesions are seen in the oral cavity as painful round erythematous lesions with radiating white hyperkeratotic striae.
- Hypertrophic-verrucous: histologically similar to squamous cell carcinoma.
- Mucoid discoid lupus.
- Discoid lichenoid lupus.
- Deep lupus lupus panniculitis: it can occur above the waist and is less likely to be related to SLE. The

alterations generate depressed surfaces and when related to overlying SCI lesions, it is called deep lupus.

- Lupus tumidus: smooth, erythematous and edematous plaques, without epidermal involvement.
- Lupus chilblains: painful erythematous plaques on the fingers and toes.

Oral and nasal ulcers are frequent in SLE and are usually painless, appearing as erythema of gradual onset, macula, petechiae, erosions or ulcers. They are usually seen more on the buccal mucosa, hard palate and vermilion border. Photosensitivity is seen in more than 90%, characterized by an abnormal skin reaction to ultraviolet A/B and visible light exposure, systemic symptoms worsen with sun exposure.

In addition, other non-specific cutaneous manifestations may be seen such as: acanthosis nigricans, cutaneous calcinosis, vasculopathy (livedo reticularis, superficial thrombophlebitis, Raynaud's phenomenon, erythromelalgia, periungual telangiectasia), cutaneous vasculitis (leukocytoclastic or urticaria), rheumatoid nodules, lichen planus, urticaria, erythema multiforme, sclerodactyly, blistering lesions and ulcers on the lower extremities.

Musculoskeletal Manifestations: about 80 to 90% of individuals with SLE show musculoskeletal involvement in the evolution of the pathology, ranging from mild arthralgias to deforming arthritis. Lupus arthritis usually presents as a symmetrical, non-erosive inflammatory polyarthritis that mostly affects the small joints of the wrists, hands and knees; however, any joint can be affected. Jaccoud's arthropathy is due to laxity of the joint capsule and ligaments, generating non-erosive deformities of the hands, as well as ulnar deviation and subluxation of the metacarpophalangeal joints that come to resemble rheumatoid arthritis. Avascular necrosis with or without steroid use may occur in 10% of individuals with SLE and is most often bilateral and affects the hip joints. About 10% of individuals with SLE present with inflammatory myopathy with similar histopathologic manifestations. Individuals with SLE are at high risk for fibromyalgia. There are multiple studies showing a wide range of musculoskeletal involvement in the feet of patients with SLE, presenting in addition to arthralgias, deforming arthropathy, deformities of the lesser toes, hallux limitus/rigidus and hallux valgus, the latter being the valgus deviation of the first orthotic with a varus deviation of the first metatarsal(19,20).

Cardiovascular Manifestations: SLE can involve any layer of the heart, including the pericardium, myocardium, endocardium, and even the coronary arteries. Pericarditis associated with exudative pericardial effusions is the most common cardiac feature. Cardiac tamponade is rare, as well as myocarditis and is linked to anti-Ro antibodies (SSA). Hydroxychloroquine-associated cardiomyopathy must be ruled out. Valvular abnormalities, including Libman-Sacks endocarditis affecting the mitral valve, are common and may be associated with antiphospholipid antibody syndrome. Individuals with SLE are at high risk for coronary artery disease due to coronary vasculitis or generalized atherosclerosis.

Hematologic And Reticuloendothelial Manifestations: anemia is seen in more than 50% of individuals with SLE and is most often an anemia of chronic disease. Other origins of anemia in this pathology are usually Coomb's positive autoimmune hemolytic anemia, red cell aplasia, iron deficiency anemia and microangiopathic hemolytic anemia, and can be correlated with antiphospholipid antibody syndrome. Leukopenia secondary to neutropenia or lymphopenia is common. Thrombocytopenia may be linked to antiphospholipid antibody syndrome and autoantibodies against platelets, glycoprotein IIb/IIIa or thrombopoietin receptor. Pancytopenia is also common and is associated with myelofibrosis. Splenomegaly is frequent, however, there are reports of splenic atrophy and asplenism.

Neuropsychiatric Manifestations: The central nervous system (CNS) and peripheral nervous system (PNS) may be involved in SLE, as well as psychiatric manifestations. The most common CNS manifestation is headaches, but there may be focal or generalized seizures, aseptic meningitis, demyelinating syndrome, movement disorders such as chorea, cognitive dysfunction and ischemic strokes. Strokes are 1.5 to 3 times more frequent in patients with systemic lupus erythematosus, with a 3 times higher risk of ischemic stroke and 3 times higher risk of hemorrhagic stroke. Peripheral nervous system manifestations include cranial and peripheral neuropathies, mononeuritis multiplex, autonomic neuropathies and syndromes mimicking Guillain-Barré syndrome and myasthenia gravis. Psychiatric manifestations are complex to diagnose and manage and may present as depression, anxiety and sometimes even frank psychosis(21).

Renal Manifestations: lupus nephritis is a frequent complication. The involvement can range from mild subnephrotic proteinuria to diffuse progressive glomerulonephritis leading to chronic renal damage. Lupus nephritis usually shows early in the course of the pathology. Hematuria, proteinuria, new onset hypertension, lower extremity edema and increased creatinine suggest lupus nephritis. Biopsy is essential to stage lupus nephritis, as well as to rule out other probable pathologies. The results of the biopsy determine the management of lupus nephritis. The prognosis is different according to each class, with an excellent prognosis for classes I and II and a poor prognosis for classes III and IV. Class V presents a favorable prognosis, except for the complications of the nephritis syndrome. Some other renal manifestations are thrombotic microangiopathy, vasculitis, interstitial nephritis, lupus vasculopathy and arteriolosclerosis. The most important mission of the treatment of lupus nephritis is the normalization of renal function or at least the prevention of progressive deterioration of renal function.

Pulmonary Manifestations: pleuritis is the most frequent pulmonary manifestation and is not always related to pleural effusion. Acute lupus pneumonitis with bilateral pulmonary

infiltrates, pulmonary arterial hypertension, exudative pleural effusion, shrinking lung syndrome, interstitial lung disease such as nonspecific interstitial pneumonia (NSIP) or usual interstitial pneumonia (UIP), diffuse alveolar hemorrhage associated with capillaritis and pulmonary embolism may also occur.

Gastrointestinal Manifestations: anywhere in the gastrointestinal tract can be compromised by SLE. Dysphagia is usually the most common manifestation and is related to heartburn, retrosternal pain, odynophagia or regurgitation. The origin is due to gastroesophageal reflux motility disorder, gastroesophageal reflux disease or pill esophagitis. Affected individuals may present with peptic ulcer, which debuts as epigastric pain, in addition to early satiety. A differential diagnosis should be made with other pathologies that may present the same symptomatology. In addition to esophageal dysmotility, mesenteric vasculitis, lupus enteritis, peritonitis and ascites, protein-losing enteropathy, pancreatitis and lupoid hepatitis can be observed. Individuals with SLE and antiphospholipid antibody syndrome may show thrombosis of mesenteric vessels, hepatic veno-occlusive disease and Budd-Chiari syndrome(21).

In pregnancy: women with SLE with positive antiphospholipid antibodies are at high risk of preeclampsia, maternal thrombosis, miscarriages and fetal loss. Anti-Ro (SSA) and anti-La (SSB) antibodies can cross the placenta and generate fetal heart block and neonatal lupus manifested with cytopenias, transaminitis and photosensitive rash.

Other Manifestations: ocular involvement is common such as keratoconjunctivitis sicca, uveitis, scleritis, retinal vasculitis, optic neuritis, peripheral ulcerative keratitis and episcleritis, in addition to drug-induced ocular damage. Ear involvement may give sudden sensorineural hearing loss. Adrenal infarction secondary to thrombosis of the adrenal vessels may also be present in individuals with antiphospholipid antibody syndrome and systemic lupus erythematosus(1,22-26).

Classification Criteria
The American College of Rheumatology (ACR) created the SLE classification criteria in 1971 and they were revised years later. The 1997 ACR criteria required 4 of 11 criteria for SLE categorization, including malar erythema, discoid rash, photosensitivity, oral/nasal ulcers, arthritis, serositis, renal disease, hematologic disease, neurologic disease, immunologic criteria, and antinuclear antibody positivity. The Systemic Lupus International Collaborative Clinics (SLICC) criteria made modifications, needing at least one of the four criteria to be clinical and at least one of the four criteria to be immunologic, as well as individuals with biopsy-proven nephritis and positive ANA or double-stranded anti-DNA could be placed directly as SLE even in the absence of other criteria. In 2019, the European League Against Rheumatism (EULAR) and the American College of Rheumatology (ACR) presented new criteria for the classification of SLE(27,28).

Evaluation
SLE is diagnosed based on a set of signs, symptoms and appropriate laboratory tests, imaging and histopathology play an important role. Antinuclear antibodies (ANA) are the essential feature of the disease and will be the initial test to be performed, immunofluorescence is considered the gold standard test for ANA. A positive ANA is observed in more than 97% of SLE cases, having a specificity of only 20%, therefore, a positive ANA does not confirm the diagnosis of SLE, however a negative ANA makes it significantly less likely(1,29).

Other disorders associated with a positive ANA include drug-induced lupus, mixed connective tissue disease, Sjogren's syndrome, cutaneous lupus, rheumatoid arthritis, juvenile idiopathic arthritis, systemic sclerosis, polymyositis/dermatomyositis, Raynaud's disease, fibromyalgia, autoimmune hepatitis, multiple sclerosis, Hashimoto's thyroiditis, idiopathic thrombocytopenic purpura, as well as some infections and malignancies.

Antibodies against deoxyribonucleic acid (DNA) can be classified into those that react with denatured single-stranded (ss) DNA and those that identify native, double-stranded (ds) DNA. Especially, anti-ssDNA antibodies are considered non-specific and can be observed as a laboratory alteration or in the healthy population. Anti-double-stranded deoxyribonucleic acid (bsDNA) antibodies have more than 95% specificity for SLE, however they are only present in 60% to 70% of individuals with SLE. Anti-dDNA antibodies can be seen in drug-induced lupus. In SLE, anti-dsDNA antibodies can be linked to disease activity and the development of lupus nephritis.

Anti-Ro (SSA) and anti-La (SSB) antibodies target ribonucleoprotein particles, these are seen in up to 90% of cases of Sjogren's syndrome, they are also seen in SLE with anti-Ro in up to 50% and anti-La in up to 20% frequency.

Anti-Smith antibodies are seen in less than 30% of SLE patients, but have a specificity of 99% for SLE. These are often associated with anti-U1-RNP antibodies, which are present in up to 30% of SLE patients.

Anti-histone antibodies are not specific for drug-induced lupus and can be seen in 50% to 70% of SLE patients.

Anti-ribosomal-P antibodies are very specific for SLE, however their prevalence in SLE is less than 5% and can be linked to neuropsychiatric manifestations of SLE.

Anti-centromere and anti-topoisomerase-I (SCL70) antibodies are seen in systemic sclerosis and infrequently in SLE. Individuals with SLE may also have antiphospholipid antibodies (lupus anticoagulant, anticardiolipin and anti-beta-2-glycoprotein I antibodies).

C3 and C4 complements should be evaluated, low complement levels indicate complement consumption and are related to disease activity. Inflammatory markers such as C-reactive protein and erythrocyte sedimentation rate may be elevated. Complete

blood counts, liver and kidney function tests, urinalysis and urine protein quantification should be performed. X-rays of the joints may show periarticular osteopenia, deformities or subluxation. In addition, a renal biopsy should be performed if lupus nephritis is suspected(30,31).

Treatment

The treatment of SLE is aimed at preventing organ damage and achieving remission. The choice of treatment will depend on the organ system(s) involved and the extent of the involvement. Treatment may vary from minimal treatment with NSAIDs and antimalarials to intensive treatment with cytotoxic drugs and corticosteroids. Education of the affected individual, physical measures, lifestyle and emotional support play an important role in the comprehensive treatment of SLE. Photoprotection is of utmost importance, as well as smoking cessation because it can worsen the symptoms of SLE. Dietary recommendations are to avoid alfalfa sprouts and echinacea and to include a vitamin D-rich diet.

Cutaneous Manifestations: if mild, can be managed with topical corticosteroids or topical calcineurin inhibitors such as tacrolimus. Hydroxychloroquine is the drug of choice for most cutaneous manifestations and is effective. Quinacrine can be used in contraindication to hydroxychloroquine, as well as methotrexate in case of no response. When the pathology is important or resistant, systemic corticosteroids, mycophenolate mofetil and belimumab can be used. Other alternatives include IVIG, dapsone, azathioprine, thalidomide, cyclophosphamide and rituximab.

Musculoskeletal Manifestations: hydroxychloroquine is the treatment of choice for lupus arthritis; if it does not work, methotrexate or leflunomide may be chosen, and when there is refractoriness, belimumab and rituximab may be considered.
Hematologic manifestations: mild cytopenias do not require treatment, moderate to severe cytopenias require corticosteroids as well as azathioprine or cyclosporine-A as steroid sparing agents. Severe refractory cytopenias may require steroids in pulsed intravenous doses, as well as cyclophosphamide, plasmapheresis, mycophenolate mofetil, rituximab, recombinant G-CSF or splenectomy.

Cardiopulmonary Manifestations: serositis usually responds to NSAIDs or oral corticosteroids in moderate to high doses. Acute lupus pneumonitis requires high doses of corticosteroids in intravenous pulses. Plasmapheresis and/or cyclophosphamide is sometimes needed. Interstitial lung disease is managed with corticosteroids as well as immunosuppressive agents such as azathioprine or mycophenolate mofetil. Pulmonary arterial hypertension needs vasodilator therapy and thrombotic complications need anticoagulation. High-dose corticosteroids control myocarditis and coronary arteritis. In addition, optimization of lipid levels, blood pressure control, no smoking, exercise, aspirin are recommended(21).

CNS Manifestations: continued use of warfarin is recommended in cases of CNS thromboembolic events related to antiphospholipid antibody syndrome. Corticosteroids in high doses with immunosuppressive agents such as azathioprine, cyclophosphamide or rituximab are used in aseptic meningitis, optic neuritis, demyelinating disease, among others.

Renal Manifestations: lupus nephritis (LN) will be confirmed with a biopsy. Class I and II LN will be treated with renin-angiotensin-aldosterone system blockade. Immunosuppression with high-dose corticosteroids with azathioprine is indicated when proteinuria is greater than 1 gram/day. Membranous or class V LN will also be treated with renin-angiotensin-aldosterone system blockade.If there is proteinuria of more than 1 gram/day, high doses of corticosteroids and azathioprine in mild disease or intravenous tacrolimus/cyclosporine-A/mycophenolate mofetil/cyclophosphamide in moderate to severe disease are given and then maintenance therapy with azathioprine, mycophenolate mofetil, cyclosporin A or tacrolimus should be performed. Corticosteroids will be tapered in maintenance therapy. Proliferative NL (class III/IV) needs more aggressive management, with intravenous methylprednisolone pulses followed by high-dose oral steroids combined with mycophenolate mofetil, intravenous cyclophosphamide or azathioprine. Renal replacement therapy or transplantation may be required in some individuals.

Characteristics In Pregnancy: in mild presentations azathioprine and corticosteroids in low doses can be used. Some immunosuppressive agents such as methotrexate, mycophenolate mofetil, cyclophosphamide and leflunomide are teratogenic and contraindicated in pregnancy. Hydroxychloroquine is considered safe during pregnancy. In addition, rituximab and belimumab should be avoided at this stage. Women with positive Anti-Ro or Anti-La antibodies with a history of neonatal lupus in a previous pregnancy, adequate fetal cardiac monitoring with weekly or alternating weekly fetal echocardiography in the second trimester is indicated.

Extra Considerations: hydroxychloroquine should be used in all affected individuals with systemic lupus erythematosus given its benefits beyond simple management of active manifestations. They will require regular ophthalmologic examinations to monitor for maculopathy. Corticosteroids are routinely used in SLE, long-term adverse effects such as osteoporosis, glaucoma, cataracts and avascular necrosis will be considered and monitored. Many of the immunosuppressive agents used in SLE show potential adverse effects, ranging from cytopenias, hepatotoxicity to an increased risk of urinary bladder cancer with cyclophosphamide. These individuals should be monitored adequately and closely for adverse effects of these agents(1,32,33).

Differential Diagnosis

Systemic lupus erythematosus presents multiple diseases with which a differential diagnosis can be made as follows:

Other Autoimmune Diseases

Rheumatoid arthritis (RA) may show multiple extra-articular manifestations as well as classic polyarticular inflammatory arthritis. They may show positive ANA, Anti-Ro and Anti-La, however, other SLE-specific autoantibodies and hypocomplementemia are uncommon. SLE may be related to a positive rheumatoid factor, but Anti-CCP is negative in SLE. Drug-induced lupus can be difficult to differentiate from SLE. This is characterized by resolution of symptoms after drug withdrawal; autoantibodies may remain positive for some years. Lupus may be a differential diagnosis of melasma(34).

Adult-onset Still's disease usually presents with arthralgias, lymphadenopathy, splenomegaly and fever. There is no malar rash, no organic manifestations, and no SLE-specific autoantibodies. Sarcoidosis manifests with dyspnea, fatigue, night sweats, fever, cough, rash and uveitis. It also presents with a non-caseating granuloma on chest X-ray and bilateral adenopathy, which are uncommon in SLE. Behcet's disease manifests with aphthous ulcers, uveitis and arthralgia, however, it does not present other systemic and serologic features of SLE(1,35).

Infections

Multiple viral infections can mimic SLE. Parvovirus B19 infection usually causes skin rash, inflammatory arthritis, fever and cytopenias. There is evidence of ANA and rheumatoid factor. CMV and EBV viral infections usually show transaminitis, fatigue, cytopenias and fever. Both hepatitis B and C are associated with inflammatory arthralgia-arthritis, positive ANA and rheumatoid factor. HIV may show with oral ulcers, fever, fatigue and cytopenias. Infective endocarditis manifested with arterial embolisms, arthralgias, fever, myalgias and cardiac murmur, can be dismissed as one of the cardiac manifestations of SLE, however to define it, absence of specific autoantibodies associated with SLE and positive blood cultures must be present.

Malignant Neoplasms

Lymphomas, mainly non-Hodgkin's lymphoma, may manifest with weight loss, fever, fatigue, cytopenia, arthralgia, lymphadenopathy and positive ANA. The more specific autoantibodies related to SLE are not present. In older individuals they show lupus-like symptoms, so it is recommended to rule out malignancy.

CONCLUSIONS

Systemic lupus erythematosus presents with a wide range of clinical and histopathologic manifestations. Proper education of affected individuals with systemic lupus erythematosus about the possible clinical manifestations may lead to early recognition and intervention, which may eventually prevent possible notable organ damage. The role of markers and autoantibodies in the differential diagnosis of the pathology is essential. Treatment of SLE is aimed at preventing organ damage and achieving remission. The choice of treatment will depend on the altered organ system(s) and the extent of the involvement. Education of the affected individual, physical measures, lifestyle and emotional support play an important role in the comprehensive treatment of SLE.

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Conflict of Interest Statement
The authors report no conflicts of interest.

PEDAGOGY AND TEACHING METHODS IN HIGHER EDUCATION INSTITUTIONS: CURRENT TRENDS AND INNOVATIVE APPROACHES

Kholmatova Shahida Tafikovna[1], Muminova Bashorat Abdukhalilovna[2]

[1]*Senior Teacher of Russian Language at the Department of Uzbek Language and Literature, Tashkent State Technical University named after. Islam Karimov*
[2]*Senior Teacher of Uzbek Language, Department of Uzbek Language and Literature, Tashkent State Technical University named after. Islam Karimov*

ABSTRACT

This article explores the dynamic relationship between pedagogy and teaching methods in higher education institutions. It investigates traditional and contemporary pedagogical paradigms, emphasizing the shift towards active engagement, inclusivity, and technological integration. The impact of digital tools, online platforms, and virtual resources is discussed, highlighting their role in transforming educational delivery. Inclusive pedagogy is explored for its significance in creating a supportive and accessible learning environment for diverse student populations. Active learning strategies, such as project-based learning and problem-solving exercises, are analyzed for their influence on student engagement and critical thinking. The article delves into innovative assessment methods aligned with pedagogical goals and emphasizes the importance of continuous professional development for educators. While recognizing challenges, including resistance to change and resource constraints, the article concludes by discussing potential future directions for pedagogy in higher education, considering emerging trends and the evolving needs of learners.

KEYWORDS: *Pedagogy, Higher Education, Teaching Methods, Active Learning, Technology Integration, Inclusive Pedagogy, Assessment Methods, Professional Development, Educational Innovation, Student-Centered Learning.*

INTRODUCTION

Higher education institutions play a pivotal role in shaping the intellectual and professional development of individuals. The effectiveness of education is deeply intertwined with the methodologies employed by educators in the process of knowledge dissemination. This article aims to delve into the intricate relationship between pedagogy and teaching methods in the context of higher education, shedding light on current trends and innovative approaches.

The landscape of higher education is undergoing a paradigm shift, with traditional teaching methods being reevaluated in light of contemporary educational philosophies. The introduction will touch upon the historical context of pedagogy in higher education, showcasing the progression from traditional lecture-based approaches to more student-centered and experiential learning methodologies.

As we embark on this exploration, it becomes essential to understand the pivotal role pedagogy plays in creating an inclusive, dynamic, and effective learning environment. The introduction will highlight the importance of this investigation in adapting to the diverse needs of today's students and addressing the challenges posed by the rapidly changing global educational landscape.

2. Pedagogical Paradigms in Higher Education

The landscape of higher education has witnessed a transformative shift in pedagogical paradigms, necessitating a critical examination of traditional and contemporary approaches. This section aims to provide an in-depth analysis of the evolving pedagogical paradigms in higher education institutions.

Historical Context:

To comprehend the current state of pedagogy in higher education, it is crucial to examine its historical context. Traditional lecture-based methods, while historically predominant, have given way to more dynamic and interactive approaches. The section will explore the progression of pedagogical paradigms, from didactic teaching to learner-centered methodologies.

Student-Centered Learning:

The emergence of student-centered learning represents a significant departure from traditional instructional models. This pedagogical approach prioritizes active student engagement, self-directed learning, and critical thinking. The section will delve into the principles of student-centered learning, emphasizing its role in fostering a deeper understanding of subject matter and cultivating lifelong learning skills.

Experiential Learning:
In response to the demand for practical application of knowledge, experiential learning has gained prominence. This section will explore the integration of real-world experiences, internships, and hands-on projects into the educational curriculum. The benefits of experiential learning in enhancing problem-solving skills and bridging the gap between theory and practice will be highlighted.

Challenges and Opportunities:
While pedagogical shifts bring about opportunities for innovative teaching methods, they also pose challenges. Resistance to change, resource constraints, and the need for faculty development are factors that must be addressed. The section will critically examine these challenges and propose strategies for overcoming them.

Global Perspectives on Pedagogy:
Given the internationalization of higher education, it is essential to consider global perspectives on pedagogy. A comparative analysis of pedagogical approaches across different cultural and educational contexts will be explored. This section aims to provide insights into the diversity of pedagogical paradigms and their adaptability in a globalized world.

In summary, this section seeks to unravel the historical trajectory and current dynamics of pedagogical paradigms in higher education. By examining the shift towards student-centered learning, experiential education, and the global context, it sets the stage for understanding the multifaceted nature of contemporary pedagogy.

3. Technological Integration in Pedagogy:
In the rapidly advancing landscape of higher education, the integration of technology has become a defining feature of innovative pedagogical practices. This section explores the profound impact of digital tools, online platforms, and virtual resources on pedagogy, emphasizing the transformative role technology plays in reshaping the educational experience.

Digital Tools and Resources:
The proliferation of digital tools has revolutionized the way educators deliver content and engage students. This section discusses the integration of digital resources such as e-books, interactive simulations, and multimedia presentations. The benefits of these tools in enhancing content accessibility, customization, and engagement will be explored.

Online Learning Platforms:
The advent of online learning platforms has ushered in a new era of flexible and accessible education. This section examines the role of platforms like learning management systems (LMS) and Massive Open Online Courses (MOOCs) in higher education. The advantages of asynchronous learning, collaborative online spaces, and the democratization of education through online platforms will be discussed.

Virtual and Augmented Reality:
Technological advancements in virtual and augmented reality offer immersive learning experiences. This section explores the integration of VR and AR in higher education, discussing their applications in fields such as science, medicine, and engineering. The potential of these technologies to simulate real-world scenarios and enhance experiential learning will be highlighted.

Synchronous and Asynchronous Learning:
The flexibility afforded by synchronous and asynchronous learning options has become a hallmark of technological integration. This section examines how these modalities cater to diverse learning styles and preferences. The benefits of real-time interactions in synchronous learning and the self-paced nature of asynchronous learning will be explored.

Challenges and Considerations:
While technology enhances pedagogical practices, it also presents challenges. This section addresses issues such as the digital divide, privacy concerns, and the need for digital literacy. Strategies for mitigating these challenges and ensuring equitable access to technology will be discussed.

Future Trends:
Anticipating future developments is crucial in the rapidly evolving landscape of educational technology. This section explores emerging trends such as artificial intelligence, adaptive learning systems, and personalized learning environments. The potential of these technologies to further individualize the learning experience will be examined.

In summary, the integration of technology in pedagogy represents a transformative force in higher education. This section delves into the diverse ways in which digital tools, online platforms, and emerging technologies are shaping pedagogical practices, offering new possibilities for engaging and empowering learners in the digital age.

4. Inclusive Pedagogy:
Recognizing and addressing the diverse needs of students is at the forefront of contemporary higher education. Inclusive pedagogy emerges as a key component in creating learning environments that accommodate various learning styles, abilities, and cultural backgrounds. This section explores the principles and practices of inclusive pedagogy, aiming to foster equitable access to education.

Diversity and Inclusion:
The foundation of inclusive pedagogy lies in acknowledging and embracing diversity. This section discusses the importance of recognizing variations in students' backgrounds, experiences, and abilities. It explores how creating an inclusive learning environment promotes a sense of belonging and mutual respect among students.

Universal Design for Learning (UDL):
Central to inclusive pedagogy is the concept of Universal Design for Learning (UDL). This section delves into the principles of UDL, emphasizing the creation of flexible learning environments that accommodate diverse learner needs. It explores how UDL fosters multiple means of representation, engagement, and expression.

Accessible Course Design:
Inclusive pedagogy involves designing courses with accessibility in mind. This section discusses strategies for creating accessible course materials, including readable fonts, multimedia alternatives, and compatibility with assistive technologies. It emphasizes the role of accessible design in ensuring all students can engage with course content.

Active Learning for All:
Inclusive pedagogy promotes active learning experiences that cater to various learning styles. This section explores how incorporating group activities, discussions, and collaborative projects can create an inclusive classroom. It discusses the benefits of active learning in enhancing understanding and retention for a diverse student body.

Faculty and Student Collaboration:
Collaboration between faculty and students is essential for the success of inclusive pedagogy. This section examines the importance of seeking feedback from students, understanding their unique needs, and involving them in the co-creation of the learning experience. It explores how this collaborative approach enhances the inclusivity of the educational environment.

Assessment and Evaluation:
Inclusive pedagogy extends to assessment methods that fairly evaluate diverse skills and abilities. This section discusses strategies for designing assessments that align with the principles of UDL, including varied formats, flexible timing, and options for expression. It emphasizes the role of assessment in promoting equitable outcomes.

Creating Culturally Responsive Classrooms:
Cultural responsiveness is integral to inclusive pedagogy. This section explores how educators can create culturally responsive classrooms by integrating diverse perspectives into the curriculum, incorporating culturally relevant examples, and fostering an environment that values cultural differences.

In conclusion, inclusive pedagogy represents a commitment to providing equitable educational opportunities for all students. This section highlights the principles of inclusive pedagogy, exploring how its implementation can lead to a more accessible, engaging, and supportive higher education experience for a diverse student population.

5. Active Learning Strategies:
Active learning stands as a cornerstone in modern pedagogy, emphasizing student engagement, critical thinking, and collaboration. This section delves into various active learning strategies employed in higher education, showcasing their impact on student involvement and knowledge retention.

Problem-Based Learning (PBL):
Problem-based learning shifts the focus from traditional lectures to collaborative problem-solving scenarios. This section explores how PBL encourages students to apply theoretical knowledge to real-world issues, fostering critical thinking and teamwork. Case studies and examples illustrate

the effectiveness of PBL in promoting a deeper understanding of subject matter.

Collaborative Group Activities:
Encouraging collaborative group activities is a key component of active learning. This section discusses how structured group work enhances communication skills, interpersonal relationships, and the ability to work in diverse teams. It explores strategies for designing effective group activities that promote both individual and collective learning outcomes.

Flipped Classroom Model:
The flipped classroom model reverses the traditional lecture-based approach, with students engaging in pre-class activities and using class time for interactive discussions and problem-solving. This section explores the benefits of the flipped classroom model in promoting self-directed learning and providing opportunities for personalized, in-depth exploration of topics.

Peer Teaching and Assessment:
Incorporating peer teaching and assessment into the learning process empowers students to take an active role in their education. This section discusses how peer-led activities, presentations, and evaluations contribute to a dynamic and inclusive learning environment. It explores the benefits of peer teaching in reinforcing understanding and building a sense of academic community.

Interactive Lectures and Clicker Systems:
Transforming traditional lectures into interactive sessions involves incorporating audience response systems, commonly known as clickers. This section explores how clicker systems and interactive lecture techniques encourage student participation, facilitate real-time feedback, and gauge comprehension. Case studies demonstrate successful implementations of interactive lecture strategies.

Role-Playing and Simulations:
Immersive experiences, such as role-playing and simulations, bring theoretical concepts to life. This section delves into how role-playing activities and simulations create engaging scenarios that require students to apply knowledge in practical contexts. It explores the effectiveness of these strategies in enhancing critical thinking and decision-making skills.

Field-Based Learning:
Field-based learning takes students outside the traditional classroom setting, providing hands-on experiences in real-world environments. This section explores how field trips, internships, and experiential learning opportunities contribute to a holistic understanding of subject matter. It discusses the impact of field-based learning on student motivation and the application of theoretical knowledge.

Gamification in Education:
Gamification incorporates game elements into educational activities to enhance engagement and motivation. This section explores how gamification strategies, such as quizzes, competitions, and interactive simulations, contribute to a

playful and immersive learning experience. It discusses the psychological principles behind gamification and its impact on student participation.

In summary, active learning strategies offer a diverse range of approaches to engage students actively in the learning process. This section highlights the versatility of these strategies, emphasizing their role in promoting critical thinking, collaboration, and a deeper understanding of subject matter in higher education.

6. Professional Development for Educators:
Ensuring educators are well-equipped with the latest pedagogical strategies and technologies is crucial for delivering high-quality education. This section explores the significance of continuous professional development (PD) for educators, emphasizing the need for ongoing training, collaboration, and mentorship to enhance teaching practices.

Importance of Professional Development:
Professional development is integral to keeping educators abreast of evolving educational trends, methodologies, and technologies. This section discusses the importance of PD in fostering a culture of lifelong learning among educators. It explores how ongoing development contributes to instructional effectiveness, student engagement, and the overall improvement of educational outcomes.

Collaborative Learning Communities:
Creating collaborative learning communities within educational institutions promotes a culture of shared knowledge and support. This section delves into the benefits of collaborative PD, including the exchange of best practices, peer mentoring, and the development of a supportive professional network. It explores how these communities contribute to a dynamic and innovative educational environment.

Workshops and Training Sessions:
Structured workshops and training sessions offer focused opportunities for educators to acquire new skills and knowledge. This section discusses the effectiveness of hands-on workshops, seminars, and training sessions in addressing specific pedagogical challenges and incorporating innovative teaching methods. It explores the role of interactive learning experiences in professional growth.

Online Professional Development:
The digital age has facilitated the availability of online PD opportunities for educators. This section explores the benefits of online courses, webinars, and virtual conferences in providing flexible and accessible professional development. It discusses how online platforms contribute to global collaboration and the dissemination of best practices.

Mentorship Programs:
Mentorship programs pair experienced educators with those seeking guidance and support. This section explores the benefits of mentorship in professional development, including personalized guidance, knowledge transfer, and emotional support. It discusses how mentorship fosters a culture of continuous improvement and contributes to the retention of effective educators.

Action Research and Reflective Practices:
Encouraging educators to engage in action research and reflective practices enhances their ability to critically evaluate and improve their teaching methods. This section discusses how action research projects and reflective practices contribute to ongoing PD. It explores the role of self-reflection in refining instructional strategies and addressing individual teaching challenges.

Incentives for Professional Development:
Providing incentives for educators to pursue professional development reinforces the value placed on continuous learning. This section explores various incentives, such as financial support, recognition, and career advancement opportunities. It discusses how incentivizing PD contributes to a motivated and engaged teaching workforce.

Cross-Disciplinary Collaboration:
Cross-disciplinary collaboration encourages educators from different disciplines to share insights and expertise. This section explores the benefits of cross-disciplinary PD, including the integration of diverse perspectives, the development of interdisciplinary teaching strategies, and the enrichment of the overall educational experience.

Peer Observation and Feedback:
Peer observation and feedback create opportunities for educators to learn from each other through observation and constructive critique. This section discusses the benefits of peer observation in professional development, emphasizing the importance of a collegial and non-evaluative approach. It explores how peer feedback contributes to continuous improvement in teaching practices.

In conclusion, continuous professional development is essential for educators to stay at the forefront of pedagogical innovation. This section highlights the diverse avenues for PD, emphasizing the importance of collaboration, mentorship, reflective practices, and incentives in fostering a culture of lifelong learning among educators.

7. Conclusion:
In conclusion, the dynamic interplay between pedagogy and teaching methods in higher education reflects a transformative journey characterized by innovation, challenges, and continuous adaptation. The exploration of pedagogical paradigms, technological integration, inclusive practices, active learning, assessment methods, professional development, and emerging trends underscores the multifaceted nature of modern education.

The traditional lecture-based model has given way to student-centered learning, experiential education, and inclusive pedagogy, reflecting a commitment to meeting the diverse needs of learners. The integration of technology has reshaped

the educational landscape, offering new possibilities for engagement, collaboration, and personalized learning experiences.

Active learning strategies, diverse assessment methods, and ongoing professional development contribute to a more dynamic and effective educational environment. Challenges such as resistance to change, resource constraints, and the digital divide highlight the complexities educators face in implementing innovative pedagogy.

Looking ahead, the future of higher education holds exciting prospects, including artificial intelligence, adaptive technologies, and global collaboration. Embracing interdisciplinary approaches and fostering cultural sensitivity will be essential for creating inclusive and globally relevant educational experiences.

In navigating these complexities, educators, institutions, and policymakers must work collaboratively to address challenges, share best practices, and envision a future where higher education remains a catalyst for knowledge, critical thinking, and societal progress.

As we conclude this exploration of pedagogy and teaching methods in higher education, it is evident that the journey is ongoing. The commitment to innovation, inclusivity, and continuous improvement will shape the future of higher education, ensuring that it remains a vibrant and transformative force in the lives of students and society at large.

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LEXICO-STYLISTIC AND MORPHOLOGICAL-STYLISTIC PARADIGM OF ADVERBS OF THE RUSSIAN LANGUAGE

Khamraeva Gulshod Arslonovna

Candidate of Pedagogical Sciences, Associate Professor of the Department of Modern Russian Language of Uzbekistan State University of Foreign Languages

ANNOTATION

The scientific article examines the lexical-stylistic and morphological-stylistic paradigm of adverbs of the Russian language. Analysis of linguistic and methodological literature in the aspect of the problem under study showed that the stylistic paradigm is especially pronounced at the lexical level. The scientific article also examines speech interference generated by the stylistic properties of adverbs of the Russian language, which is most clearly manifested in lexical-stylistic and morphological-stylistic paradigmatics.

KEYWORDS: *adverb, stylistics, morphological stylistics, paradigmatic interference, syntagmatic interference, lexical-stylistic paradigm, morphological-stylistic paradigm.*

INTRODUCTION

The Russian and Uzbek languages are in constant contact with each other and have mutual influence and interaction on each other, which leads to interference, which greatly complicates the mastery of the Russian language by Uzbek students.

Interference is specific speech errors that arise in conditions of bilingualism in the process of negative transfer of skills and abilities of the native language to the one being studied, taking into account their similarities and differences.

Interference phenomena can be differentiated depending on the nature of the structural differences in the contacting languages. This is how paradigmatic and syntagmatic interference are distinguished. Paradigmatic interference is traditionally classified as follows:

1. Under-differentiation (in the presence of differential features in the Uzbek language and their absence in Russian).

2. Over-differentiation (in the presence of differential features in the target language and their absence in Uzbek).

3. Reinterpretation of linguistic facts (in the presence of different differential features in both languages in the same grammatical categories).

Syntagmatic interference includes a set of rules for the linear compatibility of linguistic units and is divided into the following types: 1) resegmentation (errors in speech in a second language that appear at the syntagmatic level): a) plus - segmentation; b) minus – segmentation; 2) metathesis. [4, p.17]

The features of paradigmatic and syntagmatic interference are determined by the level structure of the language hierarchy. In this regard, level interference is distinguished, which is divided into lexical, semantic, syntactic and morphological interference. Let's consider speech interference generated by the stylistic features of the dialect of the Russian and Uzbek languages. The stylistic features of the dialect of the Russian and Uzbek languages are manifested in the stylistic paradigmatics of the synonymous series.

The term "paradigm" is used in morphology with the meaning of "a system of inflectional changes that are a model of formation for a given part of speech" (for example, paradigm 1 of the declension of nouns), as well as (a set of the same word (for example, table - table - table) [3, p. 267] The totality of linguistic units used in stylistically neutral, literary and colloquial speech constitute a stylistic paradigm.

The stylistic paradigm is based on the identity (or proximity) of the basic meaning of the linguistic units included in it (this can be both lexical and grammatical meaning, for example: gender, person, case) with differences in their stylistic indicators (stylistic and emotional-expressive coloring). [1, p. 14-15]

Thus, the adverbs simultaneously, immediately, at once (colloquial), suddenly (colloquial), vraz (simple), synchronously, included in the same stylistic paradigm, have the same lexical meaning, but have different stylistic connotations: neutral, colloquial and vernacular.

For example: 1. At the same time, immediately, at once (colloquial), suddenly (colloquial), at once (simple), synchronously. a) At the same time as someone or something. These words are used in cases when we are talking about an action, a state relating to several persons, phenomena, etc.; simultaneously and synchronously have a broader meaning: they are used not only in cases when we are talking about the

simultaneous action or state of several persons, objects, etc., but also when talking about an individual person or individuals, an individual object, etc. etc., performing any action, being in any state at the same time with someone or something; words at once, at once and more rare suddenly and at once are used only when we are talking about the simultaneous action or state of several persons, objects, etc., are characteristic of everyday colloquial speech; synchronously used in special and book speech. b) At the same time (do, perform two or more actions, direct your actions, efforts, etc. to several different objects). At once and suddenly in this meaning it is used less often, the word suddenly has an outdated character [5, p. 43-44].

2. At the same time, at the same time, together with that, together. These words are used in relation to various, usually contradictory characteristics, actions combined in smb., sth. [5, p. 43-44].

The stylistic paradigm is especially pronounced at the lexical level. It is known that linguistic units have their own semantic and stylistic meanings, for example, the adverbs frankly, frankly (colloquial), without hiding (colloquial) are close, identical in their actual semantic meaning, but their stylistic meaning is different. The adverb frankly has zero stylistic connotation, and the adverbs frankly, without concealment, relate to the colloquial style, they are stylistically colored. The first word reflects the main meaning of the word (to tell something, to admit something without hiding, without hiding anything). The last two words have an additional connotation (they support complete frankness and are used in conversational speech). [5, p. 93].

The lexical-stylistic paradigm can be composed of stylistically neutral, stylistically elevated and stylistically reduced vocabulary, for example, adverbs are really, in fact used in literary-bookish speech, an adverb really has a literary-colloquial character, and an adverb is truly used in bookish speech. [2, p. 93, 100, 102]

The morphological-stylistic paradigm has its own characteristics in contrast to the lexical-stylistic paradigm.
It is known that adverbs are not inflected or conjugated, they do not have endings that could change, adverbs are an unchangeable part of speech. However, a certain group of adverbs (with –o) has a paradigm of change according to degrees of comparison. The complete paradigm consists of three members, but most adverbs do not have a simple superlative form (deepest, lowest, etc.) The form below all is a phrase in the meaning of a superlative degree. [7, p. 141]

Members of the morphological paradigm, in contrast to the lexical-stylistic one, include words of the same word form and have a common lexical and grammatical meaning; they are called stylistic variants, for example: bolder - bolder, faster - faster. The morphological-stylistic paradigm covers a small number of units; it is limited not to three main members, as in the lexical-stylistic one, but only to two: neutral - colloquial; bookish - neutral. Here the stylistic oppositions between them are very unstable, for example, both the wall variant and the wall variant can be used in both stylistically elevated and stylistically reduced speech with noticeable dissonance. [1, p. 24]

Thus, the morphological-stylistic paradigm differs from the lexical-stylistic one: 1) incomplete composition (has two members); 2) blurred coloring; 3) the absence of emotional and stylistic layers; 4) insignificant coverage of morphological units. [1, p. 25]

In morphological-stylistic paradigmatics, both proper grammatical and word-forming morphemes are considered, for example, affixes contribute to the formation of a stylistically colored word from a neutral one: in the evening - in the evening (colloquial); little - little (colloquial); in winter - in winter (colloquial); quietly - quietly (colloquial). In general, examining the lexical-stylistic and morphological-stylistic paradigms, we can conclude that in both cases interference phenomena are generated on the basis of synonymy, both lexical and grammatical. [6, p. 65-68].

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HOME VISITING PROGRAMS: ENHANCING HEALTH OUTCOMES AND REDUCING HEALTHCARE COSTS THROUGH HOME-BASED NURSING INTERVENTIONS

Prof. Veronica David[1]

[1]*Vice Principal, Community Health Nursing Dept,Regional Institute of Nursing, Jabalpur, MP*

ABSTRACT

Home visiting programs offer a unique approach to healthcare delivery by providing personalized, home-based nursing interventions to individuals and families. These programs aim to improve health outcomes, reduce healthcare costs, and promote overall well-being. This review explores the effectiveness of home visiting programs, their impact on health outcomes and healthcare costs, and key considerations for successful implementation. We discuss the various models of home visiting programs, their target populations, and the role of community health nurses in delivering these interventions. Additionally, we highlight the challenges faced by home visiting programs and propose strategies for overcoming these challenges.

KEYWORDS: *home visiting programs, community health nursing, health outcomes, healthcare costs*

INTRODUCTION

Home visiting programs have gained recognition as an effective strategy for delivering healthcare services to individuals and families, particularly those facing barriers to accessing traditional healthcare settings. These programs typically involve registered nurses or other healthcare professionals visiting individuals' homes to provide a range of services, including health assessments, education, and support. Home visiting programs are designed to improve health outcomes, reduce healthcare costs, and promote overall well-being by addressing the unique needs of individuals and families in their home environment.

Effectiveness of Home Visiting Programs: Research has shown that home visiting programs can lead to significant improvements in health outcomes for participants. For example, a study by Olds et al. (2004) found that participants in a home visiting program for pregnant women and young children had lower rates of child maltreatment, improved child health and development outcomes, and reduced healthcare costs compared to non-participants. Similarly, a study by Korfmacher et al. (1999) found that a home visiting program for low-income families led to improved maternal and child health outcomes and reduced healthcare costs.

Home visiting programs have demonstrated significant effectiveness in improving various health outcomes for participants across different populations and settings. These programs typically target pregnant women, new parents, young children, and families facing socio-economic challenges. Through personalized, home-based nursing interventions, they address a wide range of health needs and promote positive health behaviors.

One of the key areas where home visiting programs have shown effectiveness is in maternal and child health. Studies have

consistently shown that participation in home visiting programs during pregnancy and early childhood leads to improved birth outcomes, such as reduced rates of preterm birth, low birth weight, and infant mortality. For example, a landmark study by Olds et al. (2004) found that participants in the Nurse-Family Partnership (NFP) program, which provides home visiting services to low-income, first-time mothers, had significantly lower rates of preterm births and improved child development outcomes compared to non-participants.

Moreover, home visiting programs have been associated with positive impacts on parenting practices and family functioning. By providing guidance on child development, parenting skills, and maternal health, home visitors empower parents to create nurturing and supportive home environments. This, in turn, can lead to improved parent-child relationships, reduced instances of child abuse and neglect, and better overall family well-being.

Additionally, home visiting programs often incorporate comprehensive health assessments and screenings to identify and address potential health risks early on. This proactive approach allows for timely interventions and referrals to appropriate healthcare providers or community resources. For example, home visitors may conduct developmental screenings for young children to identify any developmental delays or disabilities, enabling early intervention services to be initiated promptly.

Furthermore, home visiting programs play a crucial role in promoting preventive health behaviors and addressing health disparities within communities. By delivering culturally sensitive education and support, home visitors empower individuals and families to adopt healthy lifestyle choices, access preventive healthcare services, and navigate the healthcare system effectively. This holistic approach to health promotion not only improves individual health outcomes but also contributes to the overall well-being of communities.

In conclusion, home visiting programs have proven to be highly effective in improving health outcomes, enhancing parenting skills, and reducing healthcare disparities among vulnerable populations. Their ability to deliver personalized, home-based nursing interventions makes them a valuable asset in promoting health and wellness from pregnancy through early childhood and beyond. Continued investment and expansion of home visiting programs are essential to ensuring that all individuals and families have access to the support they need to thrive.

Impact on Healthcare Costs: In addition to improving health outcomes, home visiting programs have been shown to reduce healthcare costs. A study by Miller et al. (2015) found that a home visiting program for high-risk pregnant women led to a significant reduction in healthcare costs, primarily due to a reduction in preterm births and neonatal intensive care unit admissions. Similarly, a study by Duggan et al. (2004) found that a home visiting program for young, low-income mothers led to a reduction in healthcare costs over the first two years of the child's life.

Home visiting programs have demonstrated notable effectiveness in not only improving health outcomes but also in reducing healthcare costs. The evidence suggests that by providing targeted support and interventions to individuals and families in their home environment, these programs can mitigate the need for more costly medical interventions and hospitalizations.

One significant way in which home visiting programs contribute to cost reduction is by preventing or mitigating adverse health outcomes that often result in high healthcare utilization. For instance, programs targeting pregnant women may focus on prenatal care, nutrition education, and substance abuse cessation, thereby reducing the risk of preterm birth and associated neonatal intensive care unit (NICU) admissions. Similarly, interventions aimed at early childhood development can lead to improved child health and cognitive outcomes, potentially decreasing the need for pediatric emergency room visits and hospitalizations for preventable illnesses.

Several studies have provided empirical support for the cost-effectiveness of home visiting programs. For example, the study conducted by Miller et al. (2015) found that a prenatal home visiting program led to a significant reduction in healthcare costs by decreasing the incidence of preterm births and subsequent NICU admissions. This reduction in costly medical interventions resulted in substantial cost savings for both healthcare providers and payers.

Additionally, home visiting programs often incorporate preventive health strategies and health promotion activities that can help individuals manage chronic conditions more effectively, thereby reducing the frequency and severity of exacerbations that require acute medical care. By providing education on medication adherence, dietary modifications, and lifestyle changes, home visitors can empower individuals to take control of their health and prevent costly complications associated with chronic diseases such as diabetes, hypertension, and asthma.

Moreover, by addressing social determinants of health, such as housing instability, food insecurity, and access to transportation, home visiting programs can indirectly impact healthcare costs. For instance, by connecting families with resources for stable housing and nutritious food, these programs can help prevent or alleviate conditions that contribute to poor health outcomes and frequent healthcare utilization.

Key Considerations for Successful Implementation: Several key considerations are essential for the successful implementation of home visiting programs. These include the need for a clear programmatic framework, adequate training and support for home visitors, effective collaboration with other healthcare providers and community organizations, and ongoing monitoring and evaluation of program outcomes. Additionally, addressing the social determinants of health, such as housing instability and food insecurity, is crucial for the success of home visiting programs.

1. **Clear Programmatic Framework**: Establishing a clear programmatic framework is essential for the successful implementation of home visiting programs. This includes defining program goals, target populations, and intervention strategies. A well-defined framework provides guidance for home visitors and ensures consistency in service delivery.

2. **Training and Support for Home Visitors**: Home visitors play a critical role in delivering interventions and building rapport with clients. Therefore, providing comprehensive training and ongoing support for home visitors is essential. Training should cover topics such as communication skills, cultural competency, child development, and relevant healthcare protocols. Additionally, regular supervision and opportunities for professional development can enhance the effectiveness of home visitors.

3. **Effective Collaboration**: Collaboration with other healthcare providers, community organizations, and social service agencies is key to the success of home visiting programs. By partnering with existing resources, home visiting programs can leverage expertise and resources to meet the diverse needs of clients. Collaborative efforts can also facilitate referrals to specialized services and promote continuity of care.

4. **Monitoring and Evaluation**: Continuous monitoring and evaluation of program outcomes are essential for assessing effectiveness and identifying areas for improvement. This includes tracking key performance indicators, such as client satisfaction, health outcomes, and healthcare utilization. Collecting feedback from clients and stakeholders can provide valuable insights into program strengths and weaknesses. Additionally, conducting rigorous evaluations, such as randomized controlled trials or quasi-experimental studies, can generate evidence of program impact and inform decision-making.

5. **Addressing Social Determinants of Health**: Recognizing and addressing the social determinants of health is crucial for the success of home visiting programs. Many clients served by home visiting programs face challenges such as housing instability,

food insecurity, and limited access to transportation. Therefore, integrating social support services, such as housing assistance, nutrition education, and access to transportation, into home visiting programs can help address underlying barriers to health and improve outcomes.

6. **Cultural Sensitivity and Linguistic Competence**: Home visiting programs must be culturally sensitive and linguistically competent to effectively serve diverse populations. This includes hiring staff who reflect the cultural and linguistic diversity of the community, providing interpreter services as needed, and adapting interventions to meet the unique cultural needs and preferences of clients. Building trust and rapport with clients requires understanding and respecting their cultural backgrounds and beliefs.

7. **Flexibility and Accessibility**: Home visiting programs should be flexible and accessible to accommodate the diverse needs of clients. This may involve offering flexible scheduling options, providing transportation assistance, and delivering services in locations convenient for clients, such as their homes or community centers. By removing barriers to access, home visiting programs can reach underserved populations and promote engagement in care.

Challenges and Strategies for Overcoming Them: Despite their potential benefits, home visiting programs face several challenges, including funding constraints, staffing shortages, and difficulties in reaching marginalized populations. To address these challenges, it is essential to secure sustainable funding sources, recruit and retain qualified home visitors, and implement strategies to reach underserved populations, such as offering flexible scheduling and transportation assistance.

1. **Funding Constraints**:
   - *Challenge*: Home visiting programs often face funding uncertainties, leading to difficulties in sustaining operations and expanding services.
   - *Strategy*: Advocacy efforts are crucial to secure stable funding sources. Collaborating with policymakers, community leaders, and philanthropic organizations can help raise awareness of the importance of home visiting programs and garner support for sustained funding. Additionally, diversifying funding streams through grants, private donations, and partnerships with healthcare payers can provide financial stability.

2. **Staffing Shortages**:
   - *Challenge*: Recruiting and retaining qualified home visitors, including registered nurses and other healthcare professionals, can be challenging due to high turnover rates and competition with other healthcare settings.
   - *Strategy*: Implementing competitive compensation packages, offering professional development opportunities, and providing supportive supervision can enhance job satisfaction and retention rates among home visitors. Additionally, collaborating with

academic institutions to establish training programs for home visiting professionals can help address workforce shortages and ensure a pipeline of skilled personnel.

3. **Difficulty in Reaching Marginalized Populations**:
   - *Challenge*: Home visiting programs may struggle to reach marginalized populations, including low-income families, racial and ethnic minorities, and individuals living in remote or underserved areas.
   - *Strategy*: Adopting culturally sensitive approaches, such as employing bilingual staff and incorporating culturally relevant materials, can enhance engagement with diverse communities. Collaborating with community-based organizations, faith-based groups, and community leaders can also help build trust and facilitate access to hard-to-reach populations. Furthermore, leveraging technology, such as telehealth platforms and mobile applications, can extend the reach of home visiting services to individuals in remote areas.

4. **Lack of Coordination with Other Healthcare Providers**:
   - *Challenge*: Fragmented healthcare systems and limited coordination between home visiting programs and other healthcare providers can hinder the continuity of care and result in duplicated efforts.
   - *Strategy*: Establishing formal partnerships and care coordination agreements with primary care providers, hospitals, mental health facilities, and social service agencies can promote seamless transitions between care settings and ensure comprehensive, coordinated services for individuals and families. Emphasizing communication channels, such as electronic health records and regular multidisciplinary meetings, can facilitate information sharing and collaborative decision-making.

5. **Quality Assurance and Evaluation**:
   - *Challenge*: Ensuring the quality and effectiveness of home visiting programs requires robust monitoring and evaluation systems, which can be resource-intensive and complex to implement.
   - *Strategy*: Investing in rigorous evaluation methodologies, such as randomized controlled trials and quasi-experimental designs, can provide evidence of program effectiveness and inform continuous quality improvement efforts. Engaging stakeholders, including program participants, community members, and healthcare professionals, in the evaluation process can enhance transparency and accountability. Moreover, leveraging data analytics and health informatics tools can enable real-time tracking of program outcomes and facilitate data-driven decision-making.

Conclusion: Home visiting programs offer a promising approach to improving health outcomes, reducing healthcare costs, and promoting overall well-being. By providing personalized, home-based nursing interventions, these programs can address the unique needs of individuals and families and help them achieve better health outcomes. However, successful implementation requires careful planning, adequate resources, and ongoing evaluation to ensure effectiveness. With continued support and investment, home visiting programs can play a vital role in improving the health and well-being of individuals and communities.

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INFLUENCE OF 21ST CENTURY CORE SKILLS ON THE LEARNING OUTCOMES OF STUDENTS IN MATHEMATICS

Daphne M. Legaspino, LPT, Ph.D.[a], Noel T. Casocot, Ph.D[b]

St. Mary's College of Tagum, Inc., National Highway, Tagum City, 8100, Philippines
UM Tagum College, Arellano St., Tagum City, 8100, Philippines

ABSTRACT

This study aspired to determine what domain of 21st Century Core Skills of Students significantly influences the students' learning outcomes in Mathematics. The quantitative non-experimental design utilizing causal-effect was used in the study. The respondents of the study were 249 grade 10 students at selected schools in Tagum City of S.Y. 2018-2019. Mean, Pearson-r and Regression Analysis were used in interpreting the data gathered. Findings were, 21st century core skills of students in Mathematics significantly influences to their learning outcomes and three out of four domain of 21st Century Core Skills significantly influences to their learning outcomes. Findings also revealed that the level of 21st century core skills of students in Mathematics was high, the level of students' learning outcomes in Mathematics was developing and there was a significant relationship between the 21st Century Core Skills of students in Mathematics. Based on the findings, it would serve as an eye opener to the DepEd as well as to the school and other national organizations in giving more importance on interventions as to fuse the 21st century core skills of the students in Mathematics for a successful and effective in increasing the learning outcomes of the students.

KEYWORDS: *Teaching Mathematics, 21st century skills, learning outcomes, Philippines*

INTRODUCTION

Students' performance in Mathematics both internal and external examinations has remained considerably poor by Ale (as cited by Idowu, 2016). Since Mathematics is the cornerstone of development of any contemporary society, it is always a concern about the continued poor performance of students and increasing research to identify what possible factors contributing to the nose diving in students' performance (Avong, 2013). In the Philippines, Mathematics subject ranked two among the subjects in terms of low Mean Percentage Score (MPS) that is only 50.55 in 2015. As observed in the statistics, the MPS for the past years of the school were diminishing. The result is below the passing percentage which is 75% , this means that students had difficulty in dealing with the subject which is alarming and a recurring situation (Guita & Tan, 2018). Indeed, in global competitiveness indices, the Philippines have been rated poorly in terms of the quality of basic education, quality of science and mathematics education, a low collaboration between industry and the academe, and low in innovation (Luz, 2012)

In the Philippine context, education remains top priority. However, in implementing academic curricular changes specifically in Mathematics, many factors need to be considered. For one, there is a need for carefully planned programs of exchange in the curriculum. Also, there must be an examination of the place of formative process and summative evaluation of curriculum programs and of the practical materials for the actual process of installing new curricula in schools (as cited by Capate & Lapinid, 2015). Chang et al. confirmed and stated that the fact that students' performance in Mathematics has not improved significantly despite its importance, not even with the introduction and use of technology in mathematics, nowadays, students make use of computer-assisted problem-solving systems to better learn and understand mathematics which remains an update (as cited by Idowu, 2016). It is believed that many of the students feel difficult and tiresome to handle the subject. Thus, it is a challenge for the teachers to have couple of solutions in coping with these problems in the classroom. One of these is, a teacher must incorporate cooperative learning in the class like reciprocal learning strategy (Guita & Tan, 2018). A need to promote 21st century skills and academic content knowledge as similarly important student outcomes. The cultivation of a broader set of skills and dispositions beyond core content knowledge is critical, and they merit the investment of more time in the classroom (Kwek, 2011). The Partnership of 21st Century Skills (P21) has been developed to give educational leaders in and out of the classroom additional tools to help more students recognize this common language so that all students develop skills to lead in the 21st century (Saltrick, et al., 2011). It is expected that the implementation of 21st century skills in mathematics is a challenge since, currently, mathematics education is mainly orientated on acquiring low-level cognitive processes, asks for students to work alone and in silence and does not stimulate students to develop deeper understanding in mathematics. Therefore, it is important to gain insight into the possibilities to implement these 21st century skills in mathematics education (Smit, 2016).

OBJECTIVES

1. To ascertain the level of the 21st Century Core Skills of students in Mathematics in terms of creativity and innovation, critical thinking and problem solving, communication and collaboration; and Information, Communication and Technology (ICT) literacy.

2. To determine the level of the learning outcomes of students.
3. To determine the significant relationship between the students' 21st Century Core
    Skills and learning outcomes in mathematics.
4. To determine what domain of 21st Century Core Skills of students in Mathematics
    significantly influences on learning outcomes.

METHODOLOGY

The research design of this study was quantitative non-experimental using causal effect technique. Quantitative data includes close-ended information such as that found to measure attitudes and performance instruments. While Non-experimental research is research that lacks the manipulation of an independent variable, random assignment of participants to conditions or orders of conditions, or both - characteristics pertinent to experimental designs (O'Dwyer & Bernauer, 2013).

Causal effect refers to a relationship between two phenomena in which one phenomenon is the reason behind the other. Most research's central goal is the identification of causal relationships or demonstrating that a particular independent variable (the cause) influences the dependent variable of interest (the effect). In this study, the design was adopted to determine the influence of 21st century core skills on the students' learning outcomes in Mathematics.

This study was conducted to selected schools in Tagum City. There were 49 respondents from School A and 100 from School B, a total of 249 grade 10 students. The questionnaires were distributed in accordance with permission by the school principal and instruction given by the mathematics teacher.

RESULTS

The level of the *21st century core skills of students in Mathematics* was high. This means that it is very evident. This is parallel to the study of Ramos (2014) where the 21st century core skills of students in Mathematics in a secondary school was much manifested. All the four indicators described as high that means that the level of *21st century core skills of students in Mathematics* is much evident to the students. The *Information, Communication and Technology (ICT) Literacy* has the highest mean followed by *Creativity and innovation* then *Critical Thinking and Problem Solving* and *Communication and Collaboration* as the lowest.

This study revealed the significance of providing the students with 21st century core skills Mathematics to increase the learning outcomes of the students in mathematics subject. A confirmation to the anchored proposition of Saltrick et al. (2011) that most important way to enable students achieve mastery is to fuse mathematical content and practices with the 21st Century Skills. Fusing a core subject like mathematics with 21st Century Skills makes teaching and learning more engaging, more relevant and more rigorous, ensuring that a greater number of students have an advanced level of understanding and ability in mathematics.

Furthermore, it was also revealed that the level of learning outcomes of the students was described as developing level of proficiency indicates that the students possess the minimum knowledge and core understandings that needs help throughout the performance of authentic tasks. Students' performance in Mathematics at both internal and external examinations has remained considerably poor according to Ale (as cited by Idowu, 2016).

The result is consonant to the findings of Nambatac (2011) that Filipinos performed poorly in Mathematics. Moreover, it is reported that Filipino students have poor performance in Science and Mathematics subjects. In fact, the National Mean Percentage Score in Math on 2012 was only 48.90 which is described as below the national standard. Moreover, Generalao concluded that Mathematics needs not to be stressed, even if it is not easy as perceived by the majority, this can still be appreciated. Enjoyment of the subject relies on its meaningfulness and dynamics of concept illustrated. It is the essential role of the teachers to guide and direct the students on getting knowledge, thus right ground on methods, strategies and techniques must be considered in giving a comprehensive environment which causes to arouse the interest and challenge the students to the higher level of learning mathematical (as cited by Guita, G. & Tan, D. ,2018).

Moreover, the results of the study showed that there was a significant relationship between the 21st century core skills of the students in Mathematics and their learning outcomes. However, among the four domains only creativity and innovation showed the relationship to the learning outcomes of the students in mathematics. This is in congruence to the study of Bahar & Maker (2011), that The Mathematical Creativity (TMC) as part of pedagogy had a significant correlation with mathematics achievement. Results can support the belief that teachers can enhance their students' achievement by developing their creative thinking in mathematics.

Critical thinking skills and problem solving has no significant relationship to the students' learning outcomes in contradiction to the findings of Alcantara & Bacsa (2017) that the academic performance, critical thinking skills, and problem-solving skills as the mathematics performance of the students is positively correlated to their level of critical thinking skills and problem-solving skills.

Meanwhile, communication skills and collaboration also show no significant relationship to the learning outcomes of the students in Mathematics. The result was inconsistent to the study Cristobal & Lasaten (2018) that reveals the existence of significant relationship between the students' communication skills and academic performance in English, Mathematics and Science, the higher level of communication skills the likely to have higher academic performance. In congruence to the studies of et al. as cited by Veiring (2012) that collaboration also has powerful effects on student learning and engaging in collaborative learning opportunities with classmates can have a lasting impact on individual student learning as it increases students' social competency and academic self-concept.

For the *ICT literacy*, this study results having no significant relationship to the students' learning outcomes, it is affirmed by Basri et al. (2018) on their findings revealed that there exists a relationship between ICT adoption and academic performance in a conservative environment. However, students' IT major was found to be making no impact on students' academic achievement.

The regression analysis on the influence of the domains of 21st century core skills of students influence to their learning outcomes in Mathematics revealed that communication and collaboration, critical thinking and problem solving, and creativity and innovation have significant influence on the students' learning outcomes in Mathematics.

Communication and Collaboration significantly influences the students' learning outcomes in Mathematics. This is in congruence to the study of Fall et al. as cited by Veiring (2012) that collaboration has powerful effects on student learning in the form of higher scores on work completed collaboratively, even when students turn in separate products. In other words, after collaborating with others, a student's performance on subsequent, related tasks completed individually tends to be higher than the performance of similar-ability students who only work alone.

Moreover, *Critical Thinking and Problem Solving* also significantly influences the students' learning outcomes in Mathematics. This study is parallel to Alcantara & Bacsa (2017) assessed the academic performance, critical thinking skills, and problem solving skills of students in mathematics as the performance of the students is positively correlated to their level of critical thinking skills and problem solving skills.

Finally, *Creativity and innovation* significantly influences the students' learning outcomes in Mathematics. This is similar to the study of Bahar & Maker (2011), stating that mathematical creativity had a significant correlation with mathematics achievement.

This study showed that among the four domains only ICT literacy does not significantly influence the leaning outcomes of the students in Mathematics. This study is in consonance with the findings of Gano (2010) that showed that the use of implemented Self-study video (SSV), fitting it to the mathematics pedagogy does not affect students' academic achievement. The performance of the students in the traditional method is the same as the student that undergo learning through the use of self-study video. The finding also emphasized that pedagogy with technology is equally effective as the traditional method of teaching, thus, it may concluded that SSV may be used in place of the traditional method and still having the same result on the student's academic achievement.

SUGGESTIONS
After a profound consideration on the possible implications of the findings and conclusion of this study, the researcher recommends in improving learning outcomes in Mathematics of the students from developing to advanced level by strengthening the skills to improve their learning outcomes. However, the school needs to be serious in targeting interventions and fusing the 21st century core skills of the students in Mathematics for a successful and effective in increasing the learning outcomes of the students.

Furthermore, there is a need for the teachers to help the students and providing interventions such as remediation programs to students in improving their learning outcomes for the following quarters and the students strengthen the 21st century skills that were already integrated in Mathematics subject to help them increase their learning outcomes.

CONCLUSIONS
Based on the results of the research objectives, the researcher has come up with the conclusion the 21st century core skills of students in Mathematics is high which means that it is much evident to the students. The findings also revealed that the students' learning outcomes in Mathematics is developing which means that the students possess the minimum knowledge and core understandings that needs help throughout the performance of authentic tasks. Also, there is a significant relationship between the 21st Century Core Skills of students in Mathematics and their learning outcomes. And there are domains of 21st Century Core Skills of students in Mathematics significantly influences to their learning outcomes.

Fusing a core subject like mathematics with 21st Century Skills makes teaching and learning more engaging, more relevant and more rigorous, ensuring that a greater number of students have an advanced level of understanding and ability in mathematics (Saltrick et al., 2011).

TABLES AND REFERENCES

Table 1. Level of 21st century core skills of students in Mathematics

Indicator	Mean	SD	Descriptive Equivalent
ICT literacy	3.87	0.76	High
Creativity and innovation	3.82	0.61	High
Critical thinking and problem solving	3.73	0.64	High
Communication and collaboration	3.71	0.65	High
Overall	**3.78**	**0.55**	**High**

Table 2. Level of students' learning outcomes in Mathematics

Indicator	Mean	SD	Description
Score	25.33	6.89	Developing

Table 3. Relationship between the 21st Century Core Skills of students in Mathematics and their learning outcomes

21st Century Core Skills of students in Mathematics	Students' Learning Outcomes in Mathematics		Decision α=0.05
	r – value	p-value	
Creativity and innovation	0.26*	0.001	**Rejected**
Critical thinking and problem solving	0.184*	0.004	**Rejected**
Communication and collaboration	0.132*	0.037	**Rejected**
ICT literacy	0.060	0.346	**Accepted**

Table 4. Regression Analysis on the Influence of 21st Century Core Skills of students in Mathematics to their learning outcomes

21st Century Core Skills of students in Mathematics	Unstandardized Coefficients		Standardized Coefficients	t-value	p-value	Decision On Ho α=0.05
	B	SE	Beta			
(constant)	16.432	3.046				
Creativity and innovation	2.112	1.120	0.186	1.886	0.060	**Accepted**
Critical thinking and problem solving	1.114	1.070	0.109	1.097	0.274	**Accepted**
Communication and collaboration	-0.671	1.072	-0.064	-0.626	0.532	**Accepted**
ICT literacy	-0.272	0.653	-0.030	-0.417	0.677	**Accepted**

r = 0.219	r^2 = 0.048	**Rejected**
f – ratio = 3.087*	p – value = 0.017	

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ANALYSING THE IMPACT OF ONLINE EDUCATION APPS ON STUDENTS' REMEMBERING ABILITY: A COMPREHENSIVE INVESTIGATION

Honnuraswamy Y[1], Dr Prashanth K C[2]
[1]Research Scholar, Department of Studies in Business Administration,
Vijayanagara Sri Krishnadevaraya University, Ballari.
[2] Associate Professor, Department of Studies in Business Administration,
Vijayanagara Sri Krishnadevaraya University, Ballari

ABSTRACT

This research delves into the analysis of online education apps and their impact on students' remembering ability. Employing a robust regression analysis model, key predictors such as Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) are scrutinized for their individual and collective contributions. The study, conducted with 397 respondents in the Kalayana Karnataka region, explores the multifaceted nature of factors influencing memory retention in educational contexts. Results reveal significant impacts of Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), while shedding light on the nuanced role of Performance Appraisal and Reports (PAR). Practical implications for educators and policymakers are discussed, along with considerations for future research.

KEYWORDS: *Online Education Apps, Remembering Ability, Regression Analysis, Teaching and Pedagogy, Personalized Services, Learn with Fun, Learning Aids, Performance Appraisal, Educational Impact, Memory Retention.*

1. INTRODUCTION

Educational settings represent dynamic environments where the acquisition and retention of knowledge play pivotal roles in shaping the intellectual development of individuals. Within this multifaceted landscape, the ability to remember information emerges as a cornerstone of effective learning. Recognizing the intricate interplay of various factors that contribute to remembering ability becomes imperative for educators, policymakers, and stakeholders seeking to optimize educational practices.

The aim of this research is to delve into the nuanced intricacies of remembering ability by employing a comprehensive regression analysis model. In doing so, we endeavor to unravel the impact of key predictors, namely Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun(LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR), on the capacity to remember information in educational contexts.

Understanding the determinants of remembering ability holds profound implications for educational methodologies, curriculum design, and the development of tailored interventions. By scrutinizing the collective influence of these predictors, this research seeks to provide a nuanced perspective on the intricate relationships shaping remembering ability. The findings are expected to contribute significantly to the ongoing discourse on effective pedagogical strategies, educational technologies, and the holistic development of individuals within educational systems.

As we embark on this exploration, it is essential to recognize the complex nature of learning and memory, influenced by an amalgamation of cognitive, psychological, and environmental factors. This study not only aims to elucidate the individual impact of each predictor but also endeavors to offer a holistic understanding of their combined influence on remembering ability. The research findings are poised to inform educational practitioners, researchers, and policymakers about the potential avenues for enhancing educational experiences and optimizing learning outcomes.

In the subsequent sections, we will present a detailed analysis of the regression model, including model fit, prediction accuracy, model improvement, residual analysis, ANOVA results, and the specific contributions of each predictor. Through this comprehensive exploration, we hope to provide valuable insights that contribute to the ongoing dialogue on educational effectiveness and the nuanced intricacies of remembering ability in diverse educational contexts.

2. PROBLEM STATEMENT

Despite the continuous evolution of educational methodologies and the integration of innovative technologies, understanding the factors that significantly influence remembering ability remains a critical and challenging endeavor. The landscape of education is marked by diverse approaches, each shaped by a myriad of elements, ranging from teaching methodologies and personalized services to the integration of entertainment in educational content.

Within this complex milieu, educators, policymakers, and researchers encounter a persistent need to identify and comprehend the key determinants that contribute to the variability in remembering ability among learners. While individual studies have explored specific aspects of educational practices, a comprehensive analysis integrating multiple predictors is often lacking. Consequently, there exists a gap in our understanding of how Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun(LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) collectively influence the ability to remember information.

This research addresses this gap by employing a robust regression analysis model to elucidate the individual and collective impacts of these predictors on remembering ability. The identification of these influences is essential for refining educational strategies and interventions, ultimately fostering an environment that optimally supports the memory retention process. Moreover, as education continues to undergo transformative changes, the need for evidence-based insights into the factors affecting remembering ability becomes increasingly urgent.

In light of these considerations, the overarching problem addressed in this research is: How do Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun(LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) collectively contribute to the variability in remembering ability within educational settings? By addressing this problem, the research aims to provide a nuanced understanding of the intricate dynamics influencing remembering ability and contribute valuable insights to the ongoing discourse on effective educational practices.

3. OBJECTIVES
1. To evaluate the collective influence of Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun(LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) on remembering ability.
2. To investigate the specific impact of each predictor on remembering ability, understanding their unique roles in the educational context.
3. To assess the overall fit of the regression model in explaining remembering ability, and to determine how the inclusion of predictors enhances the model's accuracy and reliability.

4. HYPOTHESIS
- Null Hypothesis (H0): There is no significant relationship between Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun(LWF), Learning Aids (LA), Performance Appraisal and Reports (PAR), and remembering ability.
- Alternative Hypothesis (H1): There is a significant relationship between at least one of the predictors (TLP, CPS, LWF, LA, PAR) and remembering ability.

- Individual Predictor Hypotheses:
  a. H0: TLP has no significant impact on remembering ability.
     H1: TLP has a significant impact on remembering ability.
  b. H0: CPS has no significant impact on remembering ability.
     H1: CPS has a significant impact on remembering ability.
  c. H0: LWF has no significant impact on remembering ability.
     H1: LWF has a significant impact on remembering ability.
  d. H0: LA has no significant impact on remembering ability.
     H1: LA has a significant impact on remembering ability.
  e. H0: PAR has no significant impact on remembering ability.
     H1: PAR has a significant impact on remembering ability.

These hypotheses form the basis for testing the significance of the predictors and their relationship with remembering ability. The analysis will provide insights into whether the identified predictors contribute significantly to variations in remembering ability within the educational context.

5. METHODOLOGY
- Study Design: This research adopted a quantitative approach, employing a regression analysis to investigate the factors influencing remembering ability in educational settings. The study focused on predictors such as Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun(LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR).
- Participants: The study involved a sample of 397 respondents from the Kalayana Karnataka region. Participants were selected using a stratified random sampling technique, ensuring representation from diverse educational backgrounds within the specified area.
- Data Collection: Data were collected through a structured questionnaire distributed to participants. The questionnaire included items related to the predictors of interest and the dependent variable, Remembering Ability. The respondents were requested to provide their perceptions and experiences based on a Likert scale.
- Variables:
  o Dependent Variable: Remembering Ability
  o Independent Variables (Predictors):
    ▪ Teaching, Learning and Pedagogy
    ▪ Customized and Personalized Services
    ▪ Learn with Fun
    ▪ Learning Aids
    ▪ Performance Appraisal and Reports
- Data Analysis: A regression analysis was conducted using statistical software (SPSS) to examine the

relationship between the predictors and remembering ability. The analysis included model fit statistics, individual predictor coefficients, ANOVA for overall model significance, and residual analysis to ensure the validity of the model.

- Ethical Considerations: Ethical approval was obtained from the relevant institutional review board, ensuring participant confidentiality and informed consent. The study adhered to ethical guidelines, and participants were assured of the confidentiality and anonymity of their responses.
- Limitations:

  o The study's findings are specific to the Kalayana Karnataka region, limiting generalizability to broader contexts.
  o The use of self-reported data introduces the possibility of response bias.
- Future Research: Future research could expand the scope to include a more diverse sample from various regions, providing a more comprehensive understanding of the predictors influencing remembering ability. Additionally, exploring qualitative methodologies could offer deeper insights into the subjective experiences of participants.

6. RESULTS

Analysis of Regression on Remembering Ability
Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.811[a]	.657	.653	.34610	.657	148.659	5	388	.000	1.563

a. Predictors: (Constant), PAR, TLP, LA, CPS, EWE
b. Dependent Variable: REMEMBERING ABILITY

The analysis of the regression model yielded significant insights into the relationship between the predictors (Teaching, Learning and Pedagogy - TLP, Customized and Personalized Services - CPS, Learn with Fun- LWF, Learning Aids - LA, and Performance Appraisal and Reports - PAR) and remembering ability.

- Overall Model Significance: The regression model was found to be highly significant ($p = 0.000$), indicating that at least one of the predictors significantly contributes to the variability in remembering ability.
- Model Fit and Prediction Accuracy:
  o The model explained approximately 65.7% of the variability in Remembering Ability ($R^2 = 0.657$), suggesting a robust fit.
  o The Adjusted R Square (0.653) remained high, providing a reliable measure of goodness of fit.

  o The standard error of the estimate (0.34610) indicated the average deviation of the model's predictions from actual values.
- Model Improvement: The inclusion of predictors significantly improved the model, as evidenced by a highly significant R Square Change (0.657) and F Change (148.659). This emphasizes the substantial impact of the predictors on explaining Remembering Ability.
- Residual Analysis: The Durbin-Watson statistic (1.563) fell within an acceptable range, suggesting independence of residuals. This reaffirms the reliability of the model in capturing unexplained variability.

ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	89.035	5	17.807	148.659	.000[b]
1	Residual	46.476	388	.120		
	Total	135.512	393			

a. Dependent Variable: REMEMBERING ABILITY
b. Predictors: (Constant), PAR, TLP, LA, CPS, EWE

ANOVA:
- Regression Component:
  o The overall regression model is statistically significant ($p = 0.000$), reinforcing the collective contribution of the predictors to explaining Remembering Ability.
  o The Regression Sum of Squares (89.035) represents the explained variability, and the Residual Sum of Squares (46.476) represents unexplained variability.

Sl. No.	Independent Variable	Unstandardized Coefficients Beta	P-Value	Impact	Null Hypothesis
1	Teaching Learning and Pedagogy	.225	.000	Impact	Rejected
2	Customized Personal services	.095	.023	Impact	Rejected
3	Education with Entertainment	.343	.000	Impact	Rejected
4	Learning Aids	.161	.000	Impact	Rejected
5	Performance Appraisal and Report	.064	.051	No Impact	Accepted

Summary of Regression Results for Remembering Ability:
The regression analysis for Remembering Ability demonstrates a robust fit with a notable R Square of 0.657, indicating that approximately 65.7% of the variability in Remembering Ability is explained by the selected predictors. These predictors include Teaching, Learning and Pedagogy (TLP), Customized and Personal Services (CPS), Education with Entertainment (EWE), Learning Aids (LA), and Performance Appraisal and Reports (PAR). The Adjusted R Square, maintaining a strength of 0.653, ensures a reliable measure of goodness of fit.

Examining the impact of individual predictors, Teaching, Learning and Pedagogy (TLP), Customized and Personal Services (CPS), Education with Entertainment (EWE), and Learning Aids (LA) exhibit statistically significant impacts on Remembering Ability, as indicated by their low p-values. Specifically, TLP and EWE show substantial unstandardized coefficients of 0.225 and 0.343, respectively, signifying their significant positive influence on Remembering Ability. Meanwhile, CPS and LA also make significant contributions with coefficients of 0.095 and 0.161, respectively.

On the other hand, Performance Appraisal and Reports (PAR) does not demonstrate a statistically significant impact, as its p-value is higher (0.051). Despite this, the overall model highlights the substantial influence of Teaching, Learning and Pedagogy, Customized and Personal Services, Education with Entertainment, and Learning Aids in explaining Remembering Ability. These findings provide valuable insights for educators and practitioners aiming to enhance educational approaches related to Remembering Ability.

7. DISCUSSION
The discussion delves into the nuanced impact of independent variables on remembering ability, as revealed by the regression analysis. Examining each variable's unstandardized coefficients, p-values, and the consequential acceptance or rejection of null hypotheses provides valuable insights.

Teaching, Learning and Pedagogy (TLP) emerge as a significant predictor with a positive impact on remembering ability (Beta = 0.225, p = 0.000), rejecting the null hypothesis. This underscores the pivotal role of effective teaching strategies in enhancing students' memory retention. Similarly, Customized and Personalized Services (CPS) exhibit a positive impact (Beta = 0.095, p = 0.023), reinforcing the significance

of personalized services in contributing to improved memory retention, as the null hypothesis is rejected.

Education with Entertainment (EWE) stands out with a highly significant positive impact (Beta = 0.343, p = 0.000), rejecting the null hypothesis. Incorporating entertainment into educational practices emerges as a substantial contributor to remembering ability. Learning Aids (LA) also show a significant positive impact (Beta = 0.161, p = 0.000), rejecting the null hypothesis and highlighting the importance of effective learning aids in enhancing students' memory.

In contrast, Performance Appraisal and Reports (PAR) demonstrate a marginally significant impact (Beta = 0.064, p = 0.051), with the null hypothesis accepted. This suggests that, despite the borderline significance, performance appraisal and reports may not have a statistically significant impact on memory retention.

The overall model's robust fit is emphasized by the high Adjusted R Square (0.653) and low standard error of the estimate (0.34610). The significant R Square Change (0.657) and F Change (148.659) underscore the model's improved explanatory power with the inclusion of predictors, particularly TLP, CPS, EWE, LA, and marginally PAR.

Practically, these findings offer actionable insights for educators and policymakers. Integrating elements of entertainment, personalized services, and effective learning aids into pedagogical strategies stands out as a promising avenue to enhance students' remembering ability. While the impact of PAR is marginally significant, policymakers may cautiously consider its incorporation into educational frameworks for its potential positive influence on memory retention.

However, acknowledging the study's limitations, such as the specific context and sample characteristics, is crucial. These considerations warrant caution in interpreting the results, particularly regarding the marginally significant impact of PAR. Future research endeavors should explore these predictors across diverse educational settings or populations to enhance the generalizability of findings, contributing to a more comprehensive understanding of the intricate relationships between predictors and remembering ability.

8. CONCLUSION

This study has intricately explored the dynamics of remembering ability within educational settings, unraveling the impact of Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR). The collective and individual contributions of these predictors have been unveiled, illuminating their substantial influence on the variability in remembering ability.

The regression model's high significance and robust fit (p = 0.000, R^2 = 0.657) underscore the imperative consideration of a combination of these predictors to comprehensively comprehend and elucidate remembering ability. Practical implications derived from the study suggest that educators can strategically enhance memory retention by incorporating engaging and personalized elements, along with effective learning aids. Policymakers may also discern value in integrating performance appraisal practices into educational frameworks.

Acknowledging the study's limitations, including specific context and sample characteristics, is crucial. Future research endeavors should broaden the exploration of these predictors across diverse educational settings and populations to enhance the generalizability of findings.

In essence, this research serves as a foundational step in the ongoing quest to optimize educational strategies for improved memory retention. By comprehending the multifaceted influences on remembering ability, educators and policymakers are empowered to make informed decisions that cultivate enriching learning environments, fostering enhanced memory and cognitive development in students.

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ASSESSING THE PERFORMANCE OF ONLINE EDUCATION APPS': IMPLICATIONS ON STUDENTS' UNDERSTANDING ABILITY

Honnuraswamy Y[1], Dr Prashanth K C[2]

[1]*Research Scholar, Department of Studies in Business Administration,*
Vijayanagara Sri Krishnadevaraya University, Ballari.
[2]*Associate Professor, Department of Studies in Business Administration,*
Vijayanagara Sri Krishnadevaraya University, Ballari.

ABSTRACT

In the rapidly evolving landscape of online education, the infusion of technology and innovative pedagogical strategies has redefined the dynamics of learning. This research investigates the intricate relationship between various predictors, including Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR), on students' understanding ability within the context of online education apps. Anchored in Bloom's Taxonomy, the study focuses on the foundational stages of comprehension and remembering, offering a comprehensive analysis through robust regression modeling. Findings reveal significant impacts of TLP, CPS, LWF, and LA on understanding ability, while PAR demonstrates no substantial influence. Practical implications extend to refining online education strategies, emphasizing personalized learning, engaging elements, and effective learning aids.

KEYWORDS: *Online education, Bloom's Taxonomy, understanding ability, teaching and pedagogy, personalized services, learn with fun, learning aids, performance appraisal, cognitive processes, educational technology, student comprehension, digital learning, regression analysis, online learning platforms.*

1. INTRODUCTION

In the rapidly evolving realm of education, the infusion of technology, particularly through the integration of online education apps, has emerged as a transformative force shaping the learning landscape. Within this dynamic context, the timeless principles of Bloom's Taxonomy, originally formulated by Benjamin Bloom and colleagues in the 1950s, offer a comprehensive framework for understanding cognitive processes. Amidst the myriad advancements, a keen focus on the foundational stages of Bloom's Taxonomy—specifically, comprehension and remembering—becomes paramount for fostering effective learning in the digital age.

This research embarks on a comprehensive exploration of understanding ability by employing a robust regression analysis model. The investigation seeks to unravel and illuminate the impact of key predictors, including Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR), on students' capacity to comprehend and remember information within the dynamic realm of online education apps.

Understanding ability, anchored in the principles of Bloom's Taxonomy, encompasses a spectrum of cognitive processes—from fundamental remembering to higher-order comprehension, application, analysis, synthesis, and evaluation. This study particularly underscores the foundational aspects of comprehension and remembering, aligning with the enduring and universal principles encapsulated in Bloom's Taxonomy.

The exploration of the determinants of understanding ability holds profound implications for refining educational methodologies, optimizing curriculum design, and tailoring interventions to meet the unique demands of the digital age. By scrutinizing the collective influence of these predictors through the lens of Bloom's Taxonomy, this research aspires to provide a nuanced perspective on the intricate relationships shaping understanding ability. The anticipated contributions extend to enriching the ongoing discourse on effective pedagogical strategies, the seamless integration of technology, and the holistic development of individuals within the digital realm of educational systems. As we embark on this exploration, guided by the enduring principles of Bloom's Taxonomy, our endeavor is to not only comprehend but also to amplify our understanding of the factors that foster effective comprehension and remembering in the evolving landscape of digital learning.

2. PROBLEM STATEMENT

Despite the widespread use of online education apps and the infusion of technology in educational practices, a significant challenge persists in comprehending the factors that substantially impact students' ability to understand information. In the ever-evolving landscape of digital education, characterized by diverse pedagogical approaches and technological innovations, there is a compelling need to identify and understand the key determinants contributing to variability in understanding ability among learners.

While previous studies have delved into various aspects of online education and cognitive processes, there remains a conspicuous gap in conducting a comprehensive analysis that integrates multiple predictors. The current understanding is

limited in terms of how Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) collectively influence students' capacity to comprehend and understand information within the realm of online education apps.

This research seeks to address this gap by deploying a robust regression analysis model to elucidate the individual and collective impacts of these predictors on understanding ability. The identification of these influences is crucial for refining online educational strategies and interventions, ultimately fostering an environment that optimally supports the comprehension and understanding processes. As education undergoes transformative changes with the integration of technology, the need for evidence-based insights into the factors affecting understanding ability becomes increasingly urgent.

In light of these considerations, the overarching problem addressed in this research is: How do Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) collectively contribute to the variability in understanding ability within the context of online education apps? By addressing this problem, the research aims to provide a nuanced understanding of the intricate dynamics influencing comprehension and understanding abilities, contributing valuable insights to the ongoing discourse on effective educational practices in the digital age.

OBJECTIVES
- To conduct a thorough assessment of students' understanding ability in the context of online education apps, considering a range of contributing factors.
- To examine and analyze the specific impacts of Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) on students' comprehension and memory retention.
- To offer practical guidelines for educators, policymakers, and stakeholders based on research findings, aiming to optimize online education strategies for improved student comprehension and remembering abilities.

These objectives succinctly outline the research focus, emphasizing the intention to assess, analyze, and provide practical guidance for enhancing understanding ability in the realm of online education.

HYPOTHESIS
- Null Hypothesis (H0):
  There is no significant relationship between Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), Performance Appraisal and Reports (PAR), and understanding ability.

- Alternative Hypothesis (H1):
  There is a significant relationship between at least one of the predictors (TLP, CPS, LWF, LA, PAR) and understanding ability.
- Individual Predictor Hypotheses:
  1. H0:Teaching, Learning and Pedagogy (TLP) has no significant impact on understanding ability.
     H1: TLP has a significant impact on understanding ability.
  2. H0:Customized and Personalized Services (CPS) have no significant impact on understanding ability.
     H1: CPS has a significant impact on understanding ability.
  3. H0:Learn with Fun (LWF) has no significant impact on understanding ability.
     H1: LWF has a significant impact on understanding ability.
  4. H0:Learning Aids (LA) have no significant impact on understanding ability.
     H1: LA has a significant impact on understanding ability.
  5. H0:Performance Appraisal and Reports (PAR) have no significant impact on understanding ability.
     H1: PAR has a significant impact on understanding ability.

These hypotheses form the foundation for assessing the significance of the predictors and their associations with understanding ability, guiding the statistical analysis to reveal insights into the intricate relationships between the variables.

METHODOLOGY
- Study Design: This research adopts a quantitative approach, utilizing a regression analysis model to investigate the intricate dynamics of understanding ability within the framework of online education apps. The study focuses on key predictors, namely Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR).
- Participants: The study involves 397 respondents selected through stratified random sampling from the Kalayana Karnataka region. This ensures a diverse representation of educational backgrounds within the specified area.
- Data Collection: Structured questionnaires are employed to collect data from participants. The questionnaire encompasses items related to the predictors of interest (TLP, CPS, LWF, LA, PAR) and the dependent variable, understanding ability. Participants provide their perceptions and experiences using a Likert scale.
- Variables:
  - Dependent Variable: Understanding Ability
  - Independent Variables (Predictors):
    - Teaching, Learning and Pedagogy
    - Customized and Personalized Services

- Learn with Fun
- Learning Aids
- Performance Appraisal and Reports

- Data Analysis: A comprehensive regression analysis is conducted using statistical software to examine the relationships between predictors and understanding ability. The analysis includes model fit statistics, individual predictor coefficients, ANOVA for overall model significance, and residual analysis to ensure the model's validity.\

- Ethical Considerations: The study adheres to ethical guidelines, obtaining approval from the relevant institutional review board. Participants are assured of confidentiality and informed consent throughout the research process.

- Limitations:
  - Findings are specific to the Kalayana Karnataka region, limiting generalizability.
  - Potential for response bias due to self-reported data.
- Future Research: Future studies could broaden the scope by including diverse samples from various regions, providing a more comprehensive understanding of predictors influencing understanding ability. Exploring qualitative methodologies may offer deeper insights into participants' subjective experiences.

RESULTS

Analysis of Regression on for Understanding Ability
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.783[a]	.613	.608	.35802	.613	122.783	5	388	.000	1.607

a. Predictors: (Constant), PAR, TLP, LA, CPS, EWE
b. Dependent Variable: UNDERSTANDING ABILITY

Model Summary:
- Model Fit:
  - Model 2 explains approximately 61.3% of the variability in Understanding Ability ($R^2 = 0.613$), indicating a strong fit.
  - The Adjusted R Square (0.608) remains robust, providing a reliable measure of goodness of fit.
- Prediction Accuracy:
  - The standard error of the estimate (0.35802) signifies the average amount by which the model's predictions may deviate from the actual values of Understanding Ability.

- Model Improvement:
  - The inclusion of predictors significantly improved the model, as indicated by the highly significant R Square Change (0.613) and F Change (122.783).
- Residual Analysis:
  - The Durbin-Watson statistic (1.607) checks for autocorrelation in the residuals, and the value is within an acceptable range, suggesting independence of residuals.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78.691	5	15.738	122.783	.000[b]
	Residual	49.734	388	.128		
	Total	128.425	393			

a. Dependent Variable: UNDERSTANDING ABILITY
b. Predictors: (Constant), PAR, TLP, LA, CPS, EWE

ANOVA:
- Regression Component:
  - The overall regression model is statistically significant (p = 0.000), reinforcing the collective contribution of the predictors to explaining Understanding Ability.

  - The Regression Sum of Squares (78.691) represents the explained variability, and the Residual Sum of Squares (49.734) represents unexplained variability.

Sl. No.	Independent Variable	Unstandardized Coefficients Beta	P-Value	Impact
1	Teaching Learning and Pedagogy	.220	.000	Impact
2	Customized Personal services	.102	.019	Impact
3	Education with Entertainment	.253	.000	Impact
4	Learning Aids	.226	.000	Impact
5	Performance Appraisal and Report	.041	.219	No Impact

Summary of Regression Results for Understanding Ability:
The regression analysis for Understanding Ability reveals a robust fit with a substantial R Square of 0.613, indicating that 61.3% of the variability in Understanding Ability is explained by the selected predictors. These predictors include Teaching, Learning and Pedagogy (TLP), Customized and Personal Services (CPS), Education with Entertainment (EWE), Learning Aids (LA), and Performance Appraisal and Reports (PAR). The Adjusted R Square, holding firm at 0.608, ensures reliability by considering the number of predictors.

Analyzing the impact of individual predictors, Teaching, Learning and Pedagogy (TLP), Customized and Personal Services (CPS), Education with Entertainment (EWE), and Learning Aids (LA) demonstrate statistically significant impacts on Understanding Ability, as indicated by their low p-values. Specifically, TLP, CPS, EWE, and LA exhibit significant unstandardized coefficients of 0.220, 0.102, 0.253, and 0.226, respectively, signifying their positive and influential contributions to Understanding Ability.

However, Performance Appraisal and Reports (PAR) does not demonstrate a statistically significant impact, as its p-value is higher (0.219), suggesting no substantial influence on Understanding Ability. Overall, the model emphasizes the significant impact of Teaching, Learning and Pedagogy, Customized and Personal Services, Education with Entertainment, and Learning Aids in explaining Understanding Ability. These findings provide valuable insights for educators and practitioners aiming to enhance educational approaches related to Understanding Ability.

DISCUSSION
The exploration of understanding ability within the context of online education apps, guided by Bloom's Taxonomy principles, unravels compelling insights into the influences of key predictors. The regression analysis provides a nuanced understanding of the impacts of Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR) on students' capacity to comprehend and remember information.

The robust fit of the regression model, evidenced by a high R Square of 0.613, emphasizes the model's ability to explain 61.3% of the variability in understanding ability. The Adjusted R Square remains steady at 0.608, reinforcing the reliability of the model considering the number of predictors. This strong fit underscores the collective contributions of the selected predictors, aligning with the foundational stages of Bloom's Taxonomy—comprehension and remembering.

Analyzing the individual predictor contributions reveals noteworthy findings. Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), and Learning Aids (LA) exhibit statistically significant positive impacts on understanding ability, supported by their low p-values and substantial unstandardized coefficients. These predictors play pivotal roles in enhancing comprehension and remembering processes within the digital learning landscape.

However, Performance Appraisal and Reports (PAR) stands out as an exception with a p-value of 0.219, indicating no statistically significant impact on understanding ability. This suggests that, within the studied context, performance appraisal and reporting practices may not substantially influence students' comprehension and remembering abilities. While the p-value is slightly above the conventional threshold of 0.05, it is crucial to interpret this result with caution and consider contextual nuances.

Practically, these findings offer actionable insights for educators and policymakers. Strategies that emphasize effective teaching and pedagogy, personalized services, engaging learning approaches, and well-designed learning aids can significantly contribute to students' understanding ability. However, the non-significant impact of performance appraisal and reports suggests that, in this context, these practices may not be strong determinants of comprehension and remembering. Despite the robustness of the analysis, it is essential to acknowledge the study's limitations. The findings are specific to the Kalayana Karnataka region, and caution should be exercised in generalizing them to broader contexts. Additionally, the reliance on self-reported data introduces the potential for response bias. Future research should explore these predictors in diverse educational settings and populations to enhance the generalizability of findings.

In conclusion, this research advances our understanding of the intricate dynamics influencing understanding ability in the digital age. By integrating Bloom's Taxonomy principles and employing a comprehensive regression analysis, the study illuminates the significant impacts of key predictors. The identified influences provide valuable guidance for refining educational strategies, optimizing curriculum design, and tailoring interventions to enhance comprehension and remembering abilities in the context of online education apps.

CONCLUSION

This study has delved into the multifaceted landscape of understanding ability in the realm of online education apps, guided by the enduring principles of Bloom's Taxonomy. The exploration of key predictors, including Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), Learning Aids (LA), and Performance Appraisal and Reports (PAR), has unveiled significant insights into their impacts on students' capacity to comprehend and remember information.

The robust regression analysis, encapsulating a comprehensive understanding of cognitive processes, emphasizes the collective contributions of these predictors in explaining the variability in understanding ability. The high R Square of 0.613 underscores the model's effectiveness in elucidating 61.3% of the nuances within the comprehension and remembering processes. This study aligns with the foundational stages of Bloom's Taxonomy, highlighting the essential roles of comprehension and remembering in effective learning.

Individual predictor analyses reveal noteworthy findings. Teaching, Learning and Pedagogy (TLP), Customized and Personalized Services (CPS), Learn with Fun (LWF), and Learning Aids (LA) exhibit statistically significant positive impacts on understanding ability. These predictors serve as pillars in fostering enhanced comprehension and remembering processes, providing valuable guidance for educators and policymakers.

However, Performance Appraisal and Reports (PAR) emerges as an exception, with a non-significant impact on understanding ability. This finding suggests that, within the studied context, traditional practices of performance appraisal may not significantly influence students' comprehension and remembering abilities. This nuanced insight prompts a reconsideration of the role and effectiveness of such practices in the digital age of education.

Practically, these findings offer actionable insights for educators and policymakers. Strategic emphasis on effective teaching methodologies, personalized services, engaging learning approaches, and well-designed learning aids can significantly contribute to students' understanding ability. However, the non-significant impact of performance appraisal and reports calls for a reevaluation of their role within the current educational landscape.

While the study advances our understanding of understanding ability in the digital age, it is crucial to acknowledge its limitations. Generalizability is constrained to the Kalayana Karnataka region, and caution should be exercised in extending these findings to diverse contexts. The reliance on self-reported data introduces potential biases, and future research should explore these predictors across varied educational settings and populations.

In essence, this research contributes to the ongoing discourse on effective pedagogical strategies in the digital age. By unraveling the intricate relationships between key predictors and understanding ability, educators and policymakers can make informed decisions to create enriching learning environments that foster enhanced comprehension and remembering in students. As education continues to evolve, the insights gained from this study serve as a foundation for optimizing online education strategies and fostering a holistic approach to cognitive development.

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INSILICO TOXICITY AND PHARMACOKINETICS TESTS -AN ANTITUMOR DRUG

Shweta[1], Hedgapure Mahesh[2], Kvln Murthy[3]

[1]Asst. Professor, S V E Ts College of Pharmacy. Humnabad, Karnataka- 585330
[2]Professor and HOD of Pharmaceutics, Sri Shahu Maharaj College of Pharmacy, Naubad, Bidar- 585402
[3]Lecturer, SVR Degree College, Macherla, Andhra Pradesh- 522426

ABSTRACT

Drug metabolism is a crucial aspect of medical practice and pharmacology, involving the transformation of drugs by various bodily systems to create compounds that are more easily eliminated from the body. Cytochrome P450 (CYP) enzymes, predominantly found in hepatocyte endoplasmic reticulum, play a central role in metabolizing numerous small molecule drugs through diverse oxidative and reductive biotransformation's. The study of absorption, distribution, metabolism, and excretion (ADME) is integral to drug design, exploring the fate of drug molecules post-administration. Rosmarinus acid, soluble in ethanol and found in Rosemary leaves, has demonstrated therapeutic benefits in conditions such as cancer, diabetes, inflammatory disorders, neurodegenerative disorders, and liver disease. In pharmacokinetic research, the six phenolic acid compounds in Rosemary exhibited superior properties compared to the reference ligand Sorafenib.

KEYWORDS: *Rosemary, Rosmarinus Acid, Insilico, Pharmacokinetics, Antitumor*

1. INTRODUCTION

Drug metabolism, particularly in the liver, is a dynamic and complex process that significantly influences the efficacy and safety of pharmacological interventions. An understanding of these metabolic pathways is essential for the development, prescribing, and administration of drugs in clinical practice. The overall process of biotransformation ensures that drugs are converted into more water-soluble forms, facilitating their removal from the body through processes like urine or bile excretion. The liver is a key organ in these transformations, housing enzymes responsible for many biotransformation reactions.Understanding the different phases of biotransformation is crucial in predicting the fate of drugs in the body, optimizing dosing regimens, and managing potential drug interactions or adverse effects. It also contributes to the field of pharmacokinetics, which explores how the body handles drugs over time.

Phase I reactions indeed involve changes to the chemical structure of the drug, and various enzymatic processes can contribute to these modifications. Here are some key points regarding Phase I modifications. Types of Phase I Reactions: Oxidation: Introduction of oxygen or removal of hydrogen from the drug molecule. Cytochrome P450 enzymes are crucial in oxidizing many drugs. Reduction: Addition of electrons or removal of oxygen, leading to a reduction in the drug molecule. Hydrolysis: Cleavage of chemical bonds through the addition of water. Cyclization/Deserialization: Formation of cyclic structures or breaking of cyclic structures. Removal of Hydrogen or addition of Oxygen: Alterations to the drug

molecule involving hydrogen removal or oxygen addition. Conversion of Prodrugs: Phase I modifications can activate prodrugs, which are inactive forms of drugs administered to the body. The conversion of prodrugs to their active forms often occurs through Phase I reactions. Pharmacological Activity of Metabolites: Metabolites generated through Phase I modifications can retain pharmacological activity, and in some cases, they may contribute to the overall therapeutic effects of the drug. The example you provided with diazepam illustrates how metabolites produced through Phase I modification (desmethyldiazepam and oxazepam) exhibit similar physiological and psychological effects as the parent drug. Individual Variation: The extent and nature of Phase I metabolism can vary among individuals, leading to differences in drug response and potential for side effects. Genetic factors, as well as factors such as age, gender, and concomitant drug use, can influence the activity of enzymes involved in Phase I reactions (1).

Phase II reactions involve the conjugation of drug molecules with endogenous substances, resulting in the formation of water-soluble and pharmacologically inactive compounds that are easily excreted. The primary goal of Phase II reactions is to increase the water solubility of the drug or its Phase I metabolites. Conjugation renders the compound more polar and less lipophilic, facilitating its elimination from the body. Understanding Phase II modifications is essential for comprehending the overall fate of drugs in the body. The combination of Phase I and Phase II reactions ensures that drugs are transformed into metabolites suitable for elimination,

contributing to the body's ability to maintain homeostasis and prevent the accumulation of potentially toxic substances (2).

It also emphasizes Phase III metabolism, where transporter-mediated elimination plays a crucial role in removing drug conjugates and metabolites from cells. The classification of Phase III pathways includes ATP-binding cassette (ABC) transporters, such as P-glycoprotein, and solute carrier (SLC) transporters, which facilitate the transport of substances across membranes. The text underscores the significance of these processes in organs like the liver, intestines, kidneys, and lungs for effective drug elimination. Understanding the interactions between enzymatic catalysis and transporter-mediated elimination is essential for comprehending drug metabolism and its implications for individual responses to medications (3).

Rosmarinic acid, present in the leaves of the Rosemary plant (Rosmarinus officinalis L.), is a naturally occurring compound that exhibits solubility in ethanol. Numerous studies have validated the therapeutic advantages of Rosmarinic acid (RA) across diverse conditions, encompassing cancer, diabetes, inflammatory disorders, neurodegenerative disorders, and liver disease. This bioactive phenolic compound is commonly found in plants belonging to the Lamiaceae and Boraginaceae families. The biosynthesis of Rosmarinic acid (RA) involves an enzyme-catalyzed reaction utilizing the amino acids tyrosine and phenylalanine.

The biosynthesis of Rosmarinic acid (RA), initially identified in Coleus blumei, is a intricate and non-linear enzymatic process. This process commences with the aromatic amino acids phenylalanine and tyrosine (4). Phenylalanine undergoes deamination, catalyzed by the enzyme phenylalanine ammonia-lyase (PAL), leading to the formation of cinnamic acid within the lignin branch of the flavonoid biosynthetic pathway. Additionally, the benzene ring of cinnamic acid undergoes hydroxylation facilitated by cytochrome-P450 monooxygenase cinnamic-4 hydroxylase in the flavonoid pathway, resulting in the production of 4-coumaric acid (3).

METHODOLOGY
The research was carried out in silico to look for active compounds from the Rosemary plant for antitumor treatment. Insilico is a term for experiments or tests carried out using computer simulation methods. In silico testing has emerged as a valuable approach for initiating the exploration of novel drug compounds or enhancing the efficacy of existing ones. This method involves predicting, generating hypotheses, and uncovering potential breakthroughs in medicine and therapy through virtual simulations. The benefits of the in silico approach encompass error reduction, diminished reliance on animal testing, and a decrease in solvent usage (5).

RESULTS
1. PKCSM
Based on the results of predicting the HIA value of Caco2 using PKCSM, results were obtained as in the table above, all sample ligands and comparison ligands had HIA values above 30%.

Table 1 Absorption results

S.No	Compound	Absorption		
		HIA (%) (30%)	Caco-2 cel (nm/sec) (>0.90)	Qualified/ No
1.	Carnosic Acid	99,03	0,803	No
2.	Carnosol	91,206	0,572	No
3.	Rosmanol	93,407	1,015	Qualifed
4.	Ursolat Acid	100	1,171	Qualifed
5.	Betulinic Acid	99,763	1,175	Qualifed
6.	Rosmarinic Acid	32,516	-0,937	No

Table 2 Distribution Results

S.No	Compound	Distribution		
		VDss (Human) (>0,45	BBB Permeability (>0,3)	CNS Permeability (>-2)
1.	Carnosic Acid	-1,027	-0,545	-1,998
2.	Carnosol	0,819	-0,096	-1,816
3.	Rosmanol	0,653	-0,581	-2,101
4.	Ursolat Acid	-1,088	-0,141	-1,187
5.	Betulinic Acid	-1,18	-0,322	-1,343
6.	Rosmarinic Acid	0,393	-1,378	-3,347

Based on the results of predicting CNS values using PKCSM, results such as the table above were obtained, the ligand samples Carnosic Acid, Carnosol, Ursolic Acid and Betylonic Acid were deemed unable to penetrate the Central Nervous System. Samples that can penetrate the central nervous system are Rosmanol and Rosmarinic acid. Meanwhile, the comparison ligand which has a value of -2.025 is also able to penetrate the Central Nervous System.

Table 3 Metabolic Results

S.No	Compound	Metabolism	
		CYP2D6	CYP3A4
1.	Carnosic Acid	No	No
2.	Carnosol	No	Yes
3.	Rosmanol	No	No
4.	Ursolat Acid	No	Yes
5.	Betulinic Acid	No	Yes
6.	Rosmarinic Acid	No	No

Table 4 Excretion Results

S.No	Compound	Excretion	
		Total Clearance (Log ml/min/kg)	Renal OTC2 Substrate
1.	Carnosic Acid	0,379	No
2.	Carnosol	0,28	No
3.	Rosmanol	0,289	No
4.	Ursolat Acid	0,083	No
5.	Betulinic Acid	0,116	No
6.	Rosmarinic Acid	0,25	No

Table 5. Toxicity results

S.No	Compound	Toxicity				
		AMES toxicity	Oral Rat Toxicity (LOAEL)	Skin Sensitisation	T.Pyroformis toxicity	Minnow Toxicity
1.	Carnosic Acid	No	1,972	No	0,285	-0,627
2.	Carnosol	No	1,909	No	0,405	-0,636
3.	Rosmanol	No	2,547	No	0,329	0,285
4.	Ursolat Acid	No	2,054	No	0,285	-0,787
5.	Betulinic Acid	No	2,206	No	0,285	-1,174
6.	Rosmarinic Acid	No	2,907	No	0,302	2,698

The table above shows that T. Pyroformis toxicity results greater than -0.5 are considered non-toxic. Almost all ligands above -0.3 are considered to be of low acute toxicity except Rosmanol. The reference ligand compound of -0.515 is considered low acute toxicity.

2. **Drug Similarity Prediction**

Carnosic Acid **Carnosol** **Rosmanol**

| Ursolat Acid | Betulinic Acid | Rosmarinic Acid |
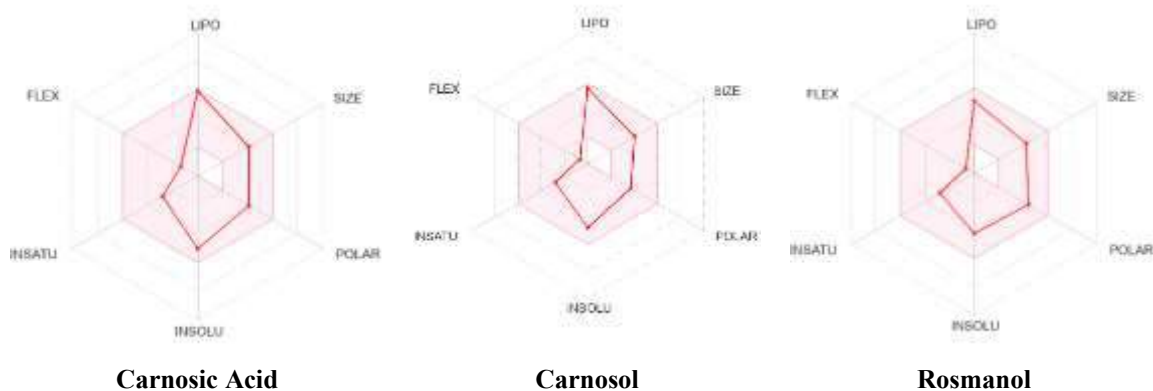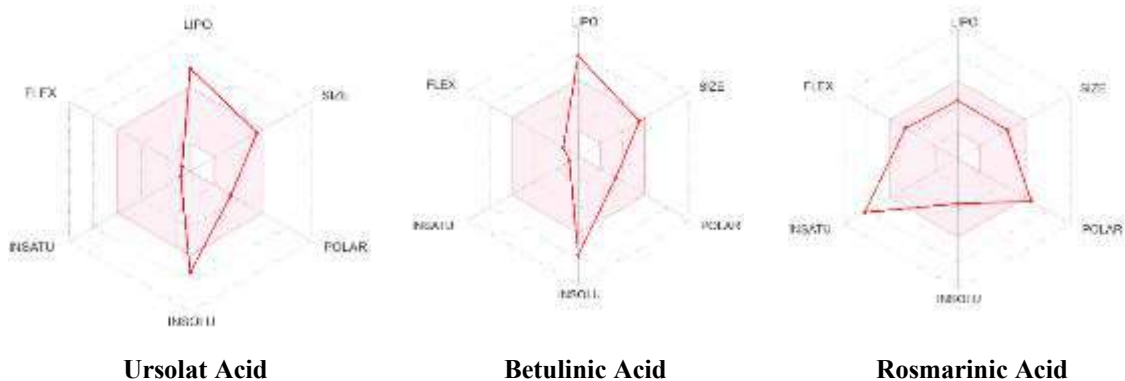
Figure 1. The toxicity radar chart is intended to quickly illustrate the confidence of a positive toxicity result compared to the class average.

Table 6 Test the Molecular Properties of Ligands

S.No	Compound	Molecular weight (g/mol)	H-Donor	H-Akseptor	LogP	Qualified/ No
1.	Carnosic Acid	332,43	3	4	4,89	Qualified
2.	Carnosol	330,42	2	4	4,38	Qualified
3.	Rosmanol	346,42	3	5	3,41	Qualified
4.	Ursolat Acid	456,70	2	3	7,34	No
5.	Betulinic Acid	456,70	2	3	8,21	No
6.	Rosmarinic Acid	360,31	5	8	2,36	Qualified

3. Toxicity of Drug Compound Candidates

| Carnosic Acid | Carnosol | Rosmanol |

| Ursolat Acid | Betulinic Acid | Rosmarinic Acid |
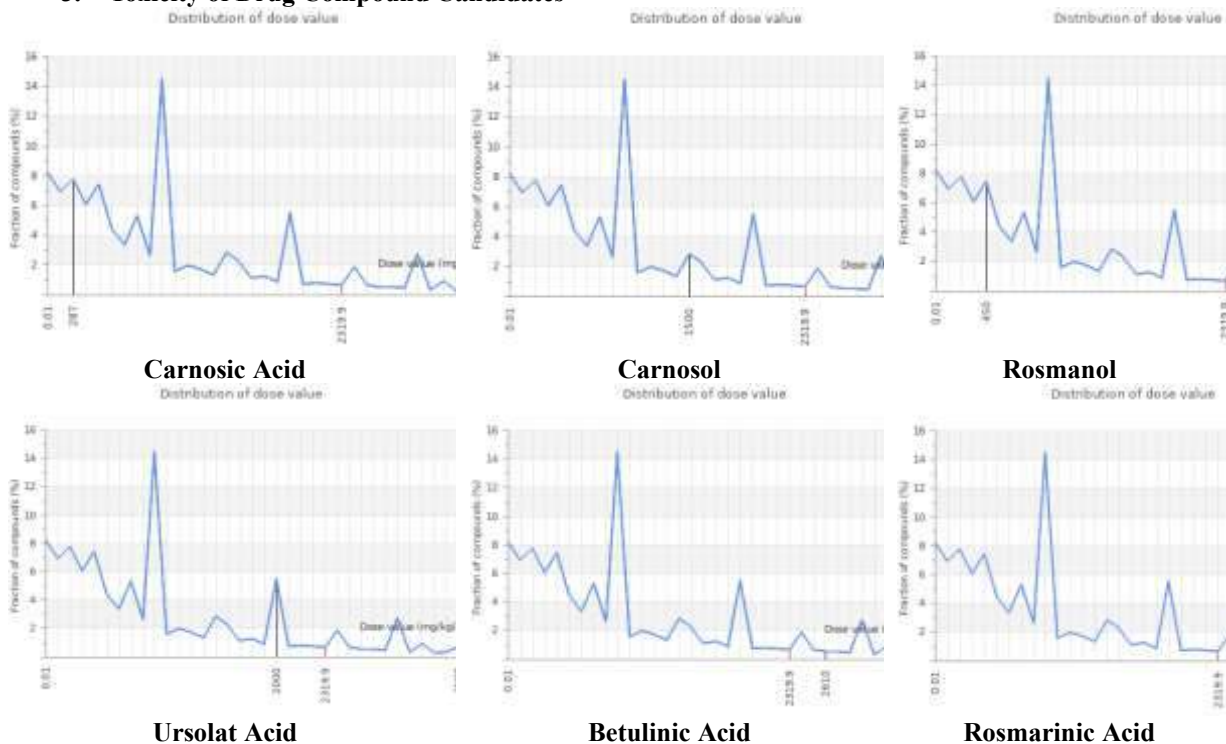
Figure 2. Comparison of input compounds with dataset compounds.

The toxic dose is often given as the LD50 value in mg/kg body weight. LD50 is the median lethal dose which means the dose at which 50% of the test subjects die after exposure to a compound. Toxicity class is determined according to the globally harmonized chemical labeling classification system (GHS). The LD50 value is given in [mg/kg] (6) :

Class I: fatal if swallowed (LD50 ≤ 5)
Class II: fatal if swallowed (5 < LD50 ≤ 50)
Class III: toxic if swallowed (50 < LD50 ≤ 300)

Class IV: harmful if swallowed (300 < LD50 ≤ 2000)
Class V: may be harmful if swallowed (2000 < LD50 ≤ 5000)
Class VI: non-toxic (LD50 > 5000)

Table 7. Predictions of toxicity class and LD50

S.No	Compound	LD_{50} mg/kg	Toxicity class prediction	Qualified/ No
1.	Carnosic Acid	287	3	No
2.	Carnosol	1500	4	No
3.	Rosmanol	450	4	No
4.	Ursolat Acid	2000	4	No
5.	Betulinic Acid	2610	5	Qualified
6.	Rosmarinic Acid	5000	5	Qualified

Based on the results of toxicity predictions using the Protox Web Server, results were obtained as in the table above, with a toxicity class prediction value of 5 for Betulinic Acid and Rosmarinic acid ligands. The predicted value of the toxicity class is 4 for the Carnosol, Rosmanol and Ursolic Acid ligands, while the predicted class 3 is only for the Carnosic Acid league. The reference ligand Sorafenib had a class 4 predictive value

Table 8 Results of Average Similarity and Prediction Accuracy

No	Compound	Average similarity (%)	Prediction Accuracy (%)
1.	Carnosic Acid	72,69%	69,26%
2.	Carnosol	57,99%	67,38%
3.	Rosmanol	59,45%	67,38%
4.	Ursolat Acid	100%	100%
5.	Betulinic Acid	77,12%	69,26%
6.	Rosmarinic Acid	63,44%	68,07%

Based on the results of Average Similarity and Prediction Accuracy using Protox Web Server, results were obtained as in the table above, the comparison ligand Sorafenib had lower results with an Average Similarity value of 53.45% and Prediction Accuracy of 67.38%. Meanwhile, the Ursolic Acid ligand showed average similarity and prediction accuracy results with a value of 100% and other ligand compounds with values above the comparison ligand.

Table 9 Target Organ Toxicity Results

No	Compound	Hepatotoxicity	Carcinogenicity	Immunotoxocoty	Mutagenicity	Cytotoxic
1.	Carnosic Acid	No	No	Yes	No	No
2.	Carnosol	No	No	Yes	No	No
3.	Rosmanol	No	No	Yes	No	No
4.	Ursolic Acid	Yes	Yes	Yes	No	No
5.	Betulinic Acid	No	Yes	Yes	No	No
6.	Rosmarinic Acid	No	No	Yes	No	No

DISCUSSION

The utilization of in silico research in drug discovery has augmented the identification of lead compounds, achieving results more swiftly than conventional medicinal chemistry. However, a common setback involves the failure of many promising compounds due to unfavorable ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) properties. In an effort to mitigate this risk, in silico screening approaches are employed. Our proposed novel method for predicting pharmacokinetic traits, named PKCSM, introduces a graph-based signature approach. This technique utilizes encoded distance patterns between atoms to represent small molecules and facilitate the training of predictive models[7].

Based on the results of predicting $CaCO_2$ permeability values using PKCSM, the results shown in the table above show that ligands such as Rosmanol, Ursolic Acid, Betulinic Acid, have higher Caco2 cell values than the Sorafenib ligand as a comparison, namely 0.762. The highest Caco2 value is owned by Betulinic Acid and the value The lowest Caco2 is owned by Rosmarinic Acid. For a given compound, it predicts the percentage that will be absorbed through the human intestine. Molecules with an absorbance of less than 30% are considered poorly absorbed (8). Based on the results of predicting the HIA value of Caco2 using PKCSM, results were obtained as in the table above, all sample ligands and comparison ligands had HIA values above 30%. In this way, all samples and comparisons are

well absorbed in digestion. The highest sample HIA value was owned by Ursolic Acid and the lowest was owned by Rosmarinic Acid. Meanwhile, Sorafenib's HIA value is 85,494.

The volume of distribution (VDss) represents the hypothetical volume necessary for an even distribution of the total drug dose to achieve the same concentration as in blood plasma (7). A higher VD implies a greater distribution of the drug in tissues rather than plasma, and factors like kidney failure and dehydration can influence this. This predictive model was constructed by calculating the steady-state volume of distribution (VDS) in humans for 670 drugs. The anticipated logarithm of VDss for a compound is expressed as log L/kg. A VDss is considered low if it falls below 0.71 L/Kg (Log VDss <-0.15) and high if it exceeds 2.81 L/Kg (Log VDS > 0.45) (8). Based on the results of predicting the distribution volume value using PKCSM, the results shown in the table above are obtained, ligands such as Carnosol and rosmanol have a high distribution volume, while the Sama carnosic league, ursolic acid and betulinic acid have a low distribution volume. The Rosmarinic acid ligand has a good distribution volume of 0.393, while the distribution volume value of Sorafenib is -0.009.

Based on the results of predicting BBB Permeability values using PKCSM, the results shown in the table above show that all ligand samples have values less than 0.3 and are considered unable to cross the blood-brain barrier. The highest BBB sample value was owned by Carnosol and the lowest was owned by Rosmarinic acid. Meanwhile, the comparison ligand has a value of -1.473 and is considered less distributed in the brain. Compounds with a logPS value greater than -2 are chosen based on their potential to penetrate the Central Nervous System (CNS). Conversely, those with a logPS value lower than -3 are deemed incapable of penetrating the CNS (8).

A compound is identified as a cytochrome P450 inhibitor if the concentration needed to achieve a 50% inhibitory effect is below 10uM (4). Ligand samples that are not metabolized in the liver are Carnosic Acid, Rosmanol and Rosmarinic acid. Meanwhile, Carnosol ligands, ursolic acid and betulinic acid are metabolized by the CYP3A4 enzyme. The comparator ligand Sorafenib is also metabolized in CYP3A4.The measurement of drug clearance is determined by the proportionality constant CLtot, which primarily involves hepatic clearance. This is interconnected with bioavailability, emphasizing the significance of establishing the dose rate required to attain steady-state concentrations (7). All ligands had greater clearance compared to the comparison ligand of -0.213. The Organic Cation Transporter (Renal OTC 2 Substrate) Is an uptake transporter in the kidneys, playing a vital role in the distribution and renal elimination of drugs and endogenous substances. Not all ligands are considered substrates of OTC2, and the reference ligands also do not fall under this category.

The Ames test is a widely used method for assessing the potency of compounds using bacteria. A positive test indicates that the compound is a mutagen and therefore may be a carcinogenic compound (7). All ligand samples showed negative results on the Ames test, which means that all ligands are not mutagen compounds.For specific compounds, the prediction of pIGC50, representing the negative logarithm of the concentration needed to inhibit growth by 50% in log ug/L, is conducted. Values exceeding -0.5 log ug/L are regarded as indicative of toxicity (8). The table above shows that T. Pyroformis toxicity results greater than -0.5 are considered non-toxic.For a given compound, the prediction will be made for the log LC50. LC50 values falling below 0.5 mM (Log LC50 <-0.3) are categorized as indicating high acute toxicity (Pires, Blundell and Ascher, 2015). The table above shows that almost all ligands above -0.3 are considered low acute toxicity except Rosmanol. The reference ligand compound of -0.515 is considered low acute toxicity.

Skin sensitization is a potential adverse reaction for products applied dermally. Assessing whether a compound in contact with the skin can induce allergic contact dermatitis is a crucial safety consideration (7). The table above shows that all ligands have no potential to cause allergic contact dermatitis. Lipinski's Rule of Five has requirements for a molecule, namely: the maximum number of hydrogen bond donors is 5, the number of hydrogen bond acceptors is less than 10, the molecular weight is less than 500g/mol and the logP value is less than (7). Based on the prediction results of the ligand molecular properties test using PKCSM, the results as shown in the table above were obtained, all sample ligands and comparison ligands met the requirements in accordance with the Lipinski Rule of Five.

Based on the LD50 prediction results using Protox Web Server, results were obtained as in the table above, where the highest result was shown by Rosmarinic acid with an LD50 result of 5000 mg/kg and the lowest was shown by Carnosic acid with an LD50 result of 287 mg/kg. From these results it can be concluded that the one that is categorized as most likely to be non-toxic if ingested is Rosmarinic acid.Based on the results of Average Similarity and Prediction Accuracy using Protox Web Server, results were obtained as in the table above, the comparison ligand Sorafenib had lower results with an Average Similarity value of 53.45% and Prediction Accuracy 67.38%. Meanwhile, the Ursolic Acid ligand showed average similarity and prediction accuracy results with a value of 100% and other ligand compounds with values above the comparison ligand. Thus Carnosic Acid, Carnosol, Rosmanol, Ursolic Acid, Betulinic Acid, Rosmarinic acid and Sorafenib do not have the same structure.

Based on the prediction results of Target Organ Toxicity using Protox Web Server. The results obtained are as shown in the table above, all ligands such as Carnosic Acid, Carnosol, Rosmanol, Ursolic Acid, Betulinic Acid, Rosmarinic acid do not have mutagenicity and Cytotoxic effects, but have an effect on immunity. Target Organ Toxicity Prediction also shows that only the Ursolic Acid ligand has hepatotoxicity effects. The positive carcinogenicity effect was shown by the ligands Ursolic acid and Betulinic acid. The comparison ligand

Sorafenib turned out to have effects on hepatotoxicity, immunity and cytotoxicity.

CONCLUSION

From the results of the study, it was concluded that: Based on the compound toxicity test using the protox web server, it is concluded that the six phenolic acid compounds in Rosemary proved to be safer than the comparison ligand Sorafenib. From the pharmacokinetic research results, the six phenolic acid compounds in Rosemary proved to be better than the comparison ligand Sorafenib.

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HIDDEN HORRORS: HUMAN TRAFFICKING IN IRAQ - A NATION IN NEED OF ANTI-TRAFFICKING LAWS

Aishwarya Singh
Student, Kiit school of law.

ABSTRACT

Human trafficking and settler trafficking are universal and general offence that use men, women and children for interest. Many parts of the world witness these kinds of trafficking, here we are discussing trafficking in Iraq. Forced nuptials, household subjugation within the community, family and tribe as well as strained labor and strained prostitution, are all forms of human trafficking that have been recorded in Iraq for a prolonged duration. Since the "2003 invasion and ensuing civil war", Iraq has flattered a more perennial harbor for external hirelings who are at a higher danger of being trafficked and majority migrates from the "Philippines, Nepal, Bangladesh, and other countries" with elevated degree of penury. In consonance to reliable accounts, "the Iraqi military trafficked Kurdish women into commercial sex labor during the Anfal campaign in the late 1980s, and women who were displaced during the revolt in southern Iraq in 1991 have been detained for prostitution in the KRG". Increased risks for the most vulnerable women, children, minorities, displaced persons, and other vulnerable groups have also been brought on by the conflict with ISIS in Iraq.

However, the Iraqi government officials are yet to bring laws that could prevent these offenders and punish them. Iraq has never brought any anti-trafficking codifications, aiding traffickers to advance to function with indemnity.

KEYWORDS: *Human Trafficking, Iraq, Migrants, Kurdish, Women, Traffickers.*

INTRODUCTION
BACKGROUND

The background of the human trafficking of the Kurdish tribe from Kurdistan are multifaceted and deeply rooted in historical, socio-economic, and geopolitical factors. Understanding these aspects is crucial for comprehending the vulnerability of the Kurdish community to trafficking and addressing the issue effectively.

- Historical Context:
  The Kurdish people, an ethnic group with a distinct culture, language, and identity, have faced various challenges throughout history, including political marginalization, discrimination, and conflicts. Their aspirations for self-determination and autonomy have often been met with resistance, leading to social instability and displacement. Historical injustices and unresolved conflicts have created an environment where human trafficking can thrive.

- Socio-economic Factors:
  The socio-economic factors underlying the vulnerability of the Kurdish tribe to trafficking are interconnected and complex. Poverty, lack of economic opportunities, limited access to education and healthcare, and inadequate social support systems exacerbate the susceptibility of individuals and communities to exploitation. Economic disparities and systemic discrimination contribute to a higher risk of being trafficked, as traffickers prey on vulnerable individuals seeking better livelihoods.

- Geopolitical Dynamics:
  The geopolitical landscape of Kurdistan plays a significant role in the human trafficking of the Kurdish tribe. Political instability, armed conflicts, and the presence of non-state actors in the region create an environment conducive to trafficking. Disrupted governance structures and weak law enforcement capacities further impede efforts to combat trafficking effectively. Geopolitical factors also affect migration patterns, as individuals may be forced to flee their homes and become vulnerable to trafficking while seeking safety or better opportunities elsewhere.

- Cultural and Gender Dynamics:
  The cultural and gender dynamics within the Kurdish tribe also contribute to their vulnerability to trafficking. Traditional gender roles and norms may result in the marginalization and limited agency of women and girls, making them more susceptible to exploitation. Discrimination against women in terms of education, employment, and societal expectations further exacerbates their vulnerability to trafficking. Additionally, cultural stigmatization, fear of retribution, and lack of awareness within the community may discourage reporting and hinder efforts to combat trafficking effectively.

- Intersectionality:
  It is important to recognize that vulnerability to trafficking is not solely based on Kurdish ethnicity but is influenced by intersecting factors such as gender, age, socioeconomic status, and geographic location. Intersectionality highlights how individuals within the Kurdish tribe, particularly women, children, and marginalized groups, may face compounded vulnerabilities and increased risks of exploitation.

UNDERSTANDING HUMAN TRAFFICKING
DEFINITION AND FORMS OF HUMAN TRAFFICKING

Human trafficking is a heinous crime that involves the exploitation and forced movement of individuals through means of coercion, deception, or abduction. The victims are deprived of their basic human rights and dignity, subjected to various forms of exploitation, and often find themselves trapped in situations of modern-day slavery.

There are several forms of human trafficking, each involving distinct types of exploitation:

- Sex Trafficking: This form involves the recruitment, transportation, or harboring of individuals for the purpose of sexual exploitation. Victims, mostly women and children, are forced into prostitution, pornography, and other commercial sexual activities against their will.
- Labor Trafficking: Victims of labor trafficking are coerced into forced labor or services in various industries, such as agriculture, construction, manufacturing, domestic work, and sweatshops. They often endure hazardous conditions, long working hours, and minimal or no pay.
- Child Trafficking: Children are particularly vulnerable to human trafficking. They may be trafficked for forced labor, sexual exploitation, child soldiers, child marriage, or organ harvesting. Child trafficking is a grave violation of human rights and deprives young individuals of their childhood and education.
- Forced Marriage: In this form, individuals are coerced or deceived into marriage without their consent. Forced marriages can lead to a life of servitude, sexual exploitation, and domestic abuse, especially affecting young girls and women.
- Organ Trafficking: This involves the illegal trade of human organs. Victims may be forced or deceived into donating their organs, risking their health and lives. Organ trafficking is driven by the demand for organs for transplantation.
- Domestic Servitude: Victims are forced to work as domestic servants in private households. They endure long working hours, isolation, physical and emotional abuse, and restricted freedom.

Human trafficking is a global issue that transcends borders, affecting people from all walks of life. It often preys on vulnerable populations, including migrants, refugees, displaced persons, and those living in poverty. Addressing human trafficking requires a comprehensive approach, including public awareness, legal frameworks, law enforcement efforts, victim support and rehabilitation, and international cooperation. By combatting human trafficking, we can strive to protect human rights and uphold the principles of justice and dignity for all individuals.

GLOBAL HUMAN TRAFFICKING PATTERNS

Global human trafficking patterns reveal a disturbing and widespread crime that knows no borders. Transnational networks operate across countries, enabling traffickers to recruit, transport, and exploit victims in different regions. Vulnerable populations, including women, children, migrants, and refugees, bear the brunt of this heinous trade. Source countries, where victims are often recruited, transit countries, through which they are moved, and destination countries, where they are exploited, form the three critical phases of trafficking routes. Labor exploitation thrives in industries such as agriculture, construction, and domestic work, while the demand for commercial sex fuels sex trafficking. The internet has also played a significant role, enabling traffickers to recruit and advertise victims online while evading detection. Combating global human trafficking necessitates robust international cooperation, stringent legislation, victim support systems, and awareness campaigns, along with addressing the underlying causes of vulnerability in societies worldwide. Only by uniting efforts can the world hope to eradicate this modern-day slavery and protect the rights and dignity of millions of victims.

FACTORS CONTRIBUTING TO HUMAN TRAFFICKING

Several factors contribute to human trafficking, making it a persistent global issue. Poverty and lack of economic opportunities push vulnerable individuals into seeking better lives, making them easy targets for traffickers. Armed conflicts, political instability, and humanitarian crises disrupt communities and displace people, creating an environment conducive to trafficking. Gender inequality leaves women and girls disproportionately susceptible to exploitation, particularly in the sex trade. Weak law enforcement, corruption, and porous borders facilitate traffickers' movement and operations. Additionally, demand for cheap labor and commercial sex acts perpetuates the supply of victims. Lack of awareness and social stigma surrounding trafficking further hinders effective prevention and intervention efforts. Addressing these factors requires a comprehensive approach involving economic development, gender equality, law enforcement, and public education to combat human trafficking and protect the rights and well-being of potential victims.

HUMAN TRAFFICKING OF KURDISH TRIBE
HISTORICAL CONTEXT

The historical context of human trafficking of the Kurdish tribe is complex and intertwined with the political, social, and economic dynamics of the regions where the Kurdish people reside.

Kurdish people, an ethnic group with a distinct language and culture, primarily inhabit areas spanning across Turkey, Iraq, Iran, and Syria. Throughout history, the Kurdish population has faced political marginalization, social discrimination, and conflicts in these countries, leading to vulnerabilities that traffickers exploit. Armed conflicts, political instability, and economic hardships in regions with Kurdish populations have provided fertile ground for human traffickers to operate. Displacement and insecurity resulting from wars and internal conflicts have rendered many Kurdish individuals displaced and susceptible to exploitation. Moreover, the Kurdish region's geographic location between different countries and its porous borders have facilitated the movement of both victims and traffickers, making it easier for trafficking networks to operate across international boundaries.

The trafficking of Kurdish people can involve various forms, including sex trafficking, forced labor, and child exploitation. Women and girls from the Kurdish community have been particularly vulnerable to sex trafficking, with some being trafficked to neighboring countries for forced prostitution. In conflict zones, children have been at risk of being recruited as child soldiers or subjected to various forms of exploitation. It is essential to note that the situation may have evolved since my last update, and further developments and efforts to address human trafficking involving the Kurdish tribe may have taken place. As with any sensitive and evolving topic, it is crucial to refer to the most recent and reputable sources for up-to-date information.

VULNERABILITY FACTORS
The Kurdish tribe, like many other vulnerable populations, faces specific factors that contribute to their susceptibility to human trafficking. These vulnerability factors are often interconnected and may vary based on the region and context in which the Kurdish people reside.

The vulnerability factors contributing to the human trafficking of the Kurdish tribe are multifaceted. Political marginalization of the Kurdish community in some regions leads to limited access to resources and opportunities, making them susceptible to traffickers' false promises of a better life elsewhere. Additionally, ongoing armed conflicts and displacement in Kurdish regions create an environment of insecurity, leaving individuals, especially women and children, more vulnerable to exploitation. Socio-economic challenges, such as poverty and lack of economic opportunities, further exacerbate the risk as trafficker's prey on those seeking livelihood options. Gender inequality within the Kurdish community may also expose women and girls to various forms of exploitation, particularly in the sex trade. Moreover, the lack of awareness and protection mechanisms, both within the community and among law enforcement, hinders effective identification and prevention efforts. The geographic location of Kurdish regions, bordering multiple countries, allows traffickers to exploit porous borders, making it easier to transport victims across international boundaries and evade law enforcement. Addressing these vulnerability factors requires a comprehensive approach involving empowerment, education, awareness, law enforcement cooperation, and targeted support to protect the Kurdish tribe from the scourge of human trafficking.

ROUTES AND DESTINATION COUNTRIES
The human trafficking routes involving the Kurdish tribe are often influenced by the geographical location of Kurdish regions and the complex political dynamics in the Middle East. Traffickers exploit the porous borders between Turkey, Iraq, Iran, and Syria to move victims across international boundaries. The routes may vary based on the specific circumstances and regions, but traffickers often target areas affected by conflict and displacement, taking advantage of the chaos and vulnerability caused by armed conflicts. Moreover, some victims may be trafficked internally within a country or region, from rural areas to urban centers where demand for labor or commercial sex is higher.

As for destination countries, victims from the Kurdish tribe have been reported to be trafficked to neighboring countries in the Middle East and beyond. Countries in the region with significant demand for cheap labor and commercial sex acts attract traffickers and their victims. These destination countries may include some Gulf states, where there is demand for labor in various industries, as well as countries where there is a demand for commercial sexual exploitation. Victims are often lured or coerced into these countries under false pretenses, only to find themselves trapped in exploitative situations.

It is important to note that human trafficking routes and destination countries involving the Kurdish tribe may evolve over time due to changing circumstances and law enforcement efforts. Additionally, specific cases of trafficking may differ, and not all individuals from the Kurdish community may be vulnerable to trafficking. Addressing human trafficking of the Kurdish tribe requires international cooperation and comprehensive efforts to combat this grave violation of human rights and protect vulnerable populations.

IMPACT OF HUMAN TRAFFICKING ON KURDISH TRIBE
Human trafficking inflicts severe individual consequences on victims from the Kurdish tribe. They endure physical and emotional trauma, including violence, abuse, and sexual exploitation, leading to long-lasting physical and psychological scars. Stripped of their freedom and dignity, victims suffer from health issues due to exploitative working conditions and lack of medical care. The loss of trust and social isolation make reintegration into their communities challenging, while legal and immigration consequences further compound their vulnerabilities. The profound impact of human trafficking necessitates comprehensive support, including physical and mental health care, legal assistance, and education and vocational training, to help survivors heal and rebuild their lives.

Human trafficking not only affects the individual victims from the Kurdish tribe but also has significant family and community impacts. Families of trafficked individuals often experience immense emotional distress and anguish, not knowing the fate of their loved ones. The loss of a family member to trafficking can leave a void and disrupt the family's social and economic stability. In the community, the prevalence of trafficking can create fear and mistrust, leading to social fragmentation. The stigma attached to trafficking survivors may further isolate them and their families, hindering community support. Moreover, trafficking can erode the fabric of trust within the community, as individuals become cautious and suspicious of one another. Addressing the family and community impacts of human trafficking requires a collective effort to raise awareness, provide support to affected families, and foster community resilience and solidarity to combat this heinous crime.

Human trafficking has profound psychological and physical health impacts on victims from the Kurdish tribe. Survivors often suffer from severe psychological trauma, including anxiety, depression, and post-traumatic stress disorder (PTSD)

due to the violence, abuse, and exploitation they endured. The loss of control over their lives and the constant fear they experience during trafficking leaves lasting emotional scars. Moreover, the physical toll of forced labor, malnutrition, and lack of access to healthcare leads to a range of health issues, including injuries, chronic pain, and sexually transmitted infections. Addressing the psychological and physical health impacts of human trafficking requires specialized and holistic support, including trauma-informed care, counseling, and medical assistance, to help survivors on their path to healing and recovery.

EFFORTS TO COMBAT HUMAN TRAFFICKING INTERNATIONAL AND NATIONAL LEGAL FRAMEWORKS

International and national legal agencies have undertaken significant efforts to combat human trafficking involving the Kurdish tribe. Internationally, organizations like the United Nations Office on Drugs and Crime (UNODC) have provided technical assistance and capacity building to countries with Kurdish populations, helping them develop effective anti-trafficking strategies. The United Nations Protocol to Prevent, Suppress and Punish Trafficking in Persons has served as a critical framework for international cooperation in investigating and prosecuting trafficking cases. At the national level, countries with Kurdish communities have enacted stringent laws criminalizing human trafficking, establishing specialized units to handle trafficking cases. These legal agencies prioritize victim protection and assistance, providing essential services to survivors, including medical, psychological, and legal support. By working together, international and national legal agencies are making significant strides to combat human trafficking, protect the Kurdish tribe, and bring traffickers to justice.

PREVENTION AND AWARENESS CAMPAIGNS

Prevention and awareness campaigns targeting the human trafficking of the Kurdish tribe involve culturally sensitive educational initiatives. These campaigns raise awareness about trafficking risks, rights, and available support systems within the Kurdish community. Collaborative efforts between local organizations, government agencies, and international partners are crucial for effective implementation.

VICTIM SUPPORT AND REHABILITATION PROGRAMS

Victim support and rehabilitation programs for the Kurdish tribe involve comprehensive services addressing physical, psychological, and socio-economic needs. These programs provide counseling, medical care, vocational training, and legal assistance, aiming to empower survivors, reintegrate them into society, and mitigate re-trafficking risks. Cultural sensitivity and community engagement are integral to success.

FUTURE DIRECTIONS AND RECOMMENDATIONS

Future efforts to combat human trafficking within the Kurdish tribe should prioritize multidimensional strategies. Strengthening legislative measures with a focus on victim protection, enhancing international collaboration through regional task forces, and investing in specialized rehabilitation centers are critical. Empowering vulnerable individuals through education and economic opportunities, coupled with culturally sensitive awareness campaigns, can reduce susceptibility. Involvement of community leaders and data-driven research will bolster prevention. Addressing root causes like socio-economic disparities and political instability within Kurdistan is imperative. International pressure, diplomatic interventions, and a long-term strategy should be adopted to comprehensively address the complexities of trafficking, ensuring the protection and well-being of the Kurdish tribe.

CONCLUSION

In conclusion, the human trafficking of the Kurdish tribe reflects a deeply rooted crisis necessitating immediate action. Historical injustices, socio-economic vulnerabilities, geopolitical turmoil, and cultural dynamics have collectively intensified their susceptibility to exploitation. The poignant narratives of survivors underscore the urgent need for preventive measures, including legal reforms, regional cooperation, and community empowerment. Rehabilitation initiatives and awareness campaigns should be culturally attuned. Long-term success demands a comprehensive approach targeting both the symptoms and causes of trafficking. By uniting governments, NGOs, and international organizations, a concerted effort can protect the rights and dignity of the Kurdish tribe, fostering a safer and more equitable future.

ARDUINO-BASED IOT SYSTEM WITH INFRARED SENSORS FOR REAL-TIME VEHICLE SPEED DETECTION

Akhil Ashok A[1], Ambili P S[2]

[1]School of CSA, REVA University, Bangalore, India
[2]School of CSA, REVA University, Bangalore, India

ABSTRACT

The integration of Internet of Things (IoT) for the detection and monitoring of vehicle speeds represents a significant leap forward in improving road safety. This innovative approach not only enhances the efficiency of traffic management but also empowers authorities with the tools needed to make data-driven decisions for creating safer and more resilient urban environments. This study is an attempt for the development of a system that utilizes the power of IoT to detect and monitor the speed of vehicles on the roadways. The system comprises of a speed sensor that captures the speed of the vehicle and sends the data to a microcontroller, which in turn sends the data to a cloud-based platform through an IoT gateway. The cloud-based platform processes the data and generates real-time insights on the speed of vehicles. This work aims to provide effective and economical solutions for monitoring vehicle speeds on roadways, catering to the needs of traffic management, law enforcement, and road safety. The system can also be integrated with other IoT devices and systems to enhance its functionality and enable intelligent and streamlined traffic management practices.

KEYWORDS: *Internet of Things (IoT) , Arduino, microcontroller, IR sensors, road safety, cloud-based platform.*

I. INTRODUCTION

The increasing number of accidents in recent years on highways has emerged as a significant social issue. Although there are several reasons, most accidents are due to over speed. Highway roads typically show signboards indicating the maximum permissible speed limits for driving, emphasizing safety. Unfortunately, a large number of individuals fail to adhere to these speed limits, leading to a increased risk of accidents.

Car speed detection using IoT is a study that involves the use of Internet of Things (IoT) technology to measure the speed of a moving vehicle. This study is designed to monitor and measure the speed of a car and send the data to a central location for processing and analysis. The study consists of a hardware device that is placed at the

side of the road to detect the speed of the car as it passes by. The device is equipped with sensors and microcontrollers that enable it to detect the speed of the car and transmit the data through wireless techniques to a cloud-based platform for analysis.

This study is important because it can be used to monitor traffic flow and detect speeding vehicles, which can help reduce accidents and improve road safety. The use of IoT technology makes it possible to collect and analyze data in real-time, which can be used to make informed decisions about traffic management and road safety. Overall, this study demonstrates the potential of IoT technology to improve transportation and make our roads safer.
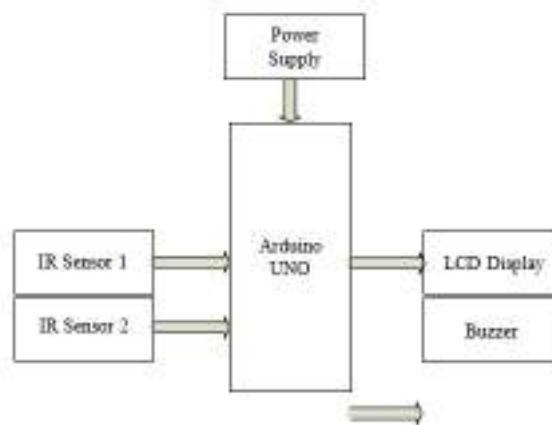
Figure.1 Block diagram of the Proposed System

II. LITERATURE SURVEY

Vehicle speed detection using Arduino and IR sensors is a prominent area of research in the realms of transportation engineering and computer science. Here are some of the notable studies and research papers related to this topic:

Vishal Pande et.al [1] has proposed a framework for

autonomous speed control of over speedingvehicle using

Radio Frequency to design a controller to control vehicles speed and display to monitor the zones which can run on an embedded system platform.

Monika Jain [2] presented a device to detect the rash driving and alerts the traffic authorities incase of any violation. This frame of reference intends to design a system aimed at early detection and alerts vehicles driving patterns which is related to rash driving. The speed limit is by the police at very location who uses the system depending on the traffic. This device reports, displays and data base system for over speed violation management.

Ni Hlaing et.al [3] designed a system that detects the speed of the vehicle in the roads, main highways and the places where the drivers over speed. If the speed exceeds the limit, the information will be sent to PC (Personal Computer) which starts the camera which capturesthe vehicle of over speed.

Amarnarayan et.al [4] developed speed estimation system that alerts drivers about driving conditions,robust and reliable and helps to avoid joining traffic jams is an important problem that has attracted lots of attention recently.

A novel RF-based vehicle motion and speed detection system which can detect vehicle motion estimates the vehicle speed in typical streets were introduced [7,14,15].

The authors [6,9] presented the design and implementation of an automatic vehicle speed detection system using Arduino Uno and IR sensors. The system was tested on a real road and was found to be accurate and reliable.

Overall, these studies demonstrate the potential of using Arduino and IR sensors for vehicle speed detection and control. The results suggest that these systems can be effective in improving road safety and reducing accidents caused by speeding vehicles.

III.   EXISTING SYSTEM
The existing system for vehicle speed detection using Arduino and IR sensors typically consists of one or more IR sensors that are placed on the road, and an Arduino microcontroller that is connected to the sensors. When a vehicle passes over the sensors, they detect the change in the infrared light and send a signal to the Arduino. The Arduino then calculates the speed of the vehicle based on the time it takes for the vehicle to travel between the sensors [17] and displays the speed on an LCD screen or sends it wirelessly to a remote device.
System for vehicle speed detection using Arduino and IR sensors was studied by authors [10,13,16]. The system use two

IR sensors that are placed on the road, and an Arduino Uno microcontroller that is connected to the sensors. When a vehicle passes over the sensors, they detect the change in the infrared light and send a signal to the Arduino. The Arduino then calculates the speed of the vehicle and displays it on an LCD screen.

Another example is the "Vehicle Speed Measurement Using Arduino Microcontroller and Ultrasonic Sensor" developed by N.S. Yadav, M. Jain, and A.K. Patel. This system uses an ultrasonic sensor and an Arduino microcontroller to measure the speed of a vehicle. The ultrasonic sensor is placed on the road, and the Arduino is connected to the sensor. When a vehicle passes over the sensor, it sends a signal to the Arduino, which calculates the speed of the vehicle and displays it on an LCD screen.

Overall, these existing systems [5,8,11,12] demonstrate the effectiveness of using Arduino and IR sensors for vehicle speed detection. Even though they can provide accurate and reliable speed measurements, these systems implementations are relatively expensive which not makes them a popular choice for traffic management and road safety applications.

IV.   PROPOSED WORK
A proposed work for vehicle speed detection using Arduino and IR sensors could involve the following steps:
Design and construction of the hardware: The first step would be to design and construct the hardware components of the system. This would involve selecting the appropriate IR sensors, Arduino board, and other necessary components, and assembling them together to create a working system.

Calibration of the sensors: Once the hardware is constructed, the next step would be to calibrate the IR sensors to ensure that they are accurately detecting changes in the infrared light as vehicles pass over them. This calibration process may involve adjusting the sensitivity and threshold of the sensors.

Programming the Arduino: The Arduino board would need to be programmed to receive signals from the IR sensors, calculate the speed of the vehicle, and display the results on an LCD screen or send them wirelessly to a remote device. The programming would need to take into account factors such as the distance between the sensors and the processing time of the Arduino.

Testing and evaluation : After the system is constructed and programmed, it would need to be tested and evaluated in real-world conditions to ensure that it is accurate and reliable. This may involve conducting tests on a real road with different types of vehicles and under different weather conditions.

Improvement and optimization: Based on the results of the testing and evaluation, the system may need to be improved and optimized to enhance its accuracy and reliability. This could involve adjusting the placement of the sensors, fine-tuning the programming of the Arduino, or selecting different types of sensors or components.

Overall, the proposed work for vehicle speed detection using Arduino and IR sensors would involve designing, building, testing, and optimizing a system that can accurately and reliably detect the speed of vehicles on the road. The final product could be used for a variety of applications, including traffic management, law enforcement, and road safety.

Components
a) ARDUINO UNO

The most popular physical computing platform and interactive development environment is Arduino. It is a stand-alone platform that communicates with computer-based Arduino software. The Arduino software includes an integrated development environment (Arduino IDE). Programming is done using the Arduino IDE. Despite not being the first board on the market, the Arduino Uno is the development board that is used the most commonly. A microcontroller called Arduino Uno is based on the ATmega328p. It has a voltage regulator, crystal oscillator, communication protocol, etc. It features 14 digital input/output pins, 6 of which are PWM-capable and 6 of which are analogue.

b) IR Sensor

An IR transmitter and receiver, an Opamp, a variable resistor (trimmer pot), and an output LED make up the majority of the IR sensor module. IR LED transmitter. IR LEDs are used to create infrared-frequency light. We cannot see IR light because it has a wavelength between 700 nm to 1 mm, which is substantially longer than visible light.

c) Buzzer

A piezoelectric diaphragm serves as the basic sound source of a piezoelectric sound component. A piezoelectric diaphragm is made up of a metal plate (such as brass or stainless steel) and a piezoelectric ceramic plate with electrodes on both sides. Adhesives are used to join a piezoelectric ceramic plate to a metal plate. The piezoelectric effect results in mechanical distortion when D.C. voltage is applied between the electrodes of a piezoelectric diaphragm.

d) Display

The liquid crystal display (LCD) is a crucial component of embedded systems. It gives the user a great deal of versatility because he can display any data he needs.16 characters per line by 2 lines, or 116*2, means. On LCD, the vehicle's speed will be shown.
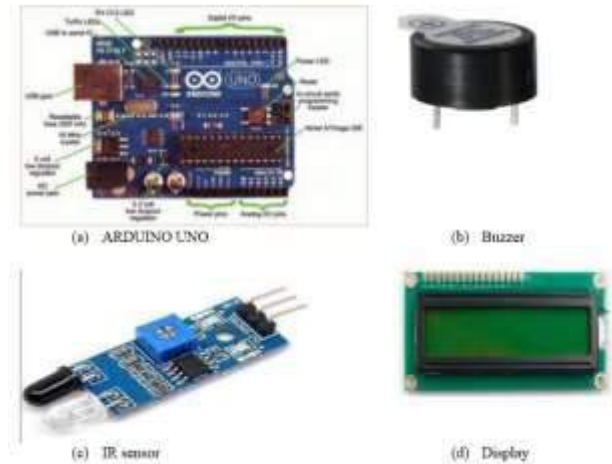
Figure 2: Design components and ARDUINO UNO

V. IMPLEMENTATION

The goal of the study on Vehicle speed detection using Arduino and IR sensors was to use IR sensors to detect the vehicle's speed, monitor that speed on an LCD display, and activate a buzzer if the speed was too high.

Figure 3: The prototype

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BURDEN OF TUBERCULOSIS IN INDIA: INFORMATION FROM NFHS-5

Anant Kumar Pandey[1], Dr. H K Chaturvedi[2], Dr Pooja Choraria[3]

[1]*Research Scholar, Dept. of Statistics, IIS (Deemed to be University), Jaipur*
& Bio-Statistician - ABVIMS; Dr RML Hospital, MoHFW , Govt. of India, New Delhi
[2]*NIMS, ICMR, DHR, MoHFW, Govt. of India, New Delhi.*
[3]*Dept of Statistics, IIS (Deemed to be University), Jaipur, India.*

ABSTRACT

Tuberculosis (TB) is an infectious disease and is caused by germ (bacterium) called Mycobacterium Tuberculosis. Transmission of tuberculosis is mainly through air by inhalation of infected droplet nuclei, which are discharged in the air when a patient with untreated sputum positive tuberculosis (TB) coughs or sneezes. Other modifier of the risk of disease are age, with greater risk during infancy and adolescence, and gender, with young women more likely to develop disease soon after infection. This article reports a self-reported levels and socioeconomic patterns in the distribution of tuberculosis (TB) cases in India, based on information collected under the National Family Health Survey-Round 5 (NFHS-5, 2019–21). The prevalence of TB in various characteristics of households along with Rural-Urban break-up is studied and it is seen that the prevalence of TB is 1% at India level. The prevalence of TB is higher in Rural areas as compare to Urban areas. The percentage distribution of sample households by with TB patients are also influenced by other socio-economic characteristics.

KEYWORDS: *Tuberculosis, NFHS-5, Households*

INTRODUCTION

Tuberculosis (TB) is an infectious disease and is caused by germ (bacterium) called Mycobacterium Tuberculosis. Transmission of tuberculosis is mainly through air by inhalation of infected droplet nuclei, which are discharged in the air when a patient with untreated sputum positive tuberculosis (TB) coughs or sneezes (Grosset J. et. al., 2003). The length of exposure and the degree of ventilation of ambience environment also influence the probability of becoming infected with tuberculosis. The infection of Mycobacterium Tuberculosis is generally detected by a tuberculin test (Jilani TN. Et. al., 2024).The body's response to the active TB infection produces inflammation, which can eventually damage the lungs. Other modifier of the risk of disease are age, with greater risk during infancy and adolescence, and gender, with young women more likely to develop disease soon after infection (Peer V, Schwartz Net. al., 2023). Tuberculosis remains a worldwide public health problem (Zaman K. et.al., 2010) despite the fact that the causative organism was discovered more than 100 years ago and highly effective drugs and vaccine are available making tuberculosis a preventable and curable disease. Technologically advanced countries have achieved spectacular results in the advent of BCG or chemotherapy (Luca S et.al., 2013) and have been attributed to changes in the "non-specific" determinants of the disease such as improvements in the standard of living and the quality of life of the people coupled with the application of available technical knowledge and health resources.

TB causes an enormous socio- economic burden to India (Ananthakrishnan R. et.el 2012). TB primarily affects people in their most productive years of life. While two- thirds of the cases are male, TB takes disproportionately larger toll among young females, with more than 50 per cent of female cases occurring before the age of 34 years. India is the highest tuberculosis (TB) burden country in the world having an estimated incidence of 26.9 lakh cases in 2019 as per World Health Organization (WHO). As per the TB India report 2020, there were around 24 lac notified TB cases registered in India.

As India has the highest burden of TB and continues to be one of high toll of disease and death in India (Bhargava A et al., 2020) but due to lack of limitations of existing quality of data from national Prevalence survey. NFHS is the largest – ever nationally representative household sample in India require effective studies on how TB is spread and awareness for early care for policy making for nation interest. As NFHS-4, NFHS-5 also has district-level estimates for several important indicators. NFHS-5 contents are similar to NFHS-4 and allow comparisons over time. However, NFHS-5 includes some new topics, such as preschool education, disability, access to a toilet facility, death registration, bathing practices during menstruation, and methods and reasons for abortion (NFHS -5 compendium of fact sheets). Recent data from NFHS -5 is reviewed and approved by ICF IRB. Protocol for NFHS-5 survey was also approved by the IIPS IRB (Institutional Review Board), the national coordinating agency for conducting the survey. All these ensures that the survey complies with the U.S. Department of Health and Human Services Regulations. NFHS-5, Indian version of the Demographic and Health Surveys conducted with the largest sample in the world, includes data on self- reported TB and might offer useful insights on the scale and distribution of TB, Care- seeking patters for people affected by TB and public awareness about

TB while building on similar prior research (Mazumdar S et.al., 2019).

In this article, demographic and other characteristics of tuberculosis and non-tuberculosis households have been studied. A household has been defined as tuberculosis household if any of its members was suffering from tuberculosis at the time of NFHS – 5 surveys, else the household is categorised as non- tuberculosis household. The analyses will give and insight as to whether there is any observed difference between the demographic and other characteristics of tuberculosis and non- tuberculosis households? The results have been presented for rural and urban areas for all India, geographic regions and social determinants of health provides a real opportunity to expand the current paradigm for TB control.

METHODOLOGY
The present article studied the prevalence of TB at households' level. The distribution of TB at India level as well as among all states of India. The distributions have also been studied with the variables representing the socioeconomic status of households. The selected socioeconomic variables are places of residence, electricity, gender of head of family. Further the distribution of TB households obtained with toilet facility available in the household and uses of fuel for cooking. As earlier literatures suggested these are the important variables which are responsible for the availability of the TB cases in various household status (Singh SK et.al., 2018. Padmapriyadarsini, C et. al., 2016). The above written methodology regarding study the distribution of the TB was executed through NFHS-5 data.

The National Family Health Survey (NFHS) is a series of surveys conducted in India to collect information on various health and demographic indicators. NFHS-5, like its predecessors, focused on collecting data related to fertility, mortality, maternal and child health, nutrition, family planning, and various other aspects of reproductive and child health. The survey was designed to cover a nationally representative sample of households, and the collected data has crucial for policymakers, researchers, and program implementers to assess the impact of existing health programs and formulate new strategies. The descriptive univariate analysis of data is performed first, later on a bivariate analysis along with chi-square test is executed to studied the relationship of TB prevalence with other socio-economic factor of households.

RESULT
NFHS-5 field work for India was conducted in two phases – Phase 1 from 17th Jun 2019 to 30th Jan 2020 covering 17 states and 5 UTs and Phase 2 from 2nd Jan 2020 to 30th April 2021 covering 11 states and three UTs and gather information from 6 Lac, 36 thousand 699 household. It is evident from below Table 1 that the prevalence of the TB is higher in rural areas as compare to urban areas at all India level and difference is also Statistically significant. The most of the states of northern and central region of India showing the same pattern. Further, Manipur in north- east region has the same pattern like India but other states of north-east region showing that the prevalence of TB in urban areas are higher than the rural areas. The south Indian states are also showing that the prevalence of TB is higher in rural areas as compare to the urban areas. The full table for Table-1 is given in annexure-1.

Table-1 – Prevalence of TB in India amongst the households from different states.

S.No	States	Category	Number of Household	Prevalence of TB		P- Value
				Number of patients with TB	Prevalence (%)	
01	All India	Combined	636699	6457	1.0%	< 0.001
		Rural	476561	5187	1.1%	
		Urban	160138	1270	0.8%	
02	Jammu & Kashmir	Combined	18086	129	0.7%	0.75
		Rural	14663	106	0.7%	
		Urban	3423	23	0.7%	
03	Himachal Pradesh	Combined	10698	86	0.8%	0.80
		Rural	9784	78	0.8%	
		Urban	914	8	0.9%	
04	Punjab	Combined	18824	116	0.6%	0.66
		Rural	12690	76	0.6%	
		Urban	6134	40	0.7%	
05	Uttarakhand	Combined	12169	48	0.4%	0.53
		Rural	9811	37	0.4%	
		Urban	2358	11	0.5%	
06	Haryana	Combined	18229	93	0.5%	0.15
		Rural	12484	70	0.6%	
		Urban	5745	23	0.4%	
07	Rajasthan	Combined	31817	326	1.0%	0.002
		Rural	24994	279	1.1%	
		Urban	6823	47	0.7%	

Table no.-2 Prevalence of TB amongst the households with various socioeconomic variables.

Category	Number of Household	Prevalence of TB		P- Value
Type of Place of residence		**Number of patients with TB**	**Prevalence (%)**	
Combined	636699	6457	1.0%	< 0.001
Rural	476561	5187	1.1%	
Urban	160138	1270	0.8%	
Electricity				
No	22592	381	1.7%	< 0.001
Yes	614107	6076	1.0%	
Sex of head of household				
Male	527220	5538	1.1%	<0.001
Female	109463	919	0.8%	
Transgender	16	0	0.0%	

It is been found from the table no 2 that the prevalence of TB is lower amongst the household who has electricity connection as compare with those household who don't have electricity connections. It also shows that the household those have female head having lower prevalence of TB. The difference is also statistically significant.

Table no.-3 Prevalence of TB amongst the households with various types of toilet facility.

S.No	Type of Toilet Facility	Number of Household	Number of patients with TB	Prevalence %	P-Value
			Prevalence of TB		
01	Combined	636699	6457 (100%)	1.0%	
02	Flush to piped sewer system	46562 (7.3%)	369 (5.7%)	0.8%	
03	Flush to septic tank	285642 (44.9%)	2499 (38.7%)	0.9%	
04	Flush to pit latrine	87929 (13.8%)	912 (14.1%)	1.0%	
05	Flush to somewhere else	4959 (0.8%)	63 (1%)	1.3%	
06	Flush, don't know where	892 (0.1%)	7 (0.1%)	0.8%	
07	Ventilated improved pit latrine (VIP)	4085 (0.6%)	42 (0.7%)	1.0%	
08	Pit latrine with slab	41092 (6.5%)	465 (7.2%)	1.1%	< 0.001
09	Pit latrine without slab/ Open pit	9826 (1.5%)	129 (2%)	1.3%	
10	No facility/bush/field	115137 (18.1%)	1505 (23.3%)	1.3%	
11	Composting toilet	30650 (4.8%)	324 (5%)	1.1%	
12	Dry toilet	7986 (1.3%)	106 (1.6%)	1.3%	
13	Other	1938 (0.3%)	36 (0.6%)	1.9%	

The prevalence of TB is lower amongst the household who has flush to piped sewer toilet facility system as compare with those household who don't have facility of toilet or using bush/field for toilet facility system. In addition to this the households having facilities of LPG and electricity as a cooking fuel are lower prevalence of TB whereas those household using wood, agriculture crop and animal dung as cooking fuel are having higher prevalence of TB. These results are statistically significant [table 3&4].

Table no.-4 Prevalence of TB amongst the households with various types of cooking fuel.

S.No	Type of cooking fuel	Number of Household	Prevalence of TB		P-Value
			Number of Patients with TB	Prevalence %	
01	Combined	636699	6457	1.0%	< 0.001
02	Electricity	7282	91	1.2%	
03	LPG	327347	2608	0.8%	
04	Biogas	2204	32	1.5%	
05	Kerosene	3051	35	1.1%	
06	Coal, lignite	4919	54	1.1%	
07	Charcoal	5081	79	1.6%	
08	Wood	246040	2955	1.2%	
09	Straw/shrubs/grass	5695	118	2.1%	
10	Agricultural crop	9836	164	1.7%	
11	Animal dung	23537	303	1.3%	
12	No food cooked in house	1075	7	0.7%	
13	Other	632	11	1.7%	

DISCUSSION

Tuberculosis is one of the major infectious diseases for developing countries and remains a major public health concern for a developing country like India. The respective study has been studied at all India level as well as states level which describes the socioeconomic status of households with TB prevalence focusing on variables which are places of residence, electricity, gender of head of family, toilet facility available in the household and uses of fuel for cooking. this article shows that the prevalence of tuberculosis (TB) is 1% which is supported by other articles published (Thiruvengadam K et.al., 2023; Bhargava A et.al., 2021).

It was also found that the percentage distribution of sample households with TB patients are influenced by other socio-economic characteristics e.g. places of residence, electricity, gender of head of family, toilet facility available in the household and uses of fuel for cooking. The same finding also reported in previous literatures (Singh SK et.al., 2018; James R. Hargreaves et al., 2011; Pathak D et al., 2021; Thakur G et al., 2021). In a study it was reported that Metropolitan city Mumbai has the highest prevalence among the cities studied. Living standards, place of residence and absence of windows and electricity in the households are the factors associated with TB prevalence (Marimuthu P et al., 2016). In a south India based study it was concluded that TB is a major public health problem in urban area. Undernutrition, slum dwelling, indoor air pollution and alcohol intake are modifiable risk factors for TB disease (Dhanaraj B et al., 2015). There are many other studies argued the same (Muniyandi M et al., 2008; Elf JL et al., 2019; Bhargava A et al., 2014; Sailo CV et al., 2022).

As India is working on national strategic plan to eliminate TB by 2025 and it is seen from the result that the prevalence of TB in various characteristics of households with Rural-Urban break-up is (1%) at all India level where prevalence of TB is higher in Rural areas as compare to Urban areas. Further, it is also found that there is lower prevalence of TB amongst household having electricity connection and female as head of house. In addition to that it is also found about facility of toilet have lower prevalence of TB having flush to piped sewer system and higher prevalence of TB having Straw/shrubs/grass as cooking fuel. Though there were various studies been done relating to same issue in past and having the same result but the current studies supports that the claimed pattern of TB is still persistent, however it is descriptive study and further more sophisticated analytical studies need to be performed for proving the claim results.

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ANNEXURE 1

S.No	States	Category	Number of Household	Prevalence of TB		P- Value
				Number of patients with TB	Prevalence (%)	
01	All India	Combined	636699	6457	1.0%	< 0.001
		Rural	476561	5187	1.1%	
		Urban	160138	1270	0.8%	
02	Jammu & Kashmir	Combined	18086	129	0.7%	0.75
		Rural	14663	106	0.7%	
		Urban	3423	23	0.7%	
03	Himachal Pradesh	Combined	10698	86	0.8%	0.80
		Rural	9784	78	0.8%	
		Urban	914	8	0.9%	
04	Punjab	Combined	18824	116	0.6%	0.66
		Rural	12690	76	0.6%	
		Urban	6134	40	0.7%	
05	Chandigarh	Combined	761	1	0.1%	0.86
		Rural	21	0	0%	
		Urban	740	1	0.1%	
06	Uttarakhand	Combined	12169	48	0.4%	0.53
		Rural	9811	37	0.4%	
		Urban	2358	11	0.5%	
07	Haryana	Combined	18229	93	0.5%	0.15
		Rural	12484	70	0.6%	
		Urban	5745	23	0.4%	
08	Nct Of Delhi	Combined	9486	59	0.6%	0.41
		Rural	306	3	1.0%	
		Urban	9180	56	0.6%	
09	Rajasthan	Combined	31817	326	1.0%	0.002
		Rural	24994	279	1.1%	
		Urban	6823	47	0.7%	
10	Uttar Pradesh	Combined	70710	749	1.1%	0.006
		Rural	56657	630	1.1%	
		Urban	14053	119	0.8%	
11	Bihar	Combined	35834	720	2.0%	0.036
		Rural	32045	661	2.1%	
		Urban	3789	59	1.6%	
12	Sikkim	Combined	3516	78	2.2%	0.314
		Rural	2916	68	2.3%	
		Urban	600	10	1.7%	
13	Arunachal Pradesh	Combined	18268	332	1.8%	0.731
		Rural	14554	262	1.8%	
		Urban	3714	70	1.9%	
14	Nagaland	Combined	10112	210	2.1%	0.449
		Rural	7687	155	2.0%	
		Urban	2425	55	2.3%	
15	Manipur	Combined	7881	152	1.9%	0.101
		Rural	5873	122	2.1%	
		Urban	2008	30	1.5%	
16	Mizoram	Combined	7257	180	2.5%	0.587
		Rural	4175	100	2.4%	
		Urban	3082	80	2.6%	
17	Tripura	Combined	7209	88	1.2%	0.972
		Rural	5827	71	1.2%	
		Urban	1382	17	1.2%	
18	Meghalaya	Combined	10148	275	2.7%	0.192
		Rural	8962	236	2.6%	

S.No	States	Category	Number of Household	Prevalence of TB		P- Value
				Number of patients with TB	Prevalence (%)	
		Urban	1186	39	1.2%	
19	Assam	Combined	30119	369	1.2%	0.022
		Rural	26131	335	1.3%	
		Urban	3988	34	0.9%	
20	West Bengal	Combined	18187	185	1.0%	< 0.001
		Rural	12745	153	1.2%	
		Urban	5442	32	0.6%	
21	Jharkhand	Combined	22863	221	1.0%	0.001
		Rural	18562	198	1.1%	
		Urban	4301	23	0.5%	
22	Odisha	Combined	26467	220	0.8%	0.184
		Rural	22760	196	0.9%	
		Urban	3707	24	0.6%	
23	Chhattisgarh	Combined	24550	139	0.6%	0.221
		Rural	20032	119	0.6%	
		Urban	4518	20	0.4%	
24	Madhya Pradesh	Combined	43552	231	0.5%	0.653
		Rural	34548	186	0.5%	
		Urban	9004	45	0.5%	
25	Gujarat	Combined	29368	266	0.9%	0.006
		Rural	20136	203	1.0%	
		Urban	9232	63	0.7%	
26	Dadra & Nagar Haveli And Daman & Diu	Combined	2676	10	0.4%	0.625
		Rural	1134	5	0.4%	
		Urban	1542	5	0.3%	
27	Maharashtra	Combined	31643	189	0.6%	0.244
		Rural	21349	135	0.6%	
		Urban	10294	54	0.5%	
28	Andhra Pradesh	Combined	11346	94	0.8%	0.138
		Rural	8154	74	0.9%	
		Urban	3192	20	0.6%	
29	Karnataka	Combined	26574	213	0.8%	0.098
		Rural	18847	162	0.9%	
		Urban	7727	51	0.7%	
30	Goa	Combined	1856	18	1.0%	0.967
		Rural	713	7	1.0%	
		Urban	1143	11	1.0%	
31	Lakshadweep	Combined	921	7	0.8%	0.164
		Rural	197	3	1.5%	
		Urban	724	4	0.6%	
32	Kerala	Combined	12330	192	1.6%	0.702
		Rural	7283	116	1.6%	
		Urban	5047	76	1.5%	
33	Tamil Nadu	Combined	27929	159	0.6%	0.246
		Rural	16123	99	0.6%	
		Urban	11806	60	0.5%	
34	Puducherry	Combined	3520	19	0.5%	0.00
		Rural	700	13	1.9%	
		Urban	2820	6	0.2%	
35	Andaman & Nicobar Islands	Combined	2624	31	1.2%	0.057
		Rural	2097	29	1.4%	
		Urban	527	2	0.4%	
36	Telangana	Combined	27351	226	0.8%	0.065
		Rural	20191	179	0.9%	

S.No	States	Category	Number of Household	Prevalence of TB		P- Value
				Number of patients with TB	Prevalence (%)	
		Urban	7160	47	0.7%	
37	Ladakh	Combined	1818	26	1.4%	0.693
		Rural	1410	21	1.5%	
		Urban	408	5	1.2%	

TEACHER EDUCATION FOR EARLY CHILDHOOD CARE AND EDUCATION

Dr. Afshan Anees

Assistant Professor, Al Barkaat Institute of Education, Aligarh

ABSTRACT

A teacher plays an important role to mould the behaviour of the students. To maintain the quality of School Education is only possible by the support of good teacher. Teacher education is the only the way to maintain the good quality of teacher's training. Teacher learning or training is a continuous never-ending process which promotes teacher's teaching skills, master novel knowledge; develop better or newer proficiency, which in return assists in improving student's learning. Teaching is that profession which promote the qualitative preparation of teachers the at all stages of education, including at the Early Childhood Stage which requires special attention and creation of a learning environment for children which is joyful, play based and developmentally appropriate. This full length paper define the concept of teacher and teacher education and also highlighted the importance of of early child care and education . this paper also describe the challenges faced by teacher of early education.

KEY WORDS: *Teacher, Teacher Education, Early Childhood, Early Childhood Education, Learning Environment*

INTRODUCTION

A **teacher** (also called a school **teacher** or, in some contexts, an educator, in olden days, known by Guru) is a person whose position in the society is next to God. He helps their students to acquire valuable knowledge, competence or virtue. Informally the role of **teacher** may be taken on by anyone (e.g. when showing a colleague how to perform a specific task).

A good teacher is like a candle it consumes itself to light the way for others. Our Nation India is the marching towards a bright and prosperous tomorrow. The social organ to play the most important role in this aspect is Education.

Education is the most powerful weapon which we can use to change the world. Teacher is that soldier who handle the weapon of education to mould the the behaviour of the students.

Emile Durkin first wrote about education as the institution through which values are transmitted and internationalized by societal members, and, in this sense, is the morale in nature and intended. Education itself is the basic human right and as a tool to make a sensitive about issues and problems. Education is the process to teach people to learn right actions and made them understand that freedom is not unrestricted. Education translates the meaning of authority and freedom. It teaches how to avoid punishment to live externally free and inwardly peace full with clear conscience, enriched mind without fear and worry.

India has one of the largest systems of education ranging from early childhood Education to higher education.

The maintenance of quality of education at school level without the support of a good teacher is a misnomer and that is the reason that in the long history of its traditions in India, teachers have always been much reversed.

In the process of making education more meaningful, or a question of improving its quality or even making it more accessible to children, one thing that always prominently matters is the teacher, as the teacher is the heart of the school system.

The Indian Education Commission 1964-66 has rightly remarked in the opening sentence of the report that the destiny of India is now being shaped in her class-room. The truth that "no people can raise above the level of its teachers".

TEACHER EDUCATION

Teacher education means professional preparation of teachers. It is not merely training of teachers, but it is acquisition of that type of knowledge skills and ability which helps a teacher to discharge his professional duties and responsibilities effectively and efficiently. It means reshaping the attitude, habits and personality of a teacher.The training of teachers assumes great significance in the educational system.Teacher education system is an important vehicle to improve the quality of school education.Teacher learning is a continuous process that promote teachers' teaching skills, master new knowledge, develop new proficiency, which in turn, help improve students' learning.

The training for the teachers must be such that it makes the lives of students easier and learning effective which we do not see often. Teaching is an important process, but teacher is the

fundamental element in this process and it is always the method which determines the output of the system.

Teacher learning or training is a continuous never-ending process which promotes teacher's teaching skills, master novel knowledge; develop better or newer proficiency, which in return assists in improving student's learning.

The principal elements that make teaching and learning possible and attainable are the teachers, the learners, and a conducive learning environment. The teacher serves as the prime mover of the educational wheel. The learners are the key participants in the learning process

Teacher education is based on the theory that Teachers are made, not born in contrary to the assumption, Teachers are born, not made. Since teaching is considered an art and a science, the teacher has to acquire not only knowledge, but also skills that are called tricks of the trade.

"Teaching is a profession that carries with it a high degree of responsibility and the qualifications and skills of those who take on this responsibility constitute a major factor that affects, be it positively or negatively, any education system". (Villegas-Reimers, 2003). This has major implications in the preparation of teachers at all levels of education, including early childhood, where they must create a child-friendly, happy and fun environment. Preparation of teachers for this stage would therefore require teacher educators who possess a sound knowledge of Educational Philosophy of ECCE besides an understanding of its specialized content and methodology.

Early Childhood Care and Education (ECCE) is more than preparation for primary school. Early Childhood Care and Education (ECCE) is more than preparation for primary school. It aims to develop children's diverse social, emotional, and physical needs by providing a strong and broad foundation for learning and health.

An Early-Childhood teacher is responsible to create and inspects the children's environment time to time and to ensure the safety of equipment and materials. She also promote a safe and comfortable environment through clear, praising and encouraging words and actions which help the children feel comfortable, adjustable and confident within their surroundings.

Teachers at all levels are important to people. Early childhood educators work with children at the beginning of their education to help them understand and achieve some of the most basic and foundational academic, social, cognitive, and emotional skills.

The main aim of teacher education is to develop a skill to stimulate experience in the taught, under an artificially created environment, less with material resources and more by the creation of an emotional atmosphere. The teacher should develop a capacity to do, observe, infer and to generalize.

Preschool environment allows children to learn important skill that allow them to listen to others and express their own creative ideas, make friends, share, cooperate, and become responsible for their actions.

Early education ensures free, integral and holistic development of the child's personality, according to his rhythm and needs. The education provided has to ensure the differentiated stimulation of children, aiming the intellectual, emotional, social and physical development of each child and targeting to achieve it.

Early -School education targets the overall development of the child, which will assure him a good beginning in life. The areas of child's development targeted in the specific curriculum for early school age, as physical development, health, personal care, socio -emotional development, cognitive development, language development and communication, developing skills and attitudes in learning are essential to achieve a customized education, first by identifying the child potential and the difficulties/disabilities of each child by the teacher.

THE EARLY CHILDHOOD EDUCATION
Early childhood refers to the period from birth to the age of eight. However, education of early childhood generally refers to the period from infancy to kindergarten, which is the most important period in a child's life. It is when the child learn his first lesson that how to interact with others,how to established emotional connections and starts learning to develop interests, which often stay with them throughout their lives.

There is a some common misconception that early childhood education is only for learning fundamental skills. It is the time when children learn critical, social and emotional skills and a relationship is formed between the child, their parents and the teacher.When this is done successfully, the foundation is laid for the child to continue throughout his or her education.

In Early Childhood Education different activities were performed with children in the units and provide education services, according to specific curriculum are:
- playing with toy, symbolic play, sensory game, playing with sand and water, construction game, didactic game.
- artistic and skill activities: drawing, painting, modelling, practical and household activities.
- music and movement activities: auditions, musical games, text games and singing, songs, eurhythmy.
- awareness activities: observations, readings by pictures, mathematical activities, talks, didactic games, experiments.

As per UNESCO's defined "Early Childhood Care & Education (ECCE)" more than just preparation for primary school. It aims at the overall development of a child's social, emotional, cognitive and physical needs in order to build a solid and broad foundation for lifelong learning and well-being.

CHALLENGES FOR EARLY CHILDHOOD EDUCATION TEACHERS

As a preschool teacher, you face several challenges on an everyday basis

➢ One of the biggest challenges teachers face is finding out the right balance between working one to one with children one and managing a large group.

➢ Teachers could be really focused on learning what a child's specific interests and needs are. Also figuring out how to apply and implement classroom standards can also be an issue for new teachers.

➢ One of the major issues of ECCE is the unavailability of trained teachers.

➢ Every kid in the class has different needs, and catering to each while instilling productivity and creativity can be quite challenging. teacher, have the responsibility to keep a balance between the diverse personalities in class.

➢ Teachers of early child hood education have lack of recognition and value in society.

➢ Every kid in a class have unique in their behaviour and interests, so it is very difficult to the teacher to treat every child and pay equal attention to every thing at the time of teaching.

➢ Most preschools are not equipped with the right tools to enable digital education for toddlers.

In order to get the best outcomes in early childhood education, teachers should tries to put students' natural curiosities into lesson plans. Teachers can take the topics or subject areas that fascinate individual students and expand on it through in-class or at-home activities. Targeting these areas can help students develop critical thinking skills, allowing them to give more complex answers.

CONCLUSION

Education is the most powerful weapon which we can use to change the world. Teacher is that soldier who handle the weapon of education to mould the behavior of the students.

Teachers of all grades are valuable to society. Early childhood teachers work with children at the start of their educational journey and help them to understand and attain some of the most basic and foundational academic, social, cognitive and emotional concepts.

Early childhood refers to the period from birth to the age of eight. However, education of early childhood generally refers to the period from infancy to kindergarten, which is the most important period in a child's life.

Early Childhood Care and Education (ECCE) is more than preparation for primary school. It aims at the holistic development of a child's social, emotional, cognitive and physical needs in order to build a solid and broad foundation for lifelong learning and well-being. Early childhood educators work with children at the beginning of their education to help them understand and achieve some of the most basic and foundational academic, social, cognitive, and emotional skills.

Preschool teacher, face several challenges on an everyday basis. The teachers of early child education face many challenges during teaching like they lack of recognition, unable to treat every according to their needs and requirements, lack digital equipment, etc. In order to get the best outcomes in early childhood education, teachers should tries to put students' natural curiosities into lesson plans. Teachers can take the topics or subject areas that fascinate individual students and expand on it through in-class or at-home activities.

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VOCATIONAL INTEREST OF SENIOR SECONDARY SCHOOL STUDENTS IN RELATION TO THEIR SOCIO-ECONOMIC STATUS

Mr. Duryodhan Behera[1], Dr. Laxmidhar Dey[2]

[1]*Lecturer in Education, Bhadrak Autonomous College, Odisha*
[2]*Assistant Professor, Dakshin Dinaj B.Ed College, West Bengal*

ABSTRACT

The present research study has examined the relationship between vocational interest and socio-economic status of senior secondary school students. The sample consisted of 120 senior secondary students studying in 11th and 12th class of different Government and private schools of Mayurbhanu district of Odisha. The sample were drawn through random sampling techniques. A self-developed Vocational Interest Scale (VIS) was used to measure the vocational interest of the students. Result provided evidence that there is significant relationship between vocational interest and socio-economic positive socio-economic status had significant impact on the vocational interest of students. It was also found that the students those were high socio-economic status had better vocational interest.

KEYWORD: *Vocational interest, secondary school students, Socio-economic status*

INTRODUCTION

Interest of the students towards professional career is important to pursue a course at college level. Every teacher every teacher recognizes the importance of interest to success in scholastic and vocational areas. Interest of the students is closely related to their academic achievement (Sohta 2009). But the vocational interest of the students is depends upon the socio-economic status of the students. There is a positive significant relationship between vocational interest and socio-economic status of the students (Sahu, 2018).

With the worldwide growing population, students are now seen to be concerned about their career and occupational aspirations. But there is a gender difference in vocational aspiration (Rhee, 2011 and Hou and Leung, 2011). Further, the status of school and parental educational level affected expectation and aspiration of students (Mohanty, 2019). **Peter and Maria (2012)** reported that provision of career guidance services prompted students to make better decisions related to their career choice.

OBJECTIVES OF THE STUDY

1. To study the relationship between vocational interest and socio-economic status of senior secondary school students.
2. To compare the high and low socio-economic status students on vocational interest.

HYPOTHESES OF THE STUDY

1. There exists a significant positive relationship between vocational interest and socio-economic status of senior secondary school students.
2. There exists a significant difference between high and low socio-economic status students on vocational interest.

METHODOLOGY

The present research work is a descriptive survey type of study. In the present study, a sample of 120 senior secondary school students of 11th and 12th class (50 boys and 70 girls) of Mayurbhanj district of Odisha was taken. Schools and students were selected randomly across the district on the basis simple random sampling technique. In the present study self-developed Vocational Interest Scale (VIS) has been used. The test retest reliability coefficient is reported as .68 and concurrent validity is .75. Socio Economic Status Scale (SESS) by Dr. Meenakshi was used. This test consist the four areas of socio economic status viz. Finance, Property, Education and Social status in life. Test-retestreliability has been found to be r=.82, with a time interval of 10 days. For present research data was collected and score were statistically analyzed with the help of coefficient of correlation.

Table-1
Coefficient of Correlation Between Vocational Interest And Socio-Economic Status Of Secondary School Students

Variables	N	Df	Coefficient of correlation	Level of significance
Vocational Interest Socio-economic status	120	118	.65	.01

Table Value of 118 df at .05 level = .195 and .01 level=.255

It is revealed from the table-1 that the coefficient of correlation between vocational interest and Socio-economic status students is 0.65 which is significant at .01 level of significance. That means there is significant positive relationship between

vocational interest and socio-economic status senior secondary school students. It implies that vocational interest depends on socio-economic status of the students.

Table-2
Significance of Difference between boys and girls students of secondary schools on vocational interest

Group	N	M	SD	t-ratio	Level of Significance
High SES	60	96.22	2.09	2.05	.05
Low SES	40	94.00	2.51		

Table value at 0 .1 level is 2.58 and at .05 level 1.96.

It reveals that from the Table N-2 that the mean scores of high and low senior secondary schools on vocational interest are 96.22 and 94.00 with SDs 2.09 and 2.51 respectively. The t-ratio came out from the above two groups is 2.05 which is significant at .05 level of significance. That means there is significant difference between boys and girls on vocational interest. Further the study reveals that the girl's student's shows a bit high on vocational interest compare to boys students. Thus, the hypothesis- 1, that' there exist a significant difference between high and low SES students of senior secondary schools' is accepted.

DISCUSSION AND CONCLUSION
EDUCATIONAL IMPLICATIONS
The findings of study are likely to prove of immense importance to educational thinkers, teachers, psychologists, parents and others who are concerned with the sphere of education. The teacher educators, teachers and parents should provide guidance for students and children on the basis of their interests, potentialities and try to develop them to maximum. One of the important implications of the present conclusion for parents, teachers and teacher educator is that the curricula, syllabi, text books etc. should be modeled in such a fashion that they can utilize their energies in the right direction. Proper vocational guidance can be provided to the students on the basis of their interest for a particular vocation. This will increase their efficiency. The most important factor that helps in high academic achievement is need for achievement or the extent of motivation. It is therefore, most important for teachers as well as parents that they should infuse the spirit of motivation according to their interest. So that they can achieve high in the academic field.

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BURNOUT AND WORKPLACE CONFLICTS: A FACULTY'S PERSPECTIVE FROM SANTIAGO CITY HIGHER EDUCATION INSTITUTIONS

Dr. Clemente P. Claro, Jr. CPA

Dean, College of Accountancy and Business Administration, Northeastern College, Inc., Santiago City, Philippines, 3311

ABSTRACT

Background Job burnout happens when a person is unable to satisfy constant job demands, is emotionally exhausted, or feels overwhelmed. Several factors contribute to burnout, including job-related stress, a heavy workload, an uncomfortable work environment, and insufficient organizational support. The study sought to understand educator views on burnout and workplace problems, as well as their relationship to demographic characteristics.

Method: *The study utilized a descriptive cross-sectional quantitative research design to determine the perspective of 183 full-time faculty on burnout and workplace conflicts at Higher Education Institutions of Santiago City.*

Findings: *The study found out that faculty somewhat disagrees with the perceptions on burnout and workplace conflicts in terms of burnout syndrome, workplace conflicts, and burnout due to conflicts. Furthermore, results revealed that there is a significant relationship between the three categories and sex*

Recommendation: *The study encouraged increasing pleasant connections between faculty and clients and students, as well as encouraging collaboration and teamwork when assigning duties. Also, appropriately manage the workload, prioritize duties, and recognize and appreciate the achievements of educators.*

KEYWORDS: *Burnout, Employees, Perspective, Workplace Conflicts*

1. INTRODUCTION

Burnout is a clinical word that refers to the physical, emotional, and mental weariness caused by chronic stress [1]. Job burnout happens when a person is unable to satisfy constant job demands, is emotionally exhausted, or feels overwhelmed. Several factors contribute to burnout, including job-related stress, a heavy workload, an uncomfortable work environment, and insufficient organizational support. People are under increasing strain from society, work, and life as civilization evolves and life pressures increase. Job burnout is now regarded as an issue and illness in the modern society [2]. It has several harmful repercussions, especially for instructors. For example, while it serves as a bridge between these two constructions, it causes job expectations to lead to poor health in teachers and a lack of resources to contribute to poor management among educators. High levels of job burnout have also been connected to other negative work outcomes, such as absenteeism and plans to leave the job [3]. Some specialists believe that depression and other problems may contribute to burnout. Researchers have found that individual variables such as personality traits and family circumstances influence who develops job burnout [4]. Burnout hinders personal and societal functioning. This deterioration in work quality, as well as physical and psychological health, can be costly and have an impact on the individual worker. Interventions can be adopted

at both the organizational and human levels to reduce burnout and increase engagement at work. Burnout's emphasis on social aspects, the syndrome's strong scientific foundation, and its distinct links to the workplace all have a distinctive and profound impact on people's health and well-being [5].

Work disputes are one of many organizational characteristics that are the largest risk factors for burnout, contrary to some studies' assertions [6], which think that organizational form and hierarchy have minimal influence on burnout development. One of the primary causes of burnout has been identified as a community, which represents employees' interactions with other individuals in the organization and, in the context of burnout, includes elements such as a lack of support and unresolved issues. Many organizations are increasingly committed to building and preserving workplace harmony, looking for strategies to create a satisfied employee in the future who is aligned with the organization and its aims. This pressing issue affects all managerial functions, from organizational design to leadership styles, but conflict, while appearing contradictory, is also regarded as a persistent fact of change that can lead to organizational effectiveness and is a sign of organizational health [7]. Workplace conflict can take many forms, including interpersonal conflicts, legally controlled complaints and

disciplinary and industrial disputes. The majority of these confrontations can be classified as conflicts over rights or interests [8]. Furthermore, several studies corroborate the link between conflict and burnout and highlight the need of conflict resolution in mitigating burnout's detrimental impacts [9]. However, it remains unclear what distinguishes burnout, workplace difficulties, and burnout caused by them among modern employees. The ongoing transition may result in extra strains owing to inequity, greater workloads, and pressures, particularly if the change is not viewed as an improvement over the current procedure [10]. The study's main purpose was to identify the perspective on burnout and workplace conflicts of faculty of Higher Education Institutions (HEI) in Santiago City and how it relates to demographic variables.

1.1. Research Hypothesis
There is no significant relationship between burnout and workplace conflicts and Age and Sex.

1.2. Literature Review
Employees in schools, especially teachers and support staff, are more prone to experience burnout and workplace conflict as schools become increasingly stressful settings [11]. Teachers and support workers in schools face daily stressors such as severe workloads, low pay, a lack of administrative support, and a lack of autonomy. These elements can cause feelings of fatigue, disconnection, and a lessened sense of accomplishment. According to a recent National Education Association report, 45% of teachers feel burned out. Burnout is primarily caused by a lack of support from school administration. Teachers and support personnel typically face a lack of assistance at work and have limited resources to deal with highly stressful situations. As a result, people may begin to feel isolated and lose interest in performing out their roles [12]. Furthermore, the COVID-19 pandemic has exacerbated matters by requiring teachers and support personnel to adopt hybrid and remote learning methods, often with no guidance or training. Employees at schools have cited feelings of overwork and burnout as a result, leading to higher turnover rates [13]. Conflicts at work are another issue for school staff. Conflicts among coworkers, a lack of administrative assistance, and challenging student behavior can all contribute to a toxic work environment. Communication breakdown is one of the leading reasons of workplace conflict in schools. Teachers and support personnel may have different priorities and objectives, resulting in misunderstandings and disputes. Furthermore, inadequate communication by the school administration might cause employee confusion and conflict. Conflicts can also arise when teachers and support workers feel unappreciated or devalued. Employee dissatisfaction and conflict with coworkers might arise when they believe their contributions are undervalued [14]. Conflicts at work and burnout are important school issues that have an impact on professional happiness and, eventually, student progress. To solve these issues, school administrators must prioritise employee support and communication. This involves offering stress-management options, maintaining open lines of communication, and acknowledging employees'

contributions. Addressing burnout and workplace conflicts can help schools enhance the work environment for employees as well as the learning environment for students.

However, there is a scarcity of empirical research on disputes that take affective states and emotions into consideration. Despite the ongoing interest in disputes in organizational and, specifically, school environments [15], conflict as a process with origins and outcomes is rarely explored from an integrated perspective. This indicates that there has not been a full empirical research of conflict as a process that encompasses a variety of conflict origins, eliciting emotions, making decisions about conflict strategy management, and conflict outcomes. As a result, the study intends to provide more information on the extent to which burnout and workplace conflicts have impacted school staff.

2. METHODOLOGY
2.1 Research Design
The study used a descriptive cross-sectional research design.

2.2 Study Site and Participants
There were 183 full-time faculty of Higher Education Institutions of Santiago City who participated in the study and were identified using a raosoft sampling calculator.

2.3 Research Instrument
This study used an adapted survey questionnaire developed by Aukštikalnytė (2021) to examine characteristics related to burnout and workplace conflicts. The variables were added to understand how participants view these characteristics. The Cronbach alpha coefficient was used to determine the questionnaire's reliability. The overall survey value is 0.941, with specific components of burnout symptoms, conflicts, and burnout caused by conflicts at 0.831, 0.715, and 0.920, respectively.

The instrument utilised in this investigation consisted of two parts. The first section is on the respondents' characteristics, such as age and sex. The second section addresses topics about burnout and workplace problems from the standpoint of faculty. The questionnaire contains 26 items separated into three categories: burnout syndrome, workplace conflicts, and burnout due to conflicts. A seven-point Likert scale was used.

2.4 Data Analysis.
A suitable statistical tool was applied, with the assistance of an SPSS. Chi-square was used to test the association, whereas frequency, percentage, and mean were utilized to answer descriptive questions.

3. RESULTS

Table 1. Demographic Profile of the Respondents

Profile	f	%
Sex		
Female	108	59.07
Male	75	40.93
Age		
18 – 25 years old	22	12.02
26 – 35 years old	83	45.36
36 – 45 years old	40	21.86
46 – 55 years old	25	13.66
56 years old and above	13	7.10

Table 1 shows that the majority of respondents were Female (59.07%) and 26-35 years old (45.36%).

Table 2. Perceptions of Faculty on burnout and workplace conflicts

Categories	M	Verbal Interpretation
Burnout Syndrome	3.06	Somewhat Disagree
Workplace Conflicts	3.20	Somewhat Disagree
Burnout due to conflicts	2.99	Somewhat Disagree
Grand Mean	**3.08**	**Somewhat Disagree**

Table 2 shows the perception of faculty to burnout and workplace conflicts with overall mean of 3.08 indicating somewhat disagree likewise in all 3 categories. For the faculty's perspective they don't feel physical and emotionally exhausted and able to resolve conflicts with colleagues and clients

Table 3. Test of Relationship Between Burnout and Workplace Conflict to Sex

Burnout and workplace conflict	Chi value	df	p-value
Burnout Syndrome	88.40	6	0.001
Workplace Conflicts	76.61	6	0.001
Burnout due to conflicts	102.25	6	0.001

In table 3, significant associations were revealed with burnout and workplace conflict factors such as Burnout Syndrome, Workplace Conflicts, and Burnout due to conflicts as confirmed by the p-values of $0.001 < 0.05$ level of significance. Overall results imply that there is a significant relationship between burnout and workplace conflict to Sex.

Table 4. Test of Relationship Between Burnout and Workplace Conflict to Age

Burnout and workplace conflict	Chi value	df	p-value
Burnout Syndrome	37.61	24	0.85
Workplace Conflicts	57.17	24	0.705
Burnout due to conflicts	73.55	24	0.520

The table 4 shows the test of the relationship between burnout and workplace conflict and age. It simply shows that there is no significant association of the variables.

3. CONCLUSION

The findings revealed and concluded that the majority of the respondents investigated were female and aged between 26 and 35. Full-time professors have differing perspectives on burnout and workplace conflict in terms of burnout syndrome, conflicts at work, and burnout caused by conflict. It was also discovered that burnout and job conflict are significantly related to sex.

3.1 Recommendations

It is recommended that all full-time faculty to maintain and promote a positive work environment. This entails building an environment that promotes transparency, respect, and cooperation. Promote positive interactions between staff and clients, and encourage collaboration and teamwork when assigning assignments. Furthermore, address issues quickly and properly to prevent problems from recurring. To maintain a healthy work-life balance, set clear boundaries between your personal and professional lives. Make self-care a priority by getting adequate relaxation, exercise, and sleep. To effectively manage a workload, prioritize duties, and organize projects, seek advice and support from coworkers, mentors, or superiors.

It is recommended that school administrators conduct regular evaluations of staff satisfaction. Regular meetings or surveys can help identify potential sources of conflict and assess employee happiness. Plan team-building exercises to strengthen employee relationships and foster cooperation and togetherness. Recognize and respect school staff members' efforts and contributions by implementing recognition programs that highlight both individual and collective achievements. Provide opportunities for ongoing professional development to reduce burnout and workplace conflict.

Lastly, Future researchers might focus on long-term study to track how workplace conflict and fatigue change. Examine how these components, such as contextual and cultural features, change as an employee progresses through their career. Examine and assess the efficacy of certain interventions or cures aimed at reducing workplace conflict and burnout. Examine burnout and workplace conflict experiences at the elementary, high school, and college levels to identify specific concerns at each. Combining observations, interviews, and surveys will provide a more in-depth insight.

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Acknowledgement

Funding

THE ROLE OF JUDICIAL ACTIVISM IN SHAPING CONSTITUTIONAL LAW OF INDIA

Mamta Devi

Assistant Professor, LHP College of Law, Sirsa

ABSTRACT

"It is for the judge to give meaning to what the legislature has said and it is this process of interpretation which constitutes the most creative and thrilling function of a judge."

Chief Justice P.N. Bhagwati[1]

Judicial activism has an active and transformational role in shaping India's constitutional law. Researcher discusses the essential features of this effect, highlighting the judiciary's proactive application and interpretation of the Constitution in light of changing societal requirements. Judicial activism in India has broadened the scope of fundamental rights, supported public interest litigation (PIL), tackled environmental issues, promoted social justice and protected human rights. The court has served as an important check on the jurisdiction of other arms of government, establishing a balance of power and upholding constitutional ideals. While judicial activism has played an important role in changing the Constitution to modern concerns, it has also been criticized for possible abuse. This paper captures the diverse influence of judicial activism, demonstrating its significance as a driving force in transforming India's constitutional landscape. Doctrinal study or secondary data will be used in this paper.

KEY WORD: - *Judicial Activism, Judicial Restraint, Constitution, Transparence, Judiciary*

1. INTRODUCTION

Judicial activism applies to the judiciary's proactive role in interpreting and modifying the law, particularly in constitutional matters. In India judicial activism has had a considerable impact on the formation of constitutional law. The court especially the Supreme Court of India has actively participated in interpreting the Constitution increasing rights and ensuring justice.

Judicial activism is a phenomenon in which judges block laws proposed by various branches of the government.
According to Prof. Suntein judicial intervention is the practice of judges overruling policy decisions made by other members of the legislature or institutions that the Constitution doesn't clearly forbid. In his book "Judicial Activism in Comparative Perspective," Kennath M. Holland[2] claimed that judicial review, which includes the subsequent phase of policymaking is a necessary but inadequate requirement for judicial activism.[3]

From the 1950s till the 1960s, the judiciary's primary function was to interpret laws. In the decade of the 1970s, "the Supreme Court evolved to challenge legislative and executive slowness and inefficiencies. The Indian courts began to intervene in the name of court involvement in an effort to limit the spirit of authoritarianism in both the legislative and executive spheres of government. Cases like Maneka Gandhi v. Union of India[4] and Bandhua Mukhti Morcha v. Union of India are key milestones on the path to empowering the Indian judiciary. All of these changes created a fresh role for the Supreme Court. With this decision, the right to life and liberty as an Individuals under Article 21 have increasingly achieved the status of repositories in the realm of liberty and human rights. likewise, both articles 32 and 226 of the Indian Constitution give the judicial system the authority to issue writs and orders not only to enforce fundamental rights, additionally for other reasons."[5]
During the emergency, "Justices V.R. Krishna Iyer and P.N. Bhagwati sowed the seeds of judicial activism. A new phenomena known as Public Interest Litigation (PIL) emerged, expanding the

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[1] *Chief Justice P.N. Bhagwati, "Judicial Activism in India" https://media.law.wisc.edu/m/4mdd4/gargoyle_17_1_3.pdf accessed 15 January 2024.*

[2] *Kenneth, M., Holland. (1991). Judicial activism in comparative perspective. doi: 10.1007/978-1-349-11774-1*

[3] *Social Work Education, "Module 27: Public Action and Judicial Activism in India"*
https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000032SW/P001730/M021712/ET/15016519121-
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[4] *Maneka Gandhi v. Union of India [1978] SC 853*

[5] M. Laxmikanth, Indian Polity (6th edn. 2019)

judiciary's role in public affairs. Justice Iyer stated, Law is a social auditor, and only someone with the public interest can ignite this."[6]

During the beginning of the 1990s, the Indian judiciary started to oversee investigations into crimes affecting the wealthy and important segments of society. Due to a lack of trust in national investigative organizations that include the CBI, "the Supreme Court of India has decided to take on a supervisory role in various corruption cases involving people who believe they are the law of the land. The Supreme Court's ruling in the Jain Hawala case was a historic event in this regard. In the Jain hawala case, some of that the nation's senior MPs were accused of taking rewards from a money laundering agent who worked on a dairy farm. The Supreme Court then asked the CBI not to share any information regarding the case with the then-PMO, which was directed by Prime Minister P.V. Narashimha Rao. Only until the Supreme Court entered in 2009 did the CBI launch its investigation into the 2G telecom crisis, which resulted in the conviction of the Telecommunications Minister and other employees.[7]

2. JUDICIAL ACTIVISM VS JUDICIAL RESTRAINT

The difference between "judicial activism" ("loose constructionist") and "judicial restraint" ("strict constructionist"). These are techniques of interpreting the Constitution. A hard constructionist judge may rule on cases by interpreting the Constitution technically or depending on the framers' actual meaning. A judge whose work is a judicial activist can decide in broad strokes, taking into consideration and acknowledging the changes that have occurred since 1787. Judicial activity and restrictions by the judiciary are diametrically opposed approaches. The Supreme Court activism and judicial restraint, both are especially important in the United States, are connected to a country's court system and operate as a Check for inappropriate use of administrative or legislative power under the constitution. These approaches are closely linked to nation' court system.

1. Judicial activism refers to the application of the constitution to advance contemporary opinions and circumstances. Conversely, judicial restraint restricts judges' capacity to overturn legislation.
2. Under judicial constraint, the court ought to publish all activities by Parliament and state legislatures until they breach the country's constitution.
3. In regards to judicial restraint and judicial activism, judiciary must utilize their authority to rectify unfairnesses, particularly when other constitutional authorities do not take action. This implies that judicial activism is critical in shaping social policy on issues involving individual rights safeguards, civil rights, moral standard, and political injustice.
4. Both Judicial activism and judicial restraint serve separate purposes.[8]

3. PROMINENT CASES ON JUDICIAL ACTIVISM

The era of judicial activism, also known as PIL, "began with the case of S.P. Gupta v. Union of India,[9] which defined and established that any member of a public or social action group can use their right to submit a writ.

Not only has this been shown in previous instances, such as Sheela Barse v. the State of Maharashtra,[10] where the court treated the letter itself as a case, and the court used its jurisdiction to bring a suo moto action. We succeeded to get rights against violence against female inmates as a result of this litigation and the use of judicial activism.

Another notable case is Vishaka Singh v. the State of Rajasthan,[11] which, despite being a criminal case, prompted the court to develop the Vishakha Guidelines, which led to the court creation of "The Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act,2013." All of theseoutcome were result of judicial activism and the separation of powers, whereby the judiciary's independence drove the legislature to enact such legislation.

Custodial fatalities soared during the 1990s, yet no one has been held accountable. Because of this,in 1981 a PIL was filed in the case of Anil Yadav v. State of Bihar,[12] during which 33 suspected offenders has been blinded, based on a newspaper story. The hon'ble Supreme Court ordered the government to cover the costs of medical care.

In Golakh Nath v. State of Punjab (1967)[13], the Supreme Court declared that the basic rights in Part III of the Indian Constitution could not be amended, despite the fact that Article 368 simply needed a majority of two-thirds in both Houses of Parliament. In Keshavanand Bharti v. State of Kerala,[14] a 13-judge the hon'ble supreme court panel overruled the Golakh Nath decision while stating that the Constitution's essential foundation could not be amended. Despite later attempts to clarify what 'fundamental structure' means, the definition remains vague. It is worthwhile noting, nonetheless, that Article 368 contains no mention of the core structure remaining unaltered. As consequence, the ruling

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[6]M.M. Semwal & Sunil Khosla, 'Judicial Activism' (2008) 69 (1) TIJPS
[7]Social Work Education, "Module 27: Public Action and Judicial Activism in India"
https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000032S W/P001730/M021712/ET/15016519121-Module27PublicActionandJudicialActivisim accessed 15 January 2024.
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[9]S.P. Gupta v. Union of India [1982] SC 149
[10]Sheela Barse v. State of Maharashtra [1983] SC 378
[11]Vishakha and other v. State of Rajasthan [1997] SC 3011.
[12]Anil Yadav and Ors. v. State of Bihar [1991] (39) BLJR 1290
[13]Golakh Nath v. State of Punjab [1967] SC 1643
[14]Keshavanand Bharti v. State of Kerala [1973] SC 1461

essentially modifies Article 368.A substantial number of Indian Supreme Court judgments whereby it has taken an active role are linked to the 21st articles of the Indian Constitution, thus we will address it individually.

As a result of the judiciary's activist role, the Supreme Court helped shape progressive laws including the Right to Food, the Right to Education, and the Right to Information. Judicial activism has provided birth to a new type of social action in India. The Supreme Court's role in the 2G the spectrum and mining block usage fraud, as well as the landmark National Food Security Act 2013's instruction to states to provide midday meals to schoolchildren, are examples of how the Indian judiciary has stepped outside of its customary duty of interpreting laws and stood up to injustice."[15]In National Legal Services Authority v. Union of India (2014) the Supreme Court recognized the right to self-identify one's gender. It led to enacting the Transgender Persons (Protection of Rights) Act, 2019.[16]

4. CAUSE FOR THE RISE IN JUDICIAL ACTIVISM

"Dr. B.L. Wadehra addressed the many reasons for judicial activism. There was a time when people respected the Constitution and government. There appeared to be a legislative vacuum, which meant that no laws or regulations existed. In such circumstances, judicial activism was just one option. Judicial activism has helped to promote public-interest lawsuits and liberalize the 'locus standi' premise.

We understand that our nation has a system of checks and balances structure in place, enabling the three organs to operate independently while keeping them answerable to one another. It guarantees that no organ dominates others and exercises its power without restraint. The judiciary is responsible for interpreting laws made by the legislative body and to make sure no unconstitutional legislation are approved."[17]

Judicial activism reflects the following trends:
(i) Expanding administrative hearing privileges.
(ii)Excessive delegation with no restrictions.
(i) Increased judicial monitoring of discretionary powers.
(ii) Increased judicial scrutiny over the government.
(iii) Promoting open government.
(iv)Inconsistent application of the contempt authority.

5. JUDICIAL ACTIVISM IS OUR DUTY AGAINST LEGISLATIVE ADVENTURISM

In an atmosphere of anxiety produced by the president and legislature's jabs at judicial activism, a sitting Supreme Court justice said that judges had a sacred duty to limit "legislative adventurism and executive excesses."
Justice Kurian Joseph underlined the need of judicial activism in the midst of a low-intensity struggle between the judiciary, legislative, and government over a range of topics, especially the National Judicial Appointments Commission statute and the long-stalled Judicial Integrity and Accountability Bill.[18]

6. HERE ARE SOME IMPORTANT FEATURES OF JUDICIAL ACTIVISM IN ESTABLISHING CONSTITUTIONAL LAW IN INDIA

6.1 Expanding Fundamental Rights
Judicial activism has been critical in broadening the scope of fundamental rights protected by the Indian constitution. The judiciary has acknowledged additional rights and freedoms through progressive interpretations that, while not specifically stated, are considered fundamental in the constitutional framework. "In Sunil Batra v. Delhi Administration,[19] the Court declared that a writ of habeas corpus can be issued not only to liberate a person from unlawful incarceration, but also to protect detainees from barbarous and inhumane treatment."

6.2 Public Interest Litigation (PIL)
Judicial activism in India is directly linked to the emergence of Public Interest Litigation. The judiciary has permitted people or groups to approach the courts on behalf of those who are unable to do so themselves, therefore addressing matters of public concern. This has been an effective tool for achieving social justice and enforcing accountability. The Court has issued detailed recommendations to combat "Sexual harassment of women at work (Delhi Democratic Working Women's Forum v. Union of India,[20] Vishaka v. State of Rajasthan).[21] The Supreme Court has also issued detailed guidelines for the safeguarding of female prostitutes and their kids Gaurav Jain v. Union of India."[22]

6.3 Protecting Minority Rights
The judiciary has played a critical role in defending minorities' rights in India. The courts have defended the principle of equality and non-discrimination in several decisions, ensuring that minority communities are not denied their constitutional rights.

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[20]Delhi Democratic Working Women's Forum v. Union of India, [1995] 1 SCC 14;
[21] Vishaka v. State of Rajasthan). [1997] SC 3014).
[22]Gaurav Jain v. Union of India [1997] SC 3021).

Even though the legislature had been interested in releasing the Shudras and members of lower castes from different kinds of discrimination and racial prejudice, and while the necessary legislation was prepared to accomplish this goal,[23] it was unable to be understood because of inadequate execution and the executive's lax attitude. At this moment, the judiciary played an active role in establishing Dalit laws to put an end to the Dalits' dire circumstances. The Supreme Court has provided various verdicts to enhance Dalits and their status on a level playing field in society among the other castes. State of Kerela v. N.M.Thomas[24]

6.4 Environmental Protection
Judicial activism has been prevalent in environmental issues. The judiciary has taken a proactive role in resolving environmental challenges, establishing norms and laws to safeguard the environment and promote sustainable development. "the Bhopal Gas Tragedy by including pro-environmental measures in the Constitution and declaring the right to preserve the environment as a fundamental right protected by Article 21 of the Constitution of India."

6.5 Checking Executive and Legislative Actions
The judiciary serves as a check on the acts of the legislative and executive branches by ensuring that they follow constitutional norms. This includes evaluating laws and practices to ensure they do not infringe fundamental rights or the Constitution's core framework.[25]

6.6 Judicial Review
The judiciary can assess the legality of laws and executive actions. The judiciary has used this power to overturn laws that violate constitutional restrictions.

6.7 Dynamic Interpretation
Judicial activism entails a dynamic and growing interpretation of the Constitution to address society's changing demands. The judiciary applies constitutional ideas to contemporary issues, ensuring that the Constitution remains relevant and applicable in various contexts. In "Keshvanand Bharati v. State of Kerala,[26] the judiciary changed its stance and produced new interpretations of laws based on the ideals of humanity, morality, reason, fairness, liberty, and restraint, in addition to the wholesome spirit of the constitution."

6.8 Global Influence
The Indian judiciary's activism has also been impacted by international legal ideas and precedents. Judges frequently rely on foreign legal norms and rulings to shape their interpretation of constitutional provisions.

6.9 Political Reforms
The judiciary has made significant political reforms, such as electoral reforms, disqualifying politicians with criminal records, and decriminalizing certain political activity.

7. ARGUMENTS OPPOSING JUDICIAL ACTIVISM
1. Opposition of judicial activism claim that activist judges write laws rather than interpreting them," which go against their power as outlined the Constitution. They contend that the question is not how social issues need to be addressed, but rather whether the courts need to be engaged. Critics of judicial activism argue that by choosing how to handle prisons or schools, the courts are taking on powers that only be exercised solely by the legislative and executive branches of government.
2. Criticism of judicial activism assert that judges lack the required abilities to manage complex obligations such as managing prisons, controlling schools, and making employment decisions for firms. Judges are not social workers, but rather legal experts.[27]
3. Those opposed of judicial activism use the fundamental rights of the division of powers and federalism to justify judicial restraint. Arguments in favor of judicial activism. Followers of judicial activism argue that it is necessary to rectify injustice and bring about significant societal advances.
4. Supporters of judicial activism claim that courts routinely intervene when governors and state legislatures refuse to solve an issued.
5. Judicial activists argue that courts do not make policy, but legislators do. However as judges construe the law, they inevitably affect policy. They also think that courts have responsibility for implementing the law.
6. Lastly, judicial activists argue that the framers of the Constitution intended for courts to constantly construe the Constitution in response to changing circumstances."[28]

8.CONCLUSION
Finally, judicial activism has played a key and revolutionary role in establishing India's constitutional law. The judiciary's

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[23]Saha, Arpita, Judicial Activism in India: A Necessary Evil (July 8, 2008). Available at
SSRN: https://ssrn.com/abstract=1156979 or http://dx.doi.org/10.2139/ssrn.1156979
[24]State of Kerela v. N.M.Thomas [1976] SC 490;
[25]S. C. Kashyap, "Judiciary-Legislature Interface", Subhash C. Kashyap (ed.), Judicial Activism and Lokpal, UppalPublishing House, New Delhi, 1997, pp. 60-76, at p.71.

[26]Keshvanand Bharati v. State of Kerala [1973] SC 1641,
[27]Kamalnath Nayak. Judicial Activism Vs. Judicial Restraint : Judicial Review. Int. J. Rev. and Res. Social Sci. 4(2): April - June, 2016; Page 107-111.
[28] Kamal nath nayak, "Judicial Activism Vs. Judicial Restraint : Judicial Review "http://www.answes.com/topic/judicial-activism-and-judicial-restraint#iXZZ1jjWnDZXU

aggressive interpretation of the Constitution has resulted in important advances in several areas of Indian law. By broadening the scope of fundamental rights, instituting mechanisms such as Public Interest Litigation (PIL), and focusing on pressing social issues, the court has played an important role in adapting constitutional values to society's evolving requirements.

Judicial activism has shown to be particularly effective in promoting environmental protection, human rights, and social justice. The judiciary's interventions have frequently served as a spur for legislative and executive action, ensuring that constitutional ideals are not just inscribed on paper but actively implemented for the benefit of citizens.

Nonetheless, judicial activism has significantly contributed to the durability and versatility of India's constitutional system. As the country evolves, the judiciary's role as a custodian of constitutional values is expected to remain critical in developing the legal landscape and protecting individuals' rights. The ongoing interplay between activism and restraint shall continue to define the judiciary's role in establishing Indian constitutional law.

ORGANIZATIONAL CLIMATE AND ORGANIZATIONAL COMMUNICATION OF THE STUDENT LEADERS AT ONE UNIVERSITY IN THE PROVINCE OF LAGUNA

MaryJane D. Fuentes, DPA
Laguna State Polytechnic University

ABSTRACT

As the main purpose of this study is to observed the organizational climate of the student organizations and the commitment of the student leaders in the realization of the organization at Laguna State Polytechnic University- Santa Cruz Campus goal and objectives. This study utilized the quantitative research method, which is collecting and analyzing numerical data. Moreover, it also used a purposive process of gathering, analyzing, classifying, and tabulating data about prevailing conditions, practices, beliefs, processes, trends, and cause-effect relationships and then making an adequate and accurate interpretation of such data with or without the aid of statistical methods (Calderon and Gonzales, 2014). A purposive sampling technique is a non-probability sample that is selected based on the characteristics of a population and the objective of the study. Purposive sampling is also known as judgmental, selective, or subjective sampling. Ninety (90) elected student leaders in different organizations are the respondents of the study at the Laguna State Polytechnic University-Santa Cruz Campus. The findings of the study revealed, that the Quality Service attained the highest among the student leaders and was as shown by the weighted mean of 5.82 with overall standard deviation of 0.19 in the Organization Climate. In the Status of Organizational Commitment, Affective Commitment it denotes that the respondents strongly agree that they are willing to put in a great deal of effort beyond what is normally expected in order to help their organization to be successful, as evident by the highest mean (M=5.88; SD=0.11).

KEY WORDS: *Organizational Climate, Organizational Commitment, Student Leaders*

INTRODUCTION

The organizational climate within student leaders constitutes the prevailing atmosphere, values, and norms that shape the collective experience of its members. It encompasses the emotional tone, inclusivity, and overall well-being of the organization. Understanding the organizational climate is crucial, as it directly influences the motivation, engagement, and satisfaction levels of student leaders, ultimately impacting the effectiveness and longevity of the organization itself. Student organizations allow students to not only get involved with something they have a passion for but also meet others who share a similar interest. The engrossment in campus organizations segues into leadership roles, which offer students the opportunity to not only learn skills that will more than likely benefit them in their future careers but also to network and make connections they can lean on when trying to start a career (Burk, 2013). This means that students learn and develop their leadership skills as they perform their functions.

Research on organizational climate can be traced back to the 1930s. With the human relations movement pioneered by Hawthorne, researchers turned their attention from the "hard" physical environment to the "soft" psychological environment. Commitment is a very complex concept that reflects a variety of factors acting together. Everyone would agree that organizational commitment has become the buzzword of the day in daily working life. Though job satisfaction is one of the important factors in organizational commitment, Meyer and Parfyonova (2010) note that there is an interesting paradox in the modern workforce. Now it is even more important than

before for the organizations to have a committed workforce to gain a competitive advantage, but they still conduct many processes, like downsizing and mergers, which have the possibility of decreasing commitment. Meyer & Parfyonova (2010)

Organizational communication, on the other hand, serves as the lifeblood of student leadership. Effective communication channels and strategies are paramount for conveying organizational goals, disseminating information, and fostering collaboration among team members. The ability of student leaders to communicate clearly, transparently, and empathetically plays a pivotal role in establishing trust, promoting cohesion, and mitigating conflicts within the organizational framework.

The intersection between organizational climate and organizational communication within student-led entities presents a dynamic and symbiotic relationship. A positive organizational climate, characterized by a sense of belonging, mutual respect, and shared purpose, enhances the receptivity of organizational communication efforts. Conversely, effective communication practices contribute to the creation and maintenance of a favorable organizational climate, as open lines of dialogue facilitate the resolution of conflicts and the cultivation of a supportive a collaborative environment.

The student organizations at Laguna State Polytechnic University- Santa Cruz Campus contemplate with the student leaders how to deliver quality services to the students. Student leaders' decisions may be influenced by the organizational

climate and commitment to the organization. Prior researchers concentrated on the leadership style of the students and their performance, organizational climate, and commitment in some other areas. However, little is known about the relationship between organizational climate and the organizational commitment of student leaders.

METHODOLOGY

This study utilized the descriptive methods of research. A descriptive study, as described by Best (1989), is the type of research concerned with describing existing conditions and relations, clear effects, opinions held, and developing trends. It is concerned with the present, although it does not disconnect both the events and influences of the past in relation to the present.

A purposive sampling technique is a non-probability sample that is selected based on the characteristics of a population and the objective of the study. Purposive sampling is also known as judgmental, selective, or subjective sampling. Ninety (90) elected student leaders in different organizations are the respondents of the study at the Laguna State Polytechnic University-Santa Cruz Campus.

The researcher administered a questionnaire checklist as an instrument for collecting data. This questionnaire checklist was composed of questions regarding the organizational climate and organizational communication of the student leaders at One University in the province of Laguna. The first part of the questionnaire deals with the organizational climate in terms of role clarity, reward system, growth and development, teamwork and support, and quality of service. And the second part will define commitment in lieu of affective, normative, and continuance. This study used mean, standard deviation, and simple correlation analysis for the data.

RESULTS AND DISCUSSION

The status of organizational climate in terms of role clarity, reward system, teamwork and support, quality of service, and communication were presented in tables and treated statistically using mean and standard deviation.

The number of variables that influence status of organizational climate in terms of role clarity as revealed by the student leaders strongly agree that I have clear goals and objectives for my position (WM= 5.83, SD= 0.14). I know what my responsibilities are attained (WD= 5.93, SD= 0.06), I know what is expected from me as a student leader. (WD= 5.81, SD= 0.20) I know most of what leaders do in the organization. (WD= 5.73, SD= 0.22), all of which are interpreted strongly agree with Organizational Climate in terms of Role Clarity.

Scale	Range	Remarks	Verbal Interpretation
6	5.15 – 6.00	Strongly Agree	Excellent
5	4.32 – 5.14	Agree	Above Average
4	3.49 – 4.31	Slightly Agree	Average
3	2.66 – 3.48	Slightly Disagree	Below Average
2	1.83 – 2.65	Disagree	Poor
1	1.00 – 1.82	Strongly Disagree	Very Poor

Table 1. Status of Organizational Climate in terms of Role Clarity

Statements	Mean	SD	Remarks
1. I have clear goals and objectives for my position.	5.83	0.14	Strongly Agree
2. I know what my responsibilities are.	5.93	0.06	Strongly Agree
3. I know what is expected from me as a student leader.	5.81	0.20	Strongly Agree
4. I know most of what leaders do in the organization.	5.73	0.22	Strongly Agree
5. Working in a student organization makes the best use of student's experience.	5.81	0.22	Strongly Agree
Weighted Mean	**5.82**	**0.17**	
Verbal Interpretation	**Excellent**		

Table 1 shows that the student leaders strongly agree on knowing their own responsibilities as evident on the highest mean (M=5.93; SD=0.06). They also strongly agree that they have clear goals and objectives for the position assigned to them (M=5.83; SD=0.14). Likewise, they clearly know what most of the leaders do in their organization (M=5.73; SD=0.22).

The status of organizational climate in terms of role clarity is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.82 with overall standard deviation of 0.17.

Table 2. Status of Organizational Climate in terms of Reward System

	Statements	Mean	SD	Remarks
1.	Good work is recognized appropriately.	5.70	0.30	Strongly Agree
2.	Work that is not of the highest importance is dealt with appropriately.	5.58	0.43	Strongly Agree
3.	In general, people are adequately rewarded in this organization.	5.56	0.59	Strongly Agree
4.	I received perks and privilege.	5.14	1.27	Agree
5.	I feel a strong sense of work satisfaction.	5.69	0.37	Strongly Agree
Weighted Mean		**5.53**	**0.59**	
Verbal Interpretation		**Excellent**		

As to the extent of factors influencing the status of organizational climate in terms of the reward system, Among the statements above, "Good work is recognized appropriately" (M = 5.70; SD = 0.30). followed by "Work that is not of the highest importance is dealt with appropriately" (M = 5.58; SD = 0.43). Next is "In general, people are adequately rewarded in this organization" (M = 5.56; SD = 0.59). On the other hand, "I received perks and privileges" (M = 5.14; SD = 1.27). And, "I feel a strong sense of work satisfaction" (M = 5.69; SD = 0.37).

Table 2 illustrates that the respondents strongly agree that their organization recognize their good work appropriately, as evident by the highest mean (M=5.70; SD=0.30). They also strongly agree that they a strong sense of work satisfaction on their organization (M=5.69; SD=0.37). Yet, they only agree that they received perks and privilege as shown by the lowest mean (M=5.14; SD=1.27).

The status of organizational climate in terms of reward system is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.53 with overall standard deviation of 0.59.

Table 3. Status of Organizational Climate in terms of Teamwork and Support

	Statements	Mean	SD	Remarks
1.	The organization that I am in collaborates well with other organizations.	5.76	0.25	Strongly Agree
2.	Student leaders constantly supports each other.	5.80	0.25	Strongly Agree
3.	There is rarely too much work and too	5.37	0.98	Strongly Agree
4.	I usually do not have to put in long hours to complete my work.	5.19	1.05	Strongly Agree
5.	In general, there is caring and cooperation in the organization.	5.38	0.92	Strongly Agree
Weighted Mean		**5.38**	**0.69**	
Verbal Interpretation		**Excellent**		

From the statements above, it is seen that the organization that I am in collaborate well with other organizations obtained a weighted mean of (M=5.76; SD=0.25). Next is the student leaders constantly supports each other. (M=5.80; SD=0.25). There is rarely too much work and too little time. (M=5.37; SD=0.98). I usually do not have to put in long hours to complete my work. (M=5.19; SD=1.05). Lastly, in general, there is caring and cooperation in the organization. (M=5.38; SD=0.92).

Table 3 points out that the respondents strongly agree that their student leaders constantly support each other, as evident by the highest mean (M=5.80; SD=0.25). They also strongly agree that their organization collaborates well with other organizations (M=5.76; SD=0.25). Similarly, they strongly agree that they usually do not have to put in long hours to complete their assigned work (M=5.19; SD=1.05).

The status of organizational climate in terms of teamwork and support is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.38 with overall standard deviation of 0.69.

Table 4. Status of Organizational Climate in terms of Quality of Service

Statements	Mean	SD	Remarks
1. When it comes to the provision of our services, we do our best.	5.88	0.11	Strongly Agree
2. We are proud of the quality of service our organization provides.	5.83	0.19	Strongly Agree
3. We secure high quality of service in our organization.	5.84	0.18	Strongly Agree
4. The quality of service in our organization is at par with the quality of service in other organization.	5.79	0.24	Strongly Agree
5. The quality service in our organization is at par if not higher than those of another student organization in other campuses.	5.73	0.27	Strongly Agree
Weighted Mean	**5.82**	**0.19**	
Verbal Interpretation	Excellent		

Table 4 portraits that the respondents strongly agree that they do their best when it comes to the provision of their services, as evident by the highest mean (M=5.88; SD=0.11). They also strongly agree that they secure high quality of service in their organization (M=5.84; SD=0.18). In relation to this, they strongly agree that the quality service provided by their organization is at par if not higher than those of other student organization in other campuses (M=5.73; SD=0.27).

The status of organizational climate in terms of quality of service is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.82 with overall standard deviation of 0.19.

Table 5. Status of Organizational Climate in terms of Communication

Statements	Mean	SD	Remarks
1. I receive all the information I need to carry out my position.	5.71	0.30	Strongly Agree
2. I am kept adequately informed about significant issues in the organization as a whole.	5.70	0.26	Strongly Agree
3. I understand clearly how I can contribute to the organization.	5.83	0.16	Strongly Agree
4. The organization that I am in works well with other organizations.	5.81	0.20	Strongly Agree
5. The organization that I am in works well with other organizations in other colleges.	5.72	0.32	Strongly Agree
Weighted Mean	**5.76**	**0.25**	
Verbal Interpretation	Excellent		

Table 5 indicates that the respondents strongly agree that they understand clearly how they can contribute to their organization, as evident by the highest mean (M=5.83; SD=0.16). They also strongly agree that their organization works well with other organizations (M=5.81; SD=0.20). In addition, they strongly agree that they kept adequately informed about significant issues in their organization as a whole (M=5.70; SD=0.26).

The status of organizational climate in terms of communication is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.76 with overall standard deviation of 0.25.

Status of Organizational Commitment
The status of organizational climate in terms of affective commitment, normative commitment, and continuance commitment were presented in tables and treated statistically using mean and standard deviation.

The second part will define commitment in lieu of affective, normative, and continuance.

Table 6. Status of Organizational Climate in terms of Affective Commitment

	Statements	Mean	SD	Remarks
1.	I am willing to put in a great deal of effort beyond what is normally expected in order to help this organization to be successful.	5.88	0.11	Strongly Agree
2.	I am proud to tell others that I am part of this organization.	5.82	0.24	Strongly Agree
3.	This organization really inspires the very best in me in the way of service performance.	5.84	0.16	Strongly Agree
4.	I am extremely glad that I chose this organization to serve for over others I was considering at the time I joined.	5.84	0.22	Strongly Agree
5.	Most often than not, I always agree with the organization's policies on important matters relating to its members.	5.58	0.81	Strongly Agree
Weighted Mean		**5.79**	**0.31**	
Verbal Interpretation		**Excellent**		

Table 6 denotes that the respondents strongly agree that they are willing to put in a great deal of effort beyond what is normally expected in order to help their organization to be successful, as evident by the highest mean (M=5.88; SD=0.11). They also strongly agree that their organization really inspires the very best in them in the way of service performance (M=5.84; SD=0.16) and they are extremely glad that they chose their organization to serve for over others during the time they were considering which one to join (M=5.84; SD=0.22). Likewise, they strongly agree that they always approve the organization's policies on important matters relating to its members (M=5.58; SD=0.81).

The status of organizational climate in terms of affective commitment is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.79 with overall standard deviation of 0.31.

Table 7 displays that the respondents strongly agree that their organization really cares for the welfare of other students, as evident by the highest mean (M=5.80; SD=0.31). They also strongly agree that their values and the organization's values are very similar (M=5.56; SD=0.41).

Table 7. Status of Organizational Climate in terms of Normative Commitment

	Statements	Mean	SD	Remarks
1.	There are too much to be gained by sticking to this organization.	5.29	0.88	Strongly Agree
2.	I find that my values and the organization's values are very similar.	5.56	0.41	Strongly Agree
3.	It would take a lot of changes in my present situation to cause me to leave this organization.	5.34	0.99	Strongly Agree
4.	The organization really cares for the welfare of other students.	5.80	0.30	Strongly Agree
5.	I view the organization's problem as my own.	5.31	1.21	Strongly Agree
Weighted Mean		**5.46**	**0.76**	

The status of organizational climate in terms of normative commitment is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.46 with overall standard deviation of 0.76.

In the statements below it is seen that, I have few options to consider leaving the organization. (M=5.47; SD=0.68), next is,

I stay in my work as a matter of need. (M=5.24; SD=1.29). I continue working with this organization because leaving would require considerable personal sacrifice. (M=5.40; SD=0.76). I continue giving my service to the organization because another organization may not match the overall benefits that I have here. (M=4.96; SD=1.91). Lastly, I would find it hard to leave my work even if I wanted to. ((M=5.33; SD=0.94)

Table 8. Status of Organizational Climate in terms of Continuance Commitment

Statements	Mean	SD	Remarks
1. I have few options to consider leaving the organization.	5.47	0.68	Strongly Agree
2. I stay in my work as a matter of need.	5.24	1.29	Strongly Agree
3. I continue working with this organization because leaving would require considerable personal sacrifice.	5.40	0.76	Strongly Agree
4. I continue giving my service to the organization because another organization may not match the overall benefits that I have here.	4.96	1.91	Agree
5. I would find it hard to leave my work even if I wanted to.	5.33	0.94	Strongly Agree
Weighted Mean	**5.28**	**1.12**	
Verbal Interpretation	**Excellent**		

Table 8 establishes that the respondents strongly agree that they have few options to consider leaving their organization, as evident by the highest mean (M=5.47; SD=0.68). They also strongly agree that they continue working with their organization because leaving would require considerable personal sacrifice (M=5.40; SD=0.76). Lastly, they only agree that they continue giving their service to the organization because another organization may not match the overall benefits that they have there (M=4.96; SD=1.91).

The status of organizational climate in terms of continuance commitment is presented to be **"Excellent"** among the respondents as shown by the weighted mean of 5.28 with overall standard deviation of 1.12.

CONCLUSIONS AND RECOMMENDATIONS
Based on the findings and this study, the following conclusions were drawn. Reward System was found to have the lowest weighted mean and standard deviation and have shown by the weighted mean of 5.53 with overall standard deviation of 0.59 in the status of the organizational climate. On the other hand, Teamwork support gained a weighted mean of 5.38 with overall standard deviation of 0.69. In terms of Communication, was found to have a weighted mean of 5.76 with overall standard deviation of 0.25. Next was Role Clarity presented to be "Excellent" among the respondents as shown by the weighted mean of 5.82 with overall standard deviation of 0.17. Lastly, Quality Service attained the highest among the student leaders and was as shown by the weighted mean of 5.82 with overall standard deviation of 0.19 in the Organization Climate. In the Status of Organizational Commitment, continuance commitment is presented to be lowest among the respondents as shown by the weighted mean of 5.28 with overall standard deviation of 1.12. Next, is the normative commitment is presented to be "Excellent" among the respondents as shown by the weighted mean of 5.46 with overall standard deviation of 0.76. Lastly, in terms of Affective Commitment it denotes that the respondents strongly agree that they are willing to put in a great deal of effort beyond what is normally expected in order to help their organization to be successful, as evident by the highest mean (M=5.88; SD=0.11). They also strongly agree that their organization really inspires the very best in them in the way of service performance (M=5.84; SD=0.16) and they are extremely glad that they chose their organization to serve for over others during the time they were considering which one to join (M=5.84; SD=0.22). Likewise, they strongly agree that they always approve the organization's policies on important matters relating to its members (M=5.58; SD=0.81). The status of organizational climate in terms of affective commitment is presented to be "Excellent" among the respondents as shown by the weighted mean of 5.79 with overall standard deviation of 0.31.

Given that the reward system was found to have the lowest weighted mean and standard deviation in the status of the organizational climate. Researchers must identify the leading factors that affect the reward system and seek different incentive schemes to motivate and encourage student leaders to perform better. Some recommendations were drawn the organization may determine the forces that contribute to this and look into strategies for maintenance or enhancement and also may recognize and reward student leaders for their efforts to maintain high levels of affective commitment. Furthermore, explore ways to maintain or increase the level of commitment that student leaders contribute to the organization's success.

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ACCREDITATION AND INNOVATION IN NURSING EDUCATION: BALANCING TRADITION WITH PROGRESS

Dr. Selliamma Kuruvila[1]

[1]Principal, Mar Baselios College of Nursing, Kothamangalam P.O., Thankalam-686691.

ABSTRACT

As nursing education evolves to meet the demands of a rapidly changing healthcare landscape, the role of accreditation in fostering innovation becomes increasingly significant. This review article explores the delicate balance between tradition and progress in nursing education, with a focus on the impact of accreditation. While tradition forms the foundation of nursing education, innovation is essential for preparing nurses to thrive in dynamic healthcare environments. Accreditation frameworks provide a framework for maintaining standards while encouraging innovation in curriculum development, teaching methods, and technology integration. By embracing innovation within the context of accreditation, nursing education programs can adapt to emerging trends, leverage new technologies, and ultimately better prepare nurses to meet the evolving needs of patients and communities.

KEYWORDS: *Accreditation, Innovation, Nursing Education, Traditional Teaching Methods, Technology Integration, Curriculum Development*

INTRODUCTION

Nursing education stands at a critical juncture, where tradition meets the imperative for progress. Rooted in time-honored principles and practices, nursing education has long relied on established methods to prepare students for the demands of clinical practice. However, the ever-evolving healthcare landscape, characterized by technological advancements, shifting demographics, and complex care needs, necessitates a paradigm shift in how nurses are educated and trained. This transition calls for innovation—innovation that embraces new pedagogies, leverages emerging technologies, and fosters creativity and adaptability among future nursing professionals.

At the heart of this evolution lies the accreditation process, a cornerstone of quality assurance and continuous improvement in nursing education. Accreditation frameworks, established by respected organizations such as the Commission on Collegiate Nursing Education (CCNE) and the Accreditation Commission for Education in Nursing (ACEN), provide a roadmap for maintaining standards while encouraging innovation. By ensuring that nursing programs meet rigorous criteria while remaining flexible enough to adapt to changing needs, accreditation serves as a catalyst for progress in nursing education.

The tension between tradition and progress in nursing education is palpable. On one hand, tradition serves as a bedrock, anchoring nursing education in time-tested values and practices. Lecture-based instruction, hands-on clinical experiences, and apprenticeship models have long been central to nursing education, imparting essential knowledge and skills to aspiring nurses. Yet, on the other hand, the rapid pace of technological innovation, evolving healthcare policies, and emerging models of care delivery demand a reimagining of nursing education—a departure from convention in favor of forward-thinking approaches that prepare nurses to thrive in a complex and dynamic healthcare environment.

This review article seeks to explore the delicate balance between tradition and progress in nursing education, with a specific focus on the role of accreditation in fostering innovation. By examining the challenges and opportunities inherent in this balancing act, we aim to provide insights into how nursing education programs can navigate this transformative journey. Through a synthesis of scholarly literature, case studies, and best practices, we will elucidate the ways in which accreditation can serve as a catalyst for innovation in nursing education, ultimately preparing nurses to meet the evolving needs of patients and communities in the 21st century.

In the following sections, we will delve into the role of tradition in nursing education, highlighting its enduring significance and the challenges it poses to innovation. We will then explore the imperative for innovation in nursing education, examining the forces driving change and the opportunities it presents for preparing nurses for contemporary practice. Subsequently, we will discuss how accreditation frameworks provide a framework for maintaining standards while fostering innovation, drawing upon examples of innovative practices within accredited nursing programs. Finally, we will conclude with reflections on the challenges and opportunities inherent in balancing tradition with progress in nursing education, offering insights into how nursing education programs can embrace innovation within the context of accreditation to shape the future of nursing practice.

THE ROLE OF TRADITION IN NURSING EDUCATION

Tradition forms the foundation of nursing education, encompassing core principles, values, and practices that have stood the test of time. Traditional teaching methods, such as lectures, clinical rotations, and hands-on skills training, have long been central to nursing education. These methods provide

students with essential knowledge and skills while instilling professional values and ethics. While tradition is valuable, it can also be a barrier to innovation if educators are resistant to change or hesitant to depart from established practices.

Tradition holds a pivotal role in nursing education, serving as the bedrock upon which the profession has been built. Nursing, as a discipline, has long been grounded in foundational principles, values, and practices that have been passed down through generations. These traditions encompass not only the practical skills and clinical knowledge essential for nursing practice but also the ethical principles and professional values that guide nurses in their interactions with patients, families, and communities.

1. **Foundational Principles:** At the core of nursing tradition are foundational principles such as holistic care, patient advocacy, and evidence-based practice. These principles serve as guiding lights for nursing education, shaping curriculum development, instructional strategies, and clinical experiences. Traditional nursing education emphasizes the importance of understanding the whole patient, including their physical, emotional, and spiritual needs, and equips students with the skills to provide comprehensive care.

2. **Values and Ethics:** Nursing tradition places a strong emphasis on professional values and ethics, including compassion, integrity, and respect for human dignity. These values are instilled in nursing students from the very beginning of their education and are reinforced throughout their training. Traditional teaching methods, such as role modeling by faculty and clinical preceptors, help students internalize these values and develop the moral compass necessary for ethical decision-making in practice.

3. **Clinical Competence:** Traditional nursing education prioritizes the development of clinical competence through hands-on experience and direct patient care. Clinical rotations in various healthcare settings, under the guidance of experienced nurses and clinical instructors, provide students with opportunities to apply theoretical knowledge in real-world scenarios. These clinical experiences not only build students' confidence and competence but also help them develop critical thinking skills and clinical judgment.

4. **Historical Context:** Understanding the historical context of nursing is another essential aspect of tradition in nursing education. Students learn about the contributions of nursing pioneers, such as Florence Nightingale and Clara Barton, and the evolution of nursing as a profession over time. By studying nursing history, students gain a deeper appreciation for the profession's roots and an understanding of the social, cultural, and political factors that have shaped nursing practice and education.

Despite the enduring importance of tradition in nursing education, it is essential to recognize that traditions can also present challenges. Traditional teaching methods, while effective in many respects, may not always align with the needs and preferences of contemporary learners or the demands of modern healthcare practice. Moreover, rigid adherence to tradition can stifle innovation and hinder efforts to adapt nursing education to evolving healthcare trends and technologies.

THE IMPERATIVE FOR INNOVATION IN NURSING EDUCATION

Innovation is essential for nursing education to keep pace with the evolving healthcare landscape. Emerging trends such as telehealth, precision medicine, and artificial intelligence are reshaping the way healthcare is delivered, requiring nurses to possess new knowledge and skills. Additionally, changing patient demographics, healthcare disparities, and public health crises underscore the need for nurses who are adaptable, creative, and forward-thinking. Innovation in nursing education involves reimagining curriculum design, embracing new teaching methodologies, and integrating technology into the learning environment.

Innovation in nursing education is no longer just an option; it has become an imperative in response to the rapidly evolving healthcare landscape. Several factors underscore the urgent need for innovation in nursing education:

1. **Advancements in Healthcare Technology:** The healthcare industry is experiencing a technological revolution, with innovations such as electronic health records (EHRs), telehealth, wearable devices, and artificial intelligence (AI) reshaping the way care is delivered. Nurses must be equipped with the knowledge and skills to effectively utilize these technologies to improve patient outcomes, enhance communication, and streamline workflows.

2. **Changing Patient Demographics and Healthcare Needs:** As populations age and chronic diseases become more prevalent, the healthcare needs of patients are becoming increasingly complex. Nurses must be prepared to care for diverse patient populations, including older adults, individuals with chronic conditions, and culturally diverse communities. Innovative educational approaches are needed to ensure that nursing students develop the cultural competence, critical thinking skills, and clinical judgment necessary to provide high-quality, patient-centered care.

3. **Public Health Challenges and Global Health Crises:** Public health challenges such as pandemics, infectious disease outbreaks, and natural disasters highlight the importance of a well-prepared nursing workforce. Nurses play a critical role in responding to public health emergencies, providing care to affected individuals, and promoting community health and safety. Innovative educational strategies are essential for preparing nurses to effectively respond to emerging public health threats and address population health issues.

4. **Emerging Healthcare Delivery Models:** The shift towards value-based care, population health management, and interdisciplinary care teams is transforming the way healthcare is delivered and financed. Nurses must be prepared to collaborate with other healthcare professionals, navigate complex care delivery systems, and advocate for patients within

evolving healthcare policies and regulations. Innovative educational approaches are needed to prepare nurses for leadership roles, care coordination responsibilities, and quality improvement initiatives in diverse healthcare settings.

5. **Professional Development and Lifelong Learning:** Nursing is a dynamic and rapidly evolving profession that requires ongoing professional development and lifelong learning. Nurses must stay abreast of advances in evidence-based practice, clinical guidelines, and healthcare technologies to provide safe, effective, and compassionate care. Innovative educational strategies, such as online learning platforms, simulation-based training, and competency-based assessments, can facilitate lifelong learning and professional growth among nurses at all stages of their careers.

ACCREDITATION AS A CATALYST FOR INNOVATION

Accreditation frameworks provide a structure for nursing education programs to maintain standards while fostering innovation. Accrediting bodies recognize the importance of innovation in preparing nurses for contemporary practice and encourage programs to embrace new approaches to teaching and learning. Accreditation standards often include flexibility and adaptability criteria that allow programs to experiment with innovative practices while ensuring accountability and quality. Accreditation site visits provide opportunities for programs to showcase innovative initiatives and receive feedback from peer evaluators.

Accreditation serves as a catalyst for innovation in nursing education by providing a structured framework within which programs can maintain standards while simultaneously fostering progress and creativity. Accrediting bodies, such as the Accreditation Commission for Education in Nursing (ACEN) and the Commission on Collegiate Nursing Education (CCNE), recognize the dynamic nature of healthcare and the evolving role of nurses within it. As such, they encourage nursing education programs to embrace innovative practices that prepare graduates to meet the demands of contemporary healthcare settings.

One way in which accreditation promotes innovation is through its standards and criteria. Accreditation standards often include elements related to curriculum design, teaching methodologies, and technology integration. However, these standards are typically broad enough to allow for flexibility and adaptation to the unique needs and circumstances of individual programs. This flexibility enables programs to experiment with new approaches to teaching and learning while ensuring that they continue to meet established quality benchmarks.

Accreditation site visits represent another opportunity for innovation. During these visits, peer evaluators assess program compliance with accreditation standards and provide feedback and recommendations for improvement. Nursing education programs can use these visits as an opportunity to showcase innovative initiatives and demonstrate how they are meeting accreditation requirements in creative ways. Peer evaluators may offer insights and suggestions for further innovation, helping programs to refine and enhance their approaches to education.

Furthermore, accreditation bodies often provide resources and support to help nursing education programs innovate. This may include workshops, webinars, and other professional development opportunities focused on topics such as curriculum development, technology integration, and simulation-based education. By participating in these activities, nursing faculty and administrators can gain new knowledge and skills that enable them to incorporate innovative practices into their programs.

Innovation in nursing education can take many forms, from the adoption of new teaching methodologies to the development of interdisciplinary curricula. For example, some programs are integrating virtual reality simulations into their clinical education to provide students with immersive learning experiences. Others are implementing flipped classroom models, where students engage with course materials online before attending in-person classes for discussion and application. Interprofessional education initiatives, which bring together students from different healthcare disciplines to learn and work collaboratively, are also gaining traction in nursing education.

Overall, accreditation serves as a catalyst for innovation in nursing education by providing a framework for maintaining standards while encouraging programs to embrace new ideas and approaches. By leveraging accreditation as a driver of innovation, nursing education programs can adapt to emerging trends, leverage new technologies, and ultimately better prepare graduates to meet the evolving needs of patients and communities.

EXAMPLES OF INNOVATION IN NURSING EDUCATION

Several examples illustrate how nursing education programs are innovating within the context of accreditation. For instance, some programs are integrating virtual reality simulations into clinical education to enhance student learning and provide exposure to complex patient scenarios. Others are incorporating interprofessional education experiences to prepare students for collaborative practice in interdisciplinary healthcare teams. Additionally, flipped classroom models, gamification techniques, and mobile learning platforms are being used to engage students and promote active learning.

In recent years, nursing education has witnessed a surge in innovative approaches aimed at enhancing student learning outcomes, preparing graduates for contemporary healthcare practice, and meeting the evolving needs of patients and communities. Accreditation bodies recognize the importance of innovation in nursing education and encourage programs to explore new teaching methodologies, leverage emerging technologies, and embrace interdisciplinary collaboration. Several examples illustrate how nursing education programs are innovating within the context of accreditation:

1. **Virtual Reality Simulations:** Virtual reality (VR) simulations have emerged as a powerful tool for nursing education, providing students with immersive, interactive learning experiences in a safe and controlled environment. These simulations replicate real-world clinical scenarios, allowing students to practice clinical skills, decision-making, and critical thinking in a risk-free setting. VR simulations can be used to simulate a wide range of scenarios, from basic nursing procedures to complex patient emergencies. Nursing education programs are integrating VR simulations into their curricula to enhance student engagement, improve clinical competence, and bridge the gap between theory and practice.

2. **Interprofessional Education (IPE):**
   Interprofessional education (IPE) brings together students from multiple healthcare disciplines to learn collaboratively, fostering teamwork, communication, and mutual respect. Nursing education programs are increasingly incorporating IPE experiences into their curricula to prepare students for collaborative practice in interdisciplinary healthcare teams. These experiences may include joint classroom activities, simulated patient encounters, and clinical rotations in interprofessional settings. By working alongside students from other healthcare professions, nursing students gain valuable insights into the roles, responsibilities, and perspectives of their colleagues, enhancing their ability to provide holistic, patient-centered care.

3. **Flipped Classroom Models:** Flipped classroom models flip the traditional lecture-based approach to learning, with students engaging in independent study before class and using class time for active learning activities, group discussions, and hands-on exercises. In nursing education, flipped classroom models promote active learning, critical thinking, and knowledge application, enabling students to develop a deeper understanding of course material and its relevance to clinical practice. Faculty may use online modules, videos, and interactive exercises to deliver content outside of class, allowing students to learn at their own pace and access resources tailored to their individual learning needs.

4. **Gamification Techniques:** Gamification involves incorporating elements of game design and mechanics into educational activities to motivate and engage learners. In nursing education, gamification techniques may include quizzes, simulations, case studies, and role-playing exercises designed to reinforce key concepts, encourage participation, and foster friendly competition. Gamified learning platforms allow students to earn points, badges, or rewards for completing tasks, achieving learning objectives, and demonstrating proficiency. By transforming learning into a game-like experience, nursing education programs can enhance student motivation, retention, and satisfaction, while also promoting collaboration and teamwork.

5. **Mobile Learning Platforms:** Mobile learning platforms leverage smartphones, tablets, and other mobile devices to deliver educational content anytime, anywhere. Nursing education programs are embracing mobile learning platforms to provide students with convenient access to course materials, resources, and interactive tools. Mobile apps may offer digital textbooks, multimedia resources, practice quizzes, clinical calculators, and communication tools that facilitate collaboration and knowledge sharing among students and faculty. By leveraging mobile technology, nursing education programs can accommodate diverse learning styles, promote self-directed learning, and enhance the flexibility and accessibility of education.

These examples demonstrate the diverse ways in which nursing education programs are innovating to enhance student learning outcomes, promote professional development, and prepare graduates for successful careers in nursing. By embracing innovation within the context of accreditation, nursing education programs can adapt to emerging trends, leverage new technologies, and ultimately better prepare nurses to meet the evolving needs of patients and communities.

CHALLENGES AND OPPORTUNITIES

While accreditation provides a framework for innovation, several challenges must be addressed to effectively balance tradition with progress in nursing education. These challenges include faculty resistance to change, resource constraints, and the need for ongoing professional development. However, accreditation also presents opportunities for collaboration, networking, and sharing best practices among nursing education programs. By embracing a culture of innovation and continuous improvement, nursing education programs can navigate these challenges and prepare nurses to excel in a rapidly evolving healthcare environment.

CONCLUSION

In conclusion, accreditation and innovation are intertwined in nursing education, with accreditation frameworks providing a foundation for maintaining standards while fostering progress. By embracing innovation within the context of accreditation, nursing education programs can adapt to emerging trends, leverage new technologies, and better prepare nurses to meet the evolving needs of patients and communities. By striking a balance between tradition and progress, nursing education can continue to evolve and thrive in the 21st century.

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FACTORS AND PROSPECTS FOR THE DEVELOPMENT OF STUDENT YOUTH - MILITARY PATRIOTIC EDUCATION BY MEANS OF ARTPEDAGOGY (THROUGH THEATER TRAINING)

Madaliev Rahmiddin Ismoilovich

Teacher, Fergana State University

ANNOTATION

This article provides feedback on the importance of artpedagogic tools in the military-patriotic education of students and young people, the organization of spiritual and educational activities with the help of museum, theater and film studies, as well as the importance of theatrical art in youth education.

KEY WORDS: *theater, moral-social resources, patriotism, upbringing, conception, love and loyalty to the motherland, heroism, youth, value, responsibility, traditions, heritage.*

INTRODUCTION

It is necessary to note that in the moral values of the Uzbek people, military patriotism is valued as a virtue inherent in individuals who are able to show a deep respect for the history of the country, fate, examples of self-sacrifice in the path of defense of the Motherland. This feeling is a philosophical category that has not lost its position throughout the periods, even because it is formed on the basis of moral concepts such as "love", "trust", "loyalty" and takes a deep place in the hearts of people. Patriotism is glorified in all sources relating to the spiritual heritage of the Uzbek people for its incorporation of moral, qualities such as unification, orientation, unit, mobilization.

In today's era of globalization and sharp competition, armed conflicts and confrontations, new threats and risks that are taking place in different parts of the world, including our region, are setting up urgent tasks that cannot be delayed in front of us.

In this case, the important tasks of pedagogical communities, relying on the laws and decisions issued by our state, we should direct students to bright, environmentally sensitive values. First of all, the development of feelings of love for national values, the nature of the Mother earth, national folk art, the artistic culture, history of the East. As the main resource in this regard, through the means of artpedagogics, to introduce literature, fine arts, music, theater and other types of film art, rich in national traditions, that is, to take our country to national performances and museums, which reflect the past and modern way of life of the Uzbek people. This further enhances the love of one's people and land in the minds of the students, encouraging the mobilization of all their energy to protect today's peaceful, free life.

In any difficult and complex situation, a number of decisions have been made by our government in order to preserve our homeland as an eyeball, to immigrate the most important concepts related to the glorification of its fame to the world, life and professional skills to science, as well as the hearts and minds of youth on the basis of national values from early childhood.

An example of this is the perfect program of the Cabinet of Ministers of June 29, 2023, No. 267 "Concept of improving the effectiveness of the work of educating youth in the spirit of military patriotism of 2023-2027", which is prepared as an integral part of the holistic education system regarding the education of youth.

In this concept, the goals and objectives of educating youth in the spirit of military-patriotism are outlined, its system, basic principles, forms and styles, as well as stages and directions.

It is in such conditions that our country demands to educate its youth in the spirit of patriotism, high spiritual and moral values, to deeply instill in their minds the need to preserve peace and harmony as tears, to unite the forces and capabilities of ministries and departments responsible for youth education on the basis of one idea, one goal.

In order to effectively implement the tasks set out in the concept, we must direct the students to the values of excellence, comprehensively affecting the future teachers, based on the requirements of the decision. First of all, need the development of feelings of love for national values, the nature of the Mother earth, national folk art, the artistic culture of the East, history.

LITERATURE ANALYSIS AND METHODOLOGY

Our President Sh.M.Mirziyoev: "continuous work on the education of our youth in the spirit of patriotism is of urgent importance to us. Patriotism is the spiritual basis of the life of every state and manifests itself as the most important mobilizing force in relation to the comprehensive development

of society," the thoughts of which we must instill in the hearts of our youth.

Patriotic education is a complex and multifaceted activity in its nature. As one of the most important values of society, it covers social, political, spiritual-moral, cultural, historical and other characteristics within its content.

Being an expression of a person's high emotional-spiritual attitude to his homeland, patriotism is a component of a person's spiritual wealth. True patriotism always manifests itself as an integral unit of spiritual, civil responsibility and social activity of a person and serves as a driving force in human activities in the interests of the Motherland.

A patriotic character can be in relation to his people, his nationality and the society and state in which a person lives. These characteristics must combine to form a single holistic feature of patriotism, since every responsible citizen of Uzbekistan perfectly understands that the interests of his family, his nation are inextricably linked with the interests of other nationalities of our country. The patriotism of citizens of Uzbekistan expresses its "small homeland", the nature of belonging to its own nation, as well as a sense of responsibility for the whole country, for the whole of Uzbekistan.

Thus, the life of a fierce time is now a time when it has become an urgent task to protect the young generation of our country from the various threats who are pouring their most important and complex tasks before us all, to educate it as competent people in the spirit of love and loyalty to the Motherland, respect for national and universal values.

If a student or student is ready to perceive theater as an art form, performances on a military-patriotic and military-historical theme, with the help of self-owned means of expression of theatrical art, deliver to the attention of the audience the state of mind of the period being presented in the play, the difficult years of the national-liberation movement, allowing. Therefore, the heroic-patriotic-themed performances of the present time begin with an emotional appeal to the attention of the audience.

Of course, the works on folk culture, which are presented in the theater, testify to the past, life, high spirituality of their ancestors, instill in his medium love for the motherland, respect for the cultural heritage left by their ancestors, reverence, a sense of being worthy successors to them. It also calls on youth to be polite, honest, purity, immersion, courage, protection of the motherland, patient, intelligent, just, benevolent, like their ancestors.

Especially by increasing the number of visits to theaters operating in our country, we should increase the attention and interest of youth, students of higher education institutions in the theater arts with the future of our country, through which we will be able to enrich educational concepts and the world of imagination. As far as possible, it is necessary to conduct propaganda work, giving information and insights to youth, their parents about the importance of theatrical art. The main goal of the stage productions staged in our theaters should also

be to make the future young generation spiritually competent, mature people and educate them in the spirit of love for the motherland.

DISCUSSION RESULTS

We can still understand today how appropriate the famous phrase of Mahmudkhuja Behbudi, the founder of the Turkestan jadidism movement: "Theater is an instructive act". The reason is that the theater is a place of education, where, watching performances, a person receives spiritual nourishment for himself, learns to distinguish between white and black, to do good to more people, and receives cultural recreation.

Theater (Greek theatron-place of performance, spectacle) is the main type of performance art. Theater art is a theater art with unique characteristics that distinguish it from other arts - from elegant arts, which, in its emotional aspects, has a great influence on the formation of a harmonious person.

As in other arts, the art of theater is transformed and perfected in relation to the development, spirituality, culture of society, reflecting the life, history, worldview of the people. Theater is a synthetic art and plays an important role in the life of society, in the spiritual and aesthetic education of the audience. In it, drama, music, fine arts, dance, architecture form an integral unit. One of the important tools of theater is stage speech. As the actor appropriates the words of the hero in play, in the image of the hero, standing in positions creates his oratory description, entering into dialogue with other characters. Stage speech plays a role in the opening of characters, the content of the work, the illumination of the conflict. The contribution of theater painting (scenography)in the creation of stage works is significant. The artist creates decor based on the solution of the content and plan of the work. The role of music in education is also great, depending on the type and genre of performance, it performs a variety of functions: while it is an auxiliary tool in dramatic performances, it is argued that it has the right to say the same in operetta, musical drama, and in opera and ballet it is of decisive importance. So to the theater today it is necessary to attract the audience, especially young people, to enjoy this type of art.

Of course in this, the consciousness of the younger generation is slowly absorbed from an early age, starting from the tiny branches of this art. For example, by showing fairy-tale scenes in preschool educational organizations of the future generation, that is, in kindergartens, we can correctly establish the upbringing of our youth by showing performances on various topics in the theater, adapting to their youth and mental potential, both for school age and even for students of the Institute. In order to further develop the theater industry, in educational organizations and schools, theater clubs are organized, and to develop them, we need to stage small stage performances and show them to students, to help these circles, to provide students with the right directions of education and upbringing, and to attract theater actors in order to continue the tradition of master students.

One of the most popular and influential types of theater prisoners of war in world, the theater continues to encourage people to humanity and goodness, to mature high qualities, beautiful feelings in hearts, and to strengthen the principles of peace, friendship and harmony in the life of society.

In recent years, it is known to all of us that, among all spheres, fundamental changes are being made in the cultural system in our country, including in the life of our theaters.

In this sense, on the night of the day in the sense of confirmation of our opinion, in the speech of the Council of Spirituality and enlightenment on December 22, 2023, the development of a program for the development of theatrical arts was insisted. It stated that one day of the month in enterprises and institutions will be marked as "theater day", which is intended to give creative kidneys for the best plays, improve the skills of creative and assistant employees in foreign theaters, establish a prize named "Mannon Uyghur" for the capture and expulsion of young directors.

Today, we, that is, all sphere representatives who are engaged in youth education, listen to the President's speech at the expanded session of the Republican Council of spirituality and enlightenment, based on the goals and main tasks set forth in a more thoughtful way, it is necessary for youth to be devoted to the values of our nation, to form in them such. To do this, the new society that we are building will flourish if we educate the growing young generation with a well-watered upbringing from the water of spirituality, which makes good use of modern means of pedagogical tools.

CONCLUSION

Well, in our world, we have a great history that the air of the world brings. Our great future, our great spirituality, our literature and our art will certainly be worth it if we are lucky. The implementation of the tasks set by our president in the spiritual and educational sphere requires dedication and creativity, greater mobilization from all of us. Along the way, it is necessary that educators, mentors (tutors)work with our knowledge for the well-being of our people on the path of peace and tranquility of our country, to cultivate a new generation of cadres in the means of education irrigated by the water of spirituality and enlightenment, to direct youth to the profession with such ideas as initiative, when working with students and youth, it is desirable to use the above information efficiently, when it is used during extracurricular and extracurricular activities, that is, when organizing information hours, spiritual educational events, reading nights.

We are sure that our young people, faithful to the courage of our heroic ancestors, will appreciate a prosperous life and mobilize all their strength on the way to further strengthening it.

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IMPROVING THE EFFICIENCY OF MANAGEMENT OF INNOVATION ACTIVITY OF THE ENTERPRISE

Mamajonova Odinakhon Alisher kizi
Researcher, Andijan Construction-Economic Institute

ABSTRACT

Innovative activity of a company is of fundamental importance for increasing its value. However, not all innovation activities lead to the growth of business value, often you can get a different, negative result, not growth, but destruction of value. Therefore, innovation activity should be effective, in this case it is possible to be sure that the introduction of innovations will lead to sustainable development of the enterprise, growth of its value, increase of its competitive position. The purpose of this article is to analyze the existing methods of assessing the innovation activity of the enterprise to choose a method and prove its advantages. The article reveals the problems faced by managers of enterprises that create systems for assessing the effectiveness of innovation activity. Considering the key principles of effective innovation management, the article emphasizes the principles of measurability and effectiveness of innovation. The main reasons for the creation of a system of indicators (metrics) that assess the effectiveness of innovation activity of the enterprise are revealed. The refusal to use the indicator "patent" and its characteristics in assessing the introduction of innovations is justified. The article recommends the use of the Balanced Scorecard (BSC) method for assessing the effectiveness of innovation activity of the enterprise.

KEY WORDS: *innovation activity, efficiency of innovation activity, innovation metrics, methods of innovation efficiency assessment, Balanced Scorecard.*

Today no one doubts the necessity of introducing innovations into the production process. Innovation activity of any enterprise is the basis of its sustainable development. However, no matter how high investments in innovations are, there is no guarantee that the innovation introduced into production or business processes will lead to an increase in the efficiency of the enterprise's activity and its value. It is necessary to introduce innovation in a calculated manner, assessing its positive and negative impact on the key performance indicators of the enterprise.

One of the authors of this article in 2008, analyzing the innovative activity of banks, formulated the key principles of effective innovation management, namely, the principles of scale of novelty, perspectivity, customer focus, resource availability, time constraints, as well as the principles of measurability and efficiency [1]. Despite the fact that these principles were proposed for commercial banks, they do not contain a pronounced reflection of the left orientation and can be applied to the enterprises of any sector of the economy.

Let us pay attention to the last two principles. The principle of measurability states that the results of innovation activity should be measurable through both quantitative and qualitative indicators. The principle of efficiency means that any innovation should have a positive impact on the results of the company's activity, increase its efficiency, improve its competitive position in the industry. For this purpose, enterprises develop a system of indicators, which concentrates in itself the assessment of the company's performance from the position of innovation implementation.

Despite the fact that the principles of measurability and effectiveness are listed last, they come first in terms of importance. The application of the principles of measurability and efficiency in practice is connected with the necessity to create a system of indicators with the help of which it is possible to analyze the organization's ability to successfully implement innovations. Therefore, it is necessary to assess the innovation activity of the enterprise, starting from the moment of its introduction into production, i.e. from the moment of the beginning of investment in the innovation project. The moment of the end of such a project is not the launch of an innovative product or technology in large-scale production, but the end of the life cycle of innovation, i.e. the moment when the innovation ceases to be such.

Unfortunately, a significant part of enterprises do not measure the effectiveness of innovations, despite their great importance in the development of the enterprise. Innovation activity requires enterprises to constantly evaluate current innovation projects not only at the stage of making decisions on their implementation, but also at the stage of commercialization of innovations.

What specific indicators can be used to assess innovation activity? This question is repeatedly asked by both top managers and middle managers, as well as by research scientists [2, 3].

The growing number of publications devoted to innovation indicators and success factors of innovation activity reflects the need for answers to this question [4, 5, 6]. Despite the existing studies, the problem of creating a system of metrics to evaluate the innovation process at an enterprise still needs to be better understood.

There are several reasons for creating systems of metrics that evaluate the effectiveness of innovation activity of an enterprise.

Firstly, the metrics system should be based on objective quantitative data, which allows to digitally assess the result of innovation implementation.

Secondly, the system of innovation performance indicators should reflect the strategic interests of the organization.

Thirdly, the system of indicators of innovation efficiency by comparing expected and actually obtained results should show whether the forecasts regarding the efficiency of innovation implementation were justified.

Fourth, innovation performance indicators should be designed in such a way that employees are sufficiently motivated to participate in the company's innovation activities

When creating a system of innovation performance indicators, the most acute issue is the implementation of the principle of measurability in practice. In assessing innovation in practice, the importance of measuring innovation is increasingly attracting the attention of managers and consultants. Examples of consulting surveys on innovation indicators are those conducted by The Boston Consulting Group (BCG), McKinsey and PricewaterhouseCooper. The surveys include respondents who hold top management positions in companies. 75% of top managers reported that innovation is one of the triad of company priorities, and every third of them named innovation as the only priority at the moment. And, as it is noted, the survey results do not depend on industry and region. Almost half of the surveyed CEOs make attempts to evaluate innovations with the help of a system of quantitative indicators. They try to evaluate the success of innovation activity of their companies through the impact of innovations on the growth of company's income (78%), customer satisfaction (76%), growth of income from new products (74%), increase in labor productivity (71%). At the same time, as the surveys have shown, few companies have an integral system of indicators for assessing the effectiveness of innovation, which would harmoniously reflect its strategic goals. The analysis of answers regarding the innovation assessment system applied in practice showed that on average companies have approximately the same number of indicators included in the innovation assessment system. However, the more successful in terms of innovations companies tend to evaluate all the aspects of the innovation development process - the number of employees actively engaged in this process, the number of new ideas, the share of innovations that are developed on

schedule. At the same time, they do not forget to track the growth of revenues as a result of innovation and the level of customer satisfaction with new products or services. Attention should be paid to and that respondents whose companies are successfully innovating believe that the systems help manage a wide range of activities, including resource allocation, the design of individual incentive programs and interactions with investors. This satisfaction can be justified by the fact that their companies do use the metrics more effectively than others and can comprehensively assess the entire innovation portfolio. However, the same research also notes the fact that only 43% of companies actually measure innovation, and 59% of companies noted that their system for measuring innovation performance is ineffective [3].

Despite the large number of studies related to the assessment of the efficiency of innovation activity of enterprises, academic research has not provided practitioners with a general methodology for creating a system of indicators to assess the efficiency of innovation. In addition, it remains unclear whether the metrics obtained as a result of academic research are applicable to organizations. For example, Adams and his colleagues [7] argued that the innovation measurement methods recommended in the academic literature seem too theoretical. These theoretical indicators are not directly applicable to businesses, echoed another more recent study [8]. In addition, enterprises disagree on what should be measured and which stages of innovation activity should be assessed by performance indicators.

As a rule, when an innovation project is developed, the feasibility of its implementation is assessed using investment analysis methods. Using projected economic parameters of the project, the net present value of the project (NPV), its internal rate of return (IRR) and the payback period of the project are calculated. Focusing on the forecast values of all or some indicators (for example, NPV should be positive, and IRR should exceed the required return on investment), a decision is made on the realization of the project to implement an innovative product. However, not all innovation projects implemented in production practice contribute to the increase in the efficiency of the enterprise as a whole. Asking the question, how the innovation influenced the efficiency of the enterprise as a whole, it is often impossible to get an answer. The reason is quite simple, namely, how to measure this impact. Here the methods of investment analysis are no longer applicable, it is necessary to assess the impact of already functioning innovative projects on the main indicators of the company's activity. Therefore, the question of creating a system of such indicators arises.

In our opinion, the system of innovation performance indicators should meet the following requirements.

The number of indicators should vary depending on the level of managers. For example, it is optimal for a top manager to have eight to ten indicators in the system, for a middle manager the number of indicators assessing the efficiency of innovation

activity of the direction entrusted to him depends on the specifics of the industry. The clearer are the indicators of innovation a c t i v i t y efficiency,

The easier it will be to develop key performance indicators for employees.
Indicators of innovation performance should characterize it from all sides, therefore, they should not be correlated with each other.

The system of indicators should include quantitative and qualitative indicators. The calculation of quantitative indicators should not be too complicated and costly, while the analysis of qualitative indicators should lead tounambiguous conclusions.

The system of innovation performance indicators should be integrated into the system of corporate performance indicators of the enterprise.

The system of indicators should reveal the reasons not only for the success of innovation activity, but also the reasons for its failure. This will make it possible to avoid mistakes in the future.

We should not forget about the actualization of the system of indicators of innovation activity efficiency.
The articles by A.V. Trachuk and N.V. Linder [2,4] summarize the results of the analysis of scientific publications, from which it follows that the key factors that can be used to evaluate innovations are as follows
Customer Focus;
Focus on technological innovation;
Company size and competitiveness;

CEO's Key Role;
The Amount of total investments in the company'soperations (both current and capital);
Qualified personnel and training of employees;
Intercompany and intracompany cooperation.

Each of the key factors is characterized by a system of indicators. For example, customer focus, from the point of view of foreign studies, can be characterized by the indicator "percentage of patents recognized as having value". Focus on technological innovations is characterizedby seven indicators, including "percentage of rejected patents", "percentage of patents for sale", "percentage of new patents in the key research area", "average cost of a patent", etc. The factor "Company size and competitiveness" is assessed through the indicator

"number of new patents compared to competitors".

A.V. Trachuk and N.V. Linder developed an integrated indicator of innovation activity of an industrial enterprise. In the calculation of the integrated indicator they included five key factors, each of which is determined by only one indicator plus three indicative indicators, which are not included in the calculation of the integrated one, but supplement the idea of the success of innovation activity. It should be noted that the authors use patent-related indicators to a lesser extent. Only to characterize the focus on technological innovations the patent-dependent indicator is used, namely, the number of patents and other intangible assets based on the results of R&D obtained during the calculation period and the previous two years.

It is no coincidence that we focus on the use of patentsto assess innovation activity. In the scientific literature, many researchers present patents as a source of innovation measurement [9, 10, 11.]. The majority of scientific works investigate the inter-relationship between the number of patents and innovation activity, considering patents as a result of R&D. In [12], the number of patents per capita is used to evaluate the ranking of countries i n terms of technology or innovation intensity. De Rassenfosse and his colleagues [10] presented a methodology they developed to measure innovation by counting priority patent applications submitted by inventorsin a country independently of the patent office. Hagedoorn and Cloodt analyze the innovation performance of countries by proposing two coefficients: inventive performance and inventive productivity based on the total number of patents and R&D indicators [13]. A group of scientists from the University of Cattaneo (Italy) proposed an index of innovative patents, which they developed by applying machine learning algorithms, as a metric for assessing the efficiency of innovation activity of an enterprise [14]. They showed how the index of innovation patents can assess the innovation activity not only of a country or a separate region, but, which should be emphasized, of an enterprise. Thus, a patent and its characteristics are considered to be good indicators of innovation not only at the level of a state or regions, but also at the level of an individual enterprise of private companies.

However, let's look at the ranking of the 50 most innovative companies in the world, for example, from BCG in 2021. The first 5 places in the ranking are occupied by Apple, Alphabet, Amazon, Microsoft and Tesla. Table 1provides information on intangible assets (IA) owned by these companies. It is in intangible assets that a company'spatent activity is reflected.

Table 1
Intangible assets of the world's 5 most innovative companies, 2021*

N/a In innovation al reting	Name of the company	Intangible assets, mln USD	Share of NMA in total acsets, %
1	Apple	0	0
2	Alphabet	1417	0,4
3	Amazon	5107	1,2
4	Microsoft	7462	2,2
5	Tesla	257	0,4

As Table 1 shows, patents recorded as intangible assets on the balance sheet (but they are not the onlyones) do not correlate with the ranking of the most innovative companies. For several years now, Apple has not had a single product created and patented or a patent purchased on its balance sheet. Amazon also has no intangible assets in 2022, as the interim accounts show. However, there is no doubt in anyone's mind

In our view, it is inappropriate to use the availability of patents and their characteristics to assess the efficiency and level of innovation activity of an enterprise. For this reason, from our point of view, it is inappropriate to use the presence of patents and their characteristics to assess the efficiency and level of innovation activity of an enterprise.

Let us return to the key indicators developed by A.V. Trachuk and N.V. Linder. In [2], they identified seven metrics of innovation activity for Russian industrial enterprises depending on the type of innovation behavior that companies adhere to. Here the authors departed from the use of an integrated indicator of innovativeness within the enterprise, analyzing each of the metrics separately. This approach seems to us to be the most promising forthe enterprises, the purpose of which is not so much to compare themselves with their competitors, as to assess the effectiveness of their innovative activity and make managerial decisions. Among the approaches to measuring the efficiency of innovation activity ofenterprises the Balanced Scorecard (BSC) is mentioned [2, p.287]. We believe that the SCB method is one of the most promising in the practice of application for assessing the effectiveness of innovation activity.

Already at the end of the last century, it was realized that it was wrong to evaluate the company's activity by traditional financial indicators; these indicators gave an incomplete picture of the company's performance, which prevented it from working effectively to achieve its strategicgoals. To assess the activity of a modern company it is important to evaluate the effectiveness of relationships withcustomers; to determine the level of innovative development of the company; to understand how qualified and motivated employees are, etc. In the early 90s of the 20th century, Harvard Business School professor Robert Kaplan and American management consultant David Norton proposed an approach to efficiency assessmentthrough a system of indicators, where a balance of indicators describing the financial and marketing components of the company's activity, as well as the company's business processes and personnel training was observed. They called their method "Balanced Scorecard" (BSC) [15].

The Balanced Scorecard is not so much a measurement system as a management system that allowsa company to formulate strategic goals and track their realization in practice.

Kaplan and Norton proposed a scheme for assessing the effectiveness of a company's activities, including four projections: finance, customers, internal business processes, training and growth.

For each projection, key strategic goals based on the overall strategy of the company are defined, in accordance with which key performance indicators (KPIs) are developedto assess the performance of each employee and division of the enterprise, not only in the context of the positive results achieved, but also from critical positions.

Finance, or more precisely financial results, are the key criteria for assessing the company's performance.
The marketing projection offers indicators that adequately assess relationships with customers, entry into new market segments, etc.

The projection of internal business processes identifies the key processes to be improved and developed in order to strengthen the competitive advantage. The choice of keyprocesses should be made not only from the point of viewof current efficiency, but also from the point of view ofopportunities for its improvement. Therefore, the influence of innovation processes is most noticeable in this projection.

In the projection of training and growth, the main indicators should reflect investments in the company's personnel, staff turnover rates, qualification of employees, and their innovative potential.

The Balanced Scorecard assesses the efficiency of the company's performance as a whole. It helps to assess the degree of achievement of the set strategic goals. The development strategy of a modern enterprise is based on the introduction of innovative products and technologies. The MTP allows to

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* Compiled by the authors on the basis of the financial statements of companies from the website ru.investing.com

modify the performance evaluation indicators, namely, to add new ones, to change some indicators to others, to those that reflect the effect of innovation implementation to a greater extent. From our point of view, the balanced system of indicators is the most acceptable method of assessing the effectiveness of innovations, as it allows us to assess the effect of implementation of a particular innovation project.

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A STUDY ON ETHNIC CONFLICT IN NORTH EAST INDIA WITH SPECIAL REFERENCE TO THE STATE OF TRIPURA

Marconi Debbarma
Ph.D Research Scholar, D.D. Kosambi School of Social Sciences and Behavioural Studies, Goa University, Goa.
ORCID 0000 0003 4090 9019

ABSTRACT

The North East region of India is known for its rich cultural diversity, with numerous ethnic groups, languages, identities and traditions coexisting in harmony. However, this region has also experienced its share of ethnic conflicts and communal violence over the years. The complexities of ethnicity and the history of inter-community tensions have contributed to occasional outbreaks of violence, leading to significant challenges in maintaining peace and stability. This article delves into the underlying factors that contribute to ethnicity-based communal violence in North East India and explores potential solutions to foster harmony and unity among the diverse communities. North East India comprises eight states with distinct ethnic identities and historical backgrounds. The region has over 200 ethnic groups, including Nagas, Kukis, Meiteis, Assamese, Bodos, and many others. The concept of ethnicity is deeply embedded in the cultural fabric of these communities, shaping their language, customs, and social structures. Ethnicity-based communal violence often arises from a sense of identity and belonging. Conflicts often emerge when communities perceive threats to their identity, language, cultural, political, or economic rights. Historical grievances, land disputes, and resource competition exacerbate tensions, leading to outbreaks of violence.

KEYWORDS: *Language, Identity Assertion, Ethnicity, Culture and Communities.*

INTRODUCTION

The North East region of India is renowned for its cultural diversity. Comprising eight states, each with its unique ethnic identities and historical backgrounds with over 200 ethnic groups including Nagas Kukis Meiteis Assamese Bodos and others ethnicity is deeply ingrained in the social fabric of these communities, shaping their language customs and social structures. Ethnicity-based communal violence often stems from issues related to identity culture and belonging conflicts tend to surface when communities perceive threats to their identity, language, culture, political representation or economic rights. This article explores the intricate interplay of language identity assertion and ethnic conflict in North East India, particularly emphasising the state of Tripura. Many ethnic communities in North East India assert their distinct identities fervently. This identity assertion can sometimes lead to clashes when groups perceive their identity as being undermined or threatened by others(Schnapper, 1994). Language and Culture Language serves as a crucial marker of ethnic identity. When language and culture are endangered or marginalised it can lead to heightened tensions and conflicts within and between communities(Debbarma, 2023). Past grievances and historical injustices often related to land and resources continue to fuel ethnic tensions, and unresolved disputes can escalate into violence(Kafle, 2023).

Limited resources, including land, water and jobs, can trigger conflicts among various ethnic groups, especially when access to these resources becomes contentious (Debbarma, 2024). Ethnicity plays a significant role in politics in the North East; competition for political power and representation can exacerbate divisions and conflicts among communities. Tripura, one of the states in North East India presents a unique case study for understanding the dynamics of ethnicity-based communal violence the state has witnessed conflicts primarily between the indigenous Tripuri community and refugees. Language, Identity assertion, historical grievances and political representation have been key factors in these conflicts. Addressing ethnicity-based communal violence in North East India including Tripura requires a multifaceted approach(Akhtar, 2018). There is a need to Promote dialogue and conflict resolution mechanisms that allow communities to express their concerns and grievances peacefully. Support initiatives that preserve and promote the languages and cultures of various ethnic groups, ensuring they are not marginalised. Implement fair and transparent land and resource management policies to mitigate disputes over limited resources. Encourage inclusive political representation that reflects the region's diversity, allowing different communities to have a voice in governance. Promote education and awareness programs that foster inter-community understanding and tolerance. Ethnicity-based communal violence in North East India including Tripura is a complex issue rooted in the deep-seated identities and

historical grievances of diverse communities by addressing the underlying factors and implementing inclusive policies the region can move towards fostering harmony unity and peaceful coexistence among its rich tapestry of cultures and ethnicities

Assam

Communal conflicts in Assam often revolve around land ownership and disputes. Indigenous Assamese communities have clashed with Bengali-speaking Muslim settlers, especially during the Assam Movement in the 1980s. The movement aimed to protect the rights of Assamese-speaking residents and address concerns about land encroachments. Ethnicity: Assam is a diverse state with various ethnic groups, including Assamese, Bodos, and others. Tensions arise when different ethnic communities vie for resources, political representation, and cultural recognition. Migration: The issue of illegal immigration from Bangladesh has been a significant flashpoint for communal tensions. Indigenous communities perceive a threat to their culture, language, and political representation due to the influx of immigrants.

Arunachal Pradesh

The conflict between the Chakma people and indigenous communities in Arunachal Pradesh is a multifaceted issue with communal dimensions. The Chakma people, originally from Bangladesh, sought refuge in India, particularly Arunachal Pradesh, due to political unrest in their home country. This influx of Chakma settlers has led to a series of regional conflicts. The primary factors contributing to this conflict include disputes over land and resources, concerns about cultural dilution and identity, political representation, and security issues arising from clashes between the two groups. Indigenous communities in Arunachal Pradesh argue that Chakma settlers have encroached upon their ancestral lands, leading to disputes over land ownership and access to natural resources. Furthermore, the presence of Chakma settlers with different cultural and linguistic backgrounds has raised concerns among indigenous communities about preserving their distinct identities and traditions.

Efforts to resolve this complex conflict include legal actions, dialogue initiatives, humanitarian aid, and awareness programs. However, striking a balance between protecting the rights of indigenous communities and addressing the humanitarian needs of Chakma settlers remains a challenging task. The Chakma-indigenous conflict in Arunachal Pradesh revolves around land, identity, culture, and political representation issues. It requires ongoing efforts to promote peaceful coexistence, dialogue, and equitable resource distribution while respecting the rights and identities of both Chakma settlers and indigenous communities.

Manipur

Manipur is known for its diverse population, consisting of multiple tribal groups like the Kukis, Manipuri and Nagas. Communal conflicts often stem from competition for recognition, autonomy, self-determination and resources competition among these different communities. The ongoing insurgency in Manipur has further complicated communal tensions particularly between the kukis and the meiteis. Different insurgent groups have ethnic affiliations, and their activities sometimes target specific communities, leading to violence and insecurity.

Meghalaya

Land Ownership: Land disputes are a significant source of communal conflicts in Meghalaya. Indigenous Khasi, Garo, and Jaintia communities often clash with non-tribal groups like Bengalis and Nepalis over land rights. Identity and Religion: Communal tensions also revolve around issues of identity and religion. Instances of violence and discrimination against non-tribal residents, who may follow different religions, contribute to these conflicts.

Sikkim

Almost all issues in Sikkim originate from and end in its ethnic diversity. Lepchas, the original inhabitants are today facing extinction; the Bhutias who ruled after them are also in a minority. Nepalis, who immigrated in large numbers in the late 19th and the early 20th centuries, are now in an overwhelming majority and are clamouring for their right to rule. Adding to the confusion are a large number of plainsmen, identified as "of Indian origin". The tension and bitterness created by the ethnic struggle have cut across party lines.

Mizoram

Land and Identity Disputes: Communal conflicts in Mizoram primarily involve the Mizo tribes and the Brus (Reangs). These conflicts are rooted in land and identity disputes between the two communities, sometimes resulting in violence and displacement.

Nagaland

Nagaland has been grappling with the Naga insurgency for several decades. While the conflict is primarily political in nature, it has communal dimensions, particularly between the Naga tribes and non-Naga communities residing in the state. These tensions often relate to issues of identity and political representation.

Tripura

Indigenous vs. Refugee Conflict: Communal conflicts in Tripura historically pit the indigenous Tripuri population against Bengali-speaking settlers. The tension escalated in the late 20th century, leading to the Tripura insurgency. The insurgency was mainly driven by issues related to land, ethnicity, and political representation.

In each of these states, it's essential to understand the unique historical, cultural, and political contexts that contribute to communal conflicts. Local grievances, historical injustices, and economic disparities also play crucial roles in these tensions. Addressing these conflicts requires a multifaceted approach that involves dialogue, reconciliation, equitable resource distribution, and inclusive governance to ensure the peaceful coexistence of diverse communities in Northeast India.

OBJECTIVE OF THIS RESEARCH

The objective of this research is to conduct an in-depth exploration of the interplay between language, identity, and migration in the context of ethnic conflict in Tripura, India. The study aims to achieve the following specific objectives:

(i) To Investigate how language, particularly the use of the Roman script for Kokborok, the mother tongue of the indigenous Tripuri community, impacts ethnic identity and cultural preservation. Analyse indigenous peoples' linguistic choices, preferences, and implications for identity assertion.

(ii) To Explore the role of language as a marker of ethnic identity in Tripura. Understand how language influences perceptions of belonging and identity among indigenous Tripuris and Bengali settlers. Investigate whether language serves as a unifying or divisive factor in the region.

NEED OF THE STUDY

The scope of this article is comprehensive and multidimensional, aiming to provide a holistic understanding about conflict. This research has employed qualitative research methods, including surveys, interviews, case studies, historical analysis, and policy analysis. Through this comprehensive approach, the research seeks to contribute to a deeper understanding of communal conflicts and potential pathways to peace and cultural diversity in Tripura.

RESEARCH METHODOLOGY

Research methodology was designed to investigate ethnic conflict in Tripura. This qualitative research study employed a comprehensive approach, utilising in-depth interviews, focus group discussions (FGDs), and secondary sources to gather data and gain a deep understanding of these intricate subjects. This research embraced a qualitative research design, which was well-suited for exploring ethnic conflict in Tripura. It employed a case study approach, focusing on Tripura to analyse ethnic conflict in Tripura. By adopting this approach, the study aimed to uncover nuanced insights that may not have been apparent through quantitative methods.

Data Collection Methods

Two primary data collection methods were central to this research:

1. In-depth Interviews: Semi-structured interviews were conducted with key informants who possessed expertise in ethnic conflict in Tripura. Participants included politicians, civil servants, activists, and experts. These interviews provided a platform for participants to share their experiences, perspectives, and insights on ethnic conflict in Tripura.

2. Focus Group Discussions (FGDs): FGDs were organised with diverse groups of citizens representing various demographics, such as age, gender, socio-economic status, and linguistic backgrounds. The goal was to facilitate open and dynamic discussions on topics related to ethnic conflict in Tripura. FGDs offered a collective perspective on these matters.

Sampling and Ethical Considerations

The study employed purposeful sampling to select participants, ensuring diversity and representation. Key informants were identified through a snowball sampling approach, harnessing the knowledge and networks of participants. Ethical considerations were prioritised, including obtaining informed consent, maintaining participant anonymity, and securing ethical approvals from relevant review boards.

Data Analysis and Triangulation

Data collected from interviews and FGDs underwent rigorous thematic analysis. This analysis involved identifying emergent themes related to ethnic conflict in Tripura. Triangulation enhanced the credibility and validity of findings by comparing and contrasting data from multiple sources, including secondary sources like books, academic journals, reports, and government documents.

SOCIOLOGICAL THEORIES

"Language, Identity Assertion, and Ethnic Conflict in North East India with Special Reference to the State of Tripura" can be analysed using several sociological theories to understand the dynamics of ethnic conflict and identity assertion. Here are some relevant sociological theories:

Social Identity Theory: This theory, developed by Henri Tajfel and John Turner, explains how individuals categorise themselves and others into various social groups based on shared characteristics, such as ethnicity or language. In the context of the article, Social Identity Theory can help explain how people in Tripura identify themselves with specific ethnic or linguistic groups, which can lead to in-group favoritism and out-group discrimination, contributing to ethnic conflict.

Conflict Theory: Conflict theory, rooted in the works of Karl Marx and developed by later sociologists, focuses on the role of power, inequality, and competition in society. In this article, Conflict Theory can be applied to analyse how the struggle for resources, political representation, and cultural dominance between indigenous Tripuri communities and Bengali settlers has led to ethnic conflict in Tripura.

RESULT AND DISSCUSANT

The state of Tripura experienced ethnic conflict between the indigenous people and refugee Bengali people in the 1980s, where more than 1000 people died. Tripura has a long history of ethnic diversity, cultural richness, and communal conflicts. One significant communal conflict in Tripura revolves around the indigenous Tripuri community and Bengali settlers, primarily immigrants from Bangladesh. This conflict is rooted in identity, language, and political representation issues, primarily driven by the large-scale migration of Bengali people from Bangladesh. The

indigenous Tripuri population has faced a profound identity crisis due to this migration.

Identity, Refugee and Ethnic Conflict
Historically, Tripura has been home to indigenous tribes like the Debbarma, Reang, Jamatia and many other indigenous tribe etc for centuries. However, the partition of India in 1947 and the Bangladesh Liberation War in 1971 led to a substantial influx of Bengali refugees into Tripura. These refugees were resettled on lands traditionally owned or occupied by indigenous Tripuri communities, triggering significant demographic changes.

The influx of Bengali settlers resulted in a demographic shift, causing the indigenous Tripuri community to witness a decline in their numerical majority. This shift posed a serious threat to the indigenous Tripuri's sense of identity. The dominance of Bengali culture and language, influenced by the changing demographics, marginalised Tripuri culture and raised concerns about its dilution. Furthermore, the changing demographics affected political representation, with indigenous Tripuri communities feeling their political influence waning. Limited seats were reserved for indigenous representatives in the Tripura Legislative Assembly, and this underrepresentation fueled demands for greater political autonomy and representation. The identity crisis among the indigenous Tripuri population escalated into communal tensions and conflicts, with disputes over land ownership, cultural preservation, and political representation. Land disputes, often pitting indigenous communities against Bengali settlers, resulted in violence and displacement. These conflicts were driven by perceived injustices and imbalances in land ownership, intensifying the demand for greater autonomy. The communal conflict in Tripura between the Tripuri and Bengali communities is deeply rooted in the identity crisis faced by the indigenous Tripuri due to the massive migration of Bengali people from Bangladesh. This conflict underscores the complexity of communal tensions driven by demographic changes, cultural preservation concerns, political representation, and land disputes, all needing careful attention and resolution.

Language and Conflict
Indigenous groups, especially those who communicate in Kokborok, have strongly voiced their preference for adopting the Roman script for their language. As the native language of the Tipra community, Kokborok carries deep cultural and historical significance. Tripura's indigenous population has highlighted the Roman script's critical role in safeguarding and enhancing their linguistic legacy. They believe that adopting the Roman script is key to preserving their cultural identity and improving communication, education, and cultural sharing within their communities and beyond.

Proponents of using the Roman script for Kokborok suggest that it offers a writing system that is more open and user-friendly, mainly due to its alignment with contemporary technology and online platforms. They assert that the Roman script can broaden educational access, promote the broader sharing of indigenous literature and cultural materials, and significantly empower indigenous Tipra people.

Acknowledging and honoring the indigenous request to utilise the Roman script for Kokborok is essential for protecting their linguistic and cultural rights. This involves fostering a supportive environment where indigenous languages are appreciated, promoted, and placed on an equal footing with other languages in educational settings, official discourse, and cultural initiatives. The adoption of policies that favor the Roman script for Kokborok, while also embracing the region's linguistic diversity, is key to building a more inclusive and unified community in Tripura.

According to Higher Education Department survey and data, most students studying Kokborok language in 22 government colleges prefer to use Roman script for writing Kokborok language. For 2021-2022 academic session 99.95 % of students pursuing Kokborok language in 22 government college choose Roman Script for writing their answers script and for 2019-2020 academic session 99 .09 % of the students studying Kokborok language opted for answering their answers in Roman Script. Students are given a choice to answer in both the script but majority of the students choose Roman Script for writing Kokborok language in college of Tripura. Hence it clearly indicate that the students communities prefer to use Roman script for writing Kokborok language.

List of General Degree College where Kokborok Language is Taught and Total number of students studying Kokborok Subject and numbers of Student opting for Roman Script and Bengali Script for the Academic Session (2019-2020) and (2021-2022) are given below:

S.L. No	Name of College	2019-2020			2021-2022		
		Total students 19-20	Roman Script	Bengali Script	Total studens 21-22	Roman Script	Bengali Script
1.	M.BB College, Agartala	315	314	1	536	536	0
2	B.B Memorial College, Agartala	478	478	0	622	622	0
3	Govt. Women's College, Agartala	898	898	0	910	910	0
4	Ramthakur College, Agartala	31	31	0	146	146	0
5	Govt. Degree College, Khumulwng	840	840	0	1274	1274	0
6	Swami Vivekananda Mahavidyalaya, Mohanpur	157	157	0	303	303	0
7	Dasharath Deb Memorial College, K	878	878	0	1101	1101	0

8	Govt. Degree College, Teliamura	224	224	0	464	464	0
9	Govt. Degree College, Kamalpur	272	272	0	359	359	0
10	Govt. Degree College, Gandachhara	166	166	0	286	286	0
11	Govt. Degree College, L.T. Valley	142	142	0	198	198	0
12	Ramkrishna Mahavidyalaya, Kailashahar	258	258	0	196	196	0
13	Ambedkar College, Fatikroy	28	28	0	55	55	0
14	Govt.Degree College, Dharmanagar	91	91	0	167	167	0
15	Govt. Degree College, Kanchanpur	107	107	0	124	124	0
16	KabiNazrul Mahavidyalaya, Sonamura	87	87	0	167	167	0
17	Rabindranath Thakur Mahavidyalaya,Bishlalgarh	17	17	0	45	45	0
18	Netaji SubhashMahavidyalaya, Udaipur	922	922	0	911	911	0
19	AdwityaMalla Barman Smriti Mahavidyalaya, Amarpur	284	284	0	489	489	0
20	Iswar Chandra Vidyasagar College, Belonia	280	280	0	416	416	0
21	Govt. Degree College, Santibazar	52	47	05	113	109	04
22	Michael MadhusudanDatta College, Sabroom	122	122	0	265	265	0
	Total students (%)	6649 (100)	6643 (99.90)	06 (0.09)	9147(100.00)	9143 (99.96)	4 (0.04)

Source: Directorate of Higher Education, Government of Tripura.

The data indicates a strong preference among students studying the Kokborok language for using the Roman script. However, the Tripura government's insistence on promoting the Bengali script reflects an attempt to assert Bengali cultural dominance over the indigenous Tiprasa community. By offering a bilingual script choice, the government creates confusion among the student community, despite the clear preference of most Tiprasa people to use the Roman script for writing Kokborok.

Sociological Implications
"Language, Identity Assertion, and Ethnic Conflict in North East India with Special Reference to the State of Tripura" highlights several sociological implications, focusing on how identity and belonging play pivotal roles in driving ethnic conflicts, and underscores the significance of identity in individuals' lives, examining how diverse cultures and languages coexist in the region. Furthermore, it delves into the sociological implications of demographic changes resulting from migration, showing how population shifts can lead to power imbalances, marginalisation, and resource competition. Ethnic conflict, a form of social conflict, is scrutinised from a sociological perspective, emphasising understanding the root causes, dynamics, and consequences of such conflicts. The article also brings attention to the intricate relationship between language and culture, emphasising the importance of preserving and promoting linguistic diversity, and discusses the sociological issue of political representation and how it impacts different ethnic and cultural groups' participation in decision-making processes. Furthermore, the article explores the sociological implications for educational policies based on research findings regarding students' preferences for the Roman script in education, and advocates for inclusive governance as a means to address ethnic conflicts. It also touches on community dynamics and intergroup relations, subjects frequently examined by sociologists, and raises questions about cultural rights and the protection of indigenous cultures, which are central in sociological discussions about balancing minority rights with broader societal interests and values.

CONCLUSION
In conclusion, the communal conflicts in Tripura, rooted in identity, language, and migration issues, have had a profound impact on the indigenous Tripuri population. These conflicts have arisen due to the significant migration of Bengali people from Bangladesh, resulting in a demographic shift that challenges the indigenous community's sense of identity and cultural preservation. The dominance of Bengali culture and language and concerns about political representation have further exacerbated tensions. The use of the Roman script for writing Kokborok, the mother tongue of the indigenous Tipra community, has emerged as a key issue in this context. Advocates argue that adopting the Roman script can help preserve and promote Kokborok, facilitating communication, education, and cultural expression. The preference for the Roman script among students studying Kokborok in government colleges underscores the significance of this linguistic aspect in the communal conflict. To address these multifaceted challenges, it is crucial to foster an inclusive and harmonious environment that respects and supports indigenous communities' linguistic and cultural rights. Recognising the indigenous peoples' desire to use the Roman script for Kokborok

and implementing policies that promote its use can contribute to a more equitable and culturally diverse society in Tripura. Ultimately, finding common ground and solutions that acknowledge the historical and cultural rights of both the indigenous people and Bengali communities is essential for achieving lasting peace and harmony in the region.

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UNIFYING ENTERPRISE USER EXPERIENCE: PEGA COSMOS AND ENTERPRISE SUBSTANCES INTEGRATION

Sreedhar Srinivasan

ABSTRACT

Pega, renowned for its low-code platform, introduces an innovative approach to transform enterprise user experiences. This article delves into the integration of Pega Cosmos and Enterprise Substances, offering insights into the Center-Out methodology and its impact on scalability. This paradigm shift toward a unified user experience not only addresses challenges in traditional enterprise applications but also aligns with sustainability goals.

KEYWORDS: *Pega Cosmos, Software Ecosystem, Enterprise Substances, Low-code platform, Center-Out methodology, Unified user experience, Theme Cosmos, Constellation (Cosmos React), UI architecture, Inheritance and packaging rules, Sustainability in application development, Green skilling, Carbon footprint reduction, User interface consistency, Enterprise application development, User experience design, Reusable UI elements, Development efficiency, Legacy UI architectures, Application branding, and Green technology in IT*

INTRODUCTION

Enterprise applications often grapple with low user adoption due to complex interfaces. Pega's Center-Out methodology, designed for adaptability, establishes a foundation for the transformative integration of Pega Cosmos and Enterprise Substances. This article explores how this integration streamlines user experiences, empowers enterprises, and contributes to sustainability efforts.

Pega Cosmos Architecture

Architecture	Description
Theme Cosmos	Section-based architecture that allows applications to inherit a unified UI skin from the Cosmos Skin.
Constellation (Cosmos React)	View-based approach providing an alternative method to achieve a cohesive user experience.

In Theme Cosmos, applications inherit a unified UI skin from the Cosmos Skin. This inheritance extends to components such as buttons and form elements, ensuring a consistent look and feel throughout the application. However, the flexibility is maintained, allowing applications to override inheritance and apply custom changes as needed.

Constellation (Cosmos React) diverges with its view-based approach, offering an alternative avenue for achieving a seamless user experience. This adaptability is crucial in accommodating varying enterprise landscapes with different interaction patterns and branding needs.

Addressing Inconsistencies in Enterprise Landscape
Enterprise landscapes are often characterized by diverse branding, work assignment structures, and interaction patterns. The inconsistency across applications presents a significant hurdle for users navigating through multiple platforms. The introduction of an "Enterprise Skin" offers a robust solution.

Strategy	Description
Create "Enterprise Skin"	Inherit from Cosmos skin, tailor to incorporate corporate branding, and configure based on specific requirements.
Package into a separate ruleset	Streamline development by packaging the Enterprise Skin into a separate ruleset for subsequent applications to inherit from.

Methods: Leveraging Inheritance and Packaging Rules

To streamline development processes, organizations can package the customized "Enterprise Skin" into a separate ruleset. This ruleset, a compilation of UI configurations and branding elements, simplifies subsequent application development. Inheriting from the packaged "Enterprise Skin" eliminates the need for direct inheritance from Cosmos, promoting consistency and efficiency across applications in the enterprise landscape.
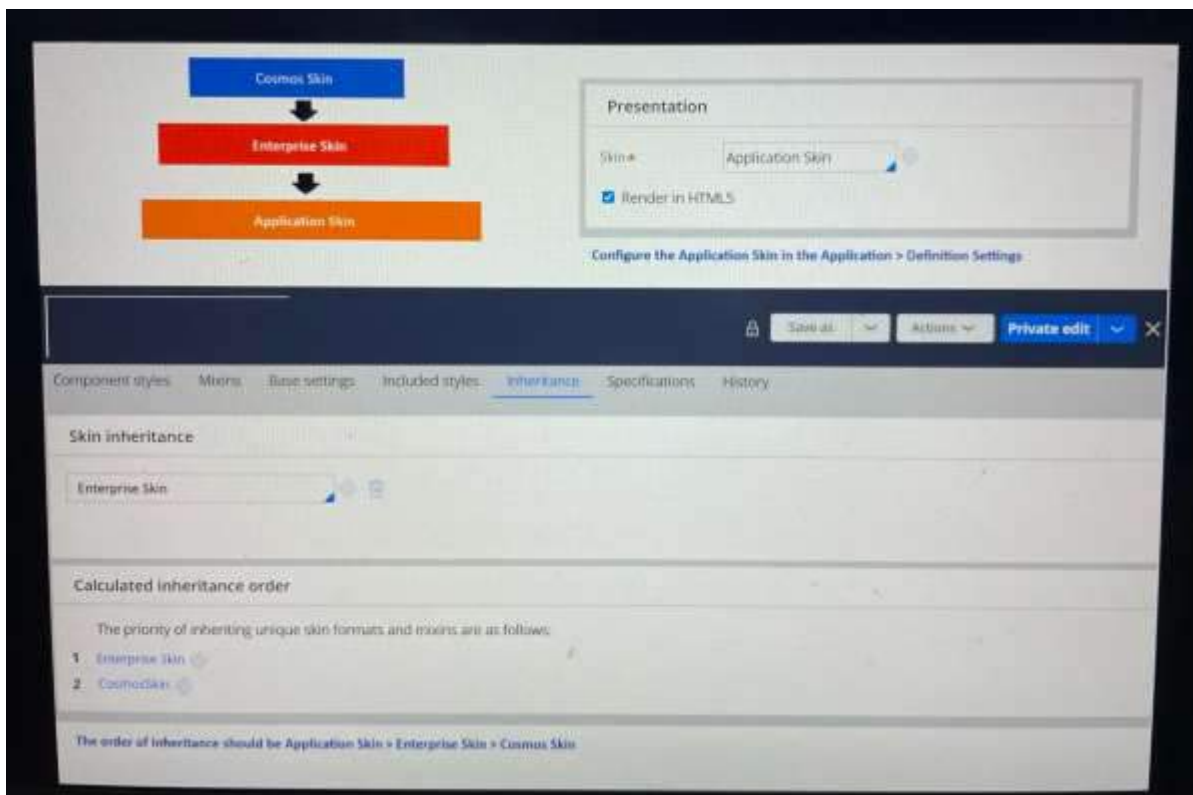
Inheritance order for configuring skin in the application setup

Helper Classes

Beyond the incorporation of the enterprise skin and pre-defined Cosmos Helper classes, organizations have the flexibility to introduce enterprise-specific helper classes tailored to their unique requirements. This approach ensures the maintenance of system sanity while providing the adaptability needed to customize the solution according to specific business needs.

Development Code Snippets:

```
/*******************

Type: Helper-class

Name: text-highlight

Category: cell

Description: styling for highlighted text

****************/
```

```
.text-highlight {
  color: #008000;
  font-family: "Fanwood Text";
  src: url("fonts/fanwood-text/fanwood-text-regular.eot");
  src: url("fonts/fanwood-text/fanwood-text-regular.eot?#iefix")
format("embedded-opentype"), url("fonts/fanwood-text/fanwood-text-regular.woff2")
format("woff2"),url("fonts/fanwood-text/fanwood-text-regular.woff")
format("truetype",url("fonts/fanwood-text/fanwood-text-regular.svg#FanwoodText")
format("svg");
font-style: normal;
font-weight: 400;
}


/*******************

Type: Helper-class

Name: Hide object

Category: object

Description: Make an object hidden

****************/

.hiddenObject {
Display: none;
}
```

The specific helper classes can be maintained as a separate entity and added to the enterprise skin under included styles > additional style sheets.
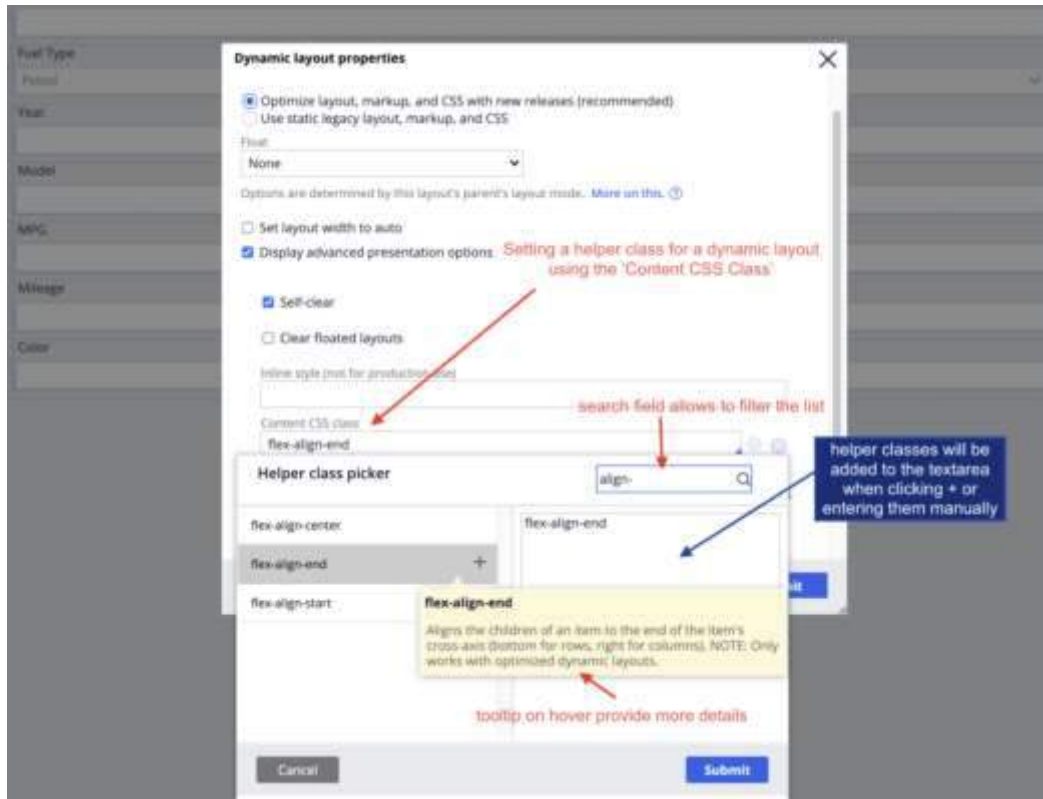
Referencing helper class in the layout after added to the skin

Applicability Beyond Cosmos UI Architecture

While the focus has been on the Cosmos UI architecture, the proposed approach extends its applicability to legacy UI architectures such as UI Kits. The flexibility in inheritance and packaging rules offers a versatile solution, revolutionizing development processes beyond the Cosmos framework.

Ecosystem - Unifying User Experience in the Enterprise Landscape

Unifying the user experience, especially in the enterprise landscape, creates an opportunity to develop a solid foundation for the software ecosystem. Here, the user interface acts as a platform or mediating proxies for connecting services and interdependencies of various applications. It also provides a gateway for mashups and web embeds, reducing the need to switch context and move from screen to screen or sometimes applications to applications.

A unified look and feel, consistent experience enable users to easily cross-train applications. This eliminates concerns about variations in work intake, processing, and uploading challenges across applications. The reduction of human slips and mistakes allows easy data sharing between individuals and collaborators toward organizational and users' goals.

Inclusive UX and Accessibility

This approach also supports inclusive UX and accessibility needs, even if it is a short-term concern at work. By unifying the user experience, enterprises can create environments that accommodate diverse user needs and ensure accessibility compliance, fostering an inclusive and user-friendly ecosystem.

Sustainability and Green Skilling

A crucial dimension in the evolving landscape of enterprise application development is sustainability. Pega's approach to reducing unnecessary codes contributes significantly to sustainability efforts. By minimizing redundant code, the carbon footprint associated with application execution is curtailed.

Sustainability Aspect	Description
Reduction of Unnecessary Codes	Contributing to a lower carbon footprint by minimizing redundant code.
Alignment with Green Skilling Initiatives	Empowering development teams to adopt sustainable practices, contributing to a skilled workforce in eco-friendly applications.

Benefits

The benefits of this integrated approach extend beyond efficiency and consistency:

Benefit	Description
Effective Business Operations	Flexibility in role transitions with a focus on business content. Reduction of training time on application-specific details.
Accelerated Delivery	Utilization of reusable elements expedites development.
Reduced Time on Custom UI Components	Streamlined development by minimizing the time spent on designing custom UI components.
Sustainability and Green Skilling	Reduction of unnecessary codes contributes to a lower carbon footprint. Empowers development teams to adopt sustainable practices.
Game-changer for the Enterprise	Transformation of the enterprise landscape with consistent branding and a unified user experience.

Conclusion

In conclusion, the integration of Cosmos and Enterprise Substances stands as a testament to its commitment to innovation and adaptability. This approach not only addresses longstanding challenges in enterprise application development but also aligns with global sustainability goals. By empowering enterprises to streamline user experiences and fostering green skilling initiatives, it sets a new standard in the era of low-code development.

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ABOUT THE AUTHOR

Sreedhar Srinivasan, a distinguished User Experience specialist, brings a wealth of expertise in Human-Computer Interaction (HCI) and Information Technology. With a background in computer science and certifications as a UI Specialist and Certified System Architect, Sreedhar seamlessly combines engineering and design prowess to deliver solutions that captivate and delight users. His leadership skills, technical acumen, and commitment to sustainable practices make him a valuable asset in the ever-evolving landscape of application development.

EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON PREVENTION OF DERMATITIS AMONG PEOPLE RESIDING IN SELECTED INDUSTRIAL AREA AT BHOPAL (M.P)

Mithun Kumar Kurmi[1]

[1]Nursing Tutor, Community Health Nursing Department,Govt. Nursing College SSMC, Rewa (M.P)

ABSTRACT

The study aimed to evaluate the effectiveness of a planned teaching program on dermatitis prevention among residents of a selected industrial area in Bhopal, Madhya Pradesh. The research employed a pre-experimental approach, specifically a one-group pre-test post-test design, to assess knowledge levels before and after the intervention. The study's objectives included determining pre-existing knowledge, assessing the program's effectiveness, and exploring associations between knowledge and demographic variables. Data were collected from 30 participants residing in the industrial area, and analysis involved descriptive and inferential statistics. Findings revealed a moderate baseline knowledge level, with significant improvements observed post-intervention across all areas of dermatitis prevention. The teaching program demonstrated substantial effectiveness, as evidenced by the significant increase in post-test scores. Moreover, associations between pre-test knowledge and certain demographic variables were established, highlighting significant correlations in some cases. The study underscores the importance of targeted educational initiatives in enhancing dermatitis prevention awareness and provides valuable insights for future research and intervention refinement.

KEYWORDS: *Planned Teaching Programme, Dermatitis Prevention, Knowledge Scores, Structured Questionnaire, Research Methodology, Research Design, Pre-Experimental Approach*

INTRODUCTION

Dermatitis, a prevalent skin condition, poses significant challenges to individuals residing in industrial areas due to heightened exposure to various occupational hazards. Recognizing the imperative to mitigate this issue, a planned teaching program emerges as a promising avenue for equipping residents with knowledge and skills essential for preventing dermatitis effectively. This study delves into assessing the effectiveness of such a program among the populace inhabiting selected industrial areas in Bhopal, Madhya Pradesh. By examining the impact of targeted education and preventive measures, this research aims to contribute to the advancement of public health initiatives tailored to address the specific needs of communities exposed to industrial environments.The overall aim of the study was to test the effectiveness of planned teaching programme on prevention of dermatitis among the people residing in the selected industrial area by comparing their pre – test and post – test knowledge scores.

OBJECTIVES

The objectives included in obtaining answers to the research questions or testing the research hypothesis were as follows:
1. to determine the pre-existing knowledge about prevention of dermatitis among people as measured by structured knowledge questionnaire.
2. to find the effectiveness of planned teaching programme on prevention of dermatitis among people as measured by the structured knowledge questionnaire.
3. to find the association between knowledge and selected demographic variables on prevention of dermatitis.

ASSUMPTIONS

The researcher assumes that,
1. Planned teaching programme will enhance the knowledge on prevention of dermatitis of people.
2. The knowledge will vary according to demographic variable.
3. Knowledge on prevention of dermatitis can be measured objectively.

DELIMITATIONS

➤ People who are residing in the selected industrial area at Bhopal.
➤ People above the age of 18 years.
➤ Thirty people who fulfill the inclusion criteria.

HYPOTHESIS

Hypotheses will be tested at 0.05 level of statistical significance:

H_1: The mean post-test knowledge score would be significantly higher than pre-test score.
H_2: There will be significant association between knowledge score and selected demographic variables

The review of literature in this study has been presented in the following headings:
1. Concept and cause of dermatitis.
2. Clinical features and treatment of dermatitis
3. Prevention of dermatitis.

METHODOLOGY

Methodology may be a description of process, or may be expanded to include a philosophically coherent collection of, concepts or ideas as they relate to a particular discipline or field of inquiry. The methodology of research indicates the general pattern to gather valid and reliable data for the problem under investigation.

This chapter describes the methodology adopted for evaluating effectiveness of planned teaching programme on prevention of dermatitis among people residing in selected industrial area. The methodology includes the research design, setting of the study, population, sample and sample size, sampling technique, description of the tool, method of data collection and plan for data analysis.

RESEARCH APPROACH

Research approach is a systematic, controlled, empirical and critical investigation of natural phenomena guided by theory and hypotheses about the presumed relations among such phenomena.

In view of the nature of the problem under study and to accomplish the objectives of the study evaluative approach was found to be appropriate to describe the effectiveness of planned teaching programme on prevention of dermatitis among people residing in selected industrial area.

The population under study consists of individuals residing in the selected industrial area at Mandedeep, Bhopal. Population

Pre- experimental approach is an applied form of research that involve finding out how well a programme, procedure or policy is working and its goal is to assess or evaluate the success of a programme.

The traditional strategy for conducting an evaluative research consists of the following steps:

1. Determining the objectives of the programme.
2. Developing a means of measuring the attainment of those objectives.
3. Collecting the data.
4. Interpreting the data in terms of the objectives.

RESEARCH DESIGN

Research design is the researcher's overall plan for obtaining answers to the research questions or for testing the research hypothesis. It is the overall plan for addressing a research question including specialization for enhancing the integrity of the study.

Pre-experimental, i.e., one group pre-test post-test design was adopted for the study. Here only one group was observed twice, before and after introducing the independent variable. The effect of treatment would be equal to the level of the phenomenon after the treatment minus the level of phenomenon before treatment.
This can be represented as:

Table 1: Representation of Research Design

Group	Pre-test Knowledge	Treatment (PLANNED TEACHING PROGRAMME)	Post-test knowledge	Effectiveness
Thirty people were selected	0_1	X	0_2	$0_2 - 0_1$

0_1 **:** Knowledge test before the intervention of planned teaching programe the group on prevention of dermatitis

0_2 **:** Knowledge test after the intervention of planned teaching programe of the group on prevention of dermatitis

X **:** Teaching strategy on prevention of dermatitis

In this study, the independent variable is the planned teaching program on the prevention of dermatitis. The independent variable stands alone and does not rely on any other factor. Its effect is examined in relation to the dependent variable, which in this case is the knowledge on the prevention of dermatitis. The dependent variable is the outcome or effect of the action of the independent variable and cannot exist independently. It is influenced by the planned teaching program, and its change is observed and measured throughout the study. Additionally, demographic variables such as age, sex, occupation, monthly income, type of family, family history, and previous information on dermatitis are considered. These demographic variables provide context and background information about the participants and may influence their response to the teaching program.

refers to all possible elements that could be included in research, representing the entire group under study. The sample for this study comprises 30 individuals selected using purposive sampling from the selected industrial area. Purposive sampling was deemed appropriate for this study to ensure that participants met specific criteria relevant to the research objectives. Inclusion criteria for the sample include willingness to participate, availability during data collection, and proficiency in reading and writing Hindi and English, while exclusion criteria involve individuals working in the health profession or suffering from mental illness. The development of the research tool involved several steps, including a review of literature, expert consultations, blueprint preparation, construction of a knowledge checklist, content validity assessment, pre-testing, and reliability testing, ensuring the tool's validity and reliability for data collection.

The preparation of the blueprint for the knowledge questionnaire involved structuring all 32 items based on the participants' knowledge levels. The blueprint encompassed items categorized into three domains of learning: knowledge, comprehension, and application. Within these domains, the distribution was as follows: 21 items (65.63%) focused on knowledge, 4 items (12.5%) on comprehension, and 7 items

(21.87%) on application. This comprehensive blueprint ensured that the questionnaire adequately assessed participants' understanding and application of dermatitis prevention concepts.

The structured knowledge questionnaire was designed to collect pertinent information regarding participants' knowledge of dermatitis prevention and evaluate the effectiveness of the planned teaching program. Divided into two parts, Part I gathered demographic information with eight items, while Part II comprised three sections focusing on different aspects of dermatitis prevention. Section A covered concepts and causes, Section B addressed clinical features and treatment, and Section C explored prevention strategies. Participants were instructed to select the most appropriate answer for each item, with scores ranging from one for correct responses to zero for incorrect ones, resulting in a total possible score of 32. To ensure the validity of the tool, content validity was assessed through expert consultation, incorporating feedback to refine and modify the questionnaire accordingly.

Ethical clearance was obtained from relevant authorities prior to data collection, ensuring compliance with ethical standards. Informed consent was obtained from participants, who were assured of the anonymity and confidentiality of their responses. The pre-testing of the validated tool involved assessing clarity, feasibility, and completion time, with data collected from ten participants. Subsequently, the tool's reliability was evaluated using the split-half method, yielding a significant correlation coefficient (r = 0.82). The development of the planned teaching program followed a systematic process, including literature review, outlining objectives and content, determining instructional methods and audiovisual aids, editing, and evaluation. Expert consultation and content validation ensured the effectiveness and relevance of the teaching plan, which was further assessed through checklist evaluation. This meticulous approach to tool development and teaching program design enhances the validity, reliability, and efficacy of the study's methodology and interventions.

PILOT STUDY
The pilot study served as a crucial step in refining the methodology of the proposed study, assessing its feasibility, and finalizing the plan for analysis. Conducted in BHEL Bhopal on 13.05.2018, the pilot study utilized ten subjects selected through purposive sampling, mirroring the characteristics of the final study sample. Data collection involved administering a structured knowledge questionnaire on prevention of dermatitis, followed by a planned teaching program on the same topic. A post-test was conducted six days later on 19.05.2018, using the same questionnaire to evaluate knowledge gain. Analysis of the collected data utilized descriptive and inferential statistics, including a paired t-test to determine the significance of differences between pre-test and post-test scores. The pilot study confirmed the feasibility of the study, cooperation of subjects, relevance of the questionnaire, and adherence to time and cost constraints.

The effectiveness of the planned teaching program was evaluated using the same structured knowledge questionnaire, measuring knowledge gain among participants. Data collection procedures ensured ethical standards were met, with informed consent obtained and anonymity and confidentiality assured. The researcher collected data from the sample, conducting pre-tests on 10.06.2018 followed by the planned teaching program, utilizing lecture-cum-discussion methods and AV aids. A post-test was conducted six days later on 25.06.2018 using the same questionnaire. Descriptive statistics were employed to summarize demographic variables, while inferential statistics, including paired t-tests, were used to analyze the effectiveness of the teaching program. Data analysis involved organizing data in a master sheet, calculating frequency and percentage, determining mean knowledge scores, and assessing statistical significance. The chapter underscores the importance of the pre-experimental approach, pilot study, and meticulous data analysis in ensuring the validity and reliability of the study's findings.

RESULTS
The results section serves as the cornerstone of a research project, providing a comprehensive analysis and interpretation of the collected data. It is through this phase that researchers reduce, summarize, organize, evaluate, interpret, and communicate numerical information obtained from their study. Analysis involves computation of measures and identification of patterns and relationships within the data, essential for achieving the research objectives and drawing meaningful conclusions. In this study, the data collected from 30 samples are processed and analyzed in an orderly coherent fashion to discern patterns and relationships, aligning with the study's objectives.

The main objectives of the study include assessing pre-existing knowledge about prevention of dermatitis among parents, evaluating the effectiveness of a planned teaching program on dermatitis prevention, and exploring associations between knowledge and selected demographic variables. Hypotheses are formulated to test specific assumptions, such as the expectation of a significantly higher mean post-test knowledge score compared to pre-test scores and the presence of significant associations between knowledge scores and demographic variables. The organization of findings is structured into sections detailing demographic characteristics of the sample, levels of knowledge regarding dermatitis prevention, effectiveness of the teaching program, and associations between knowledge scores and demographic variables.

Under each section, data analysis results are presented using various methods, including frequency and percentage distributions, mean standard deviations, cumulative frequency distributions, and area-wise comparisons of pre-test and post-test knowledge scores. This structured approach enables a comprehensive understanding of the research findings, facilitating meaningful interpretation and discussion. Overall, the results chapter provides insights into the effectiveness of the planned teaching program and sheds light on the relationship between knowledge levels and demographic variables in the context of dermatitis prevention among the study population.

Table 2: Frequency and percentage distribution of sample according to level of knowledge

Level of knowledge	Range	Pretest		Post test	
		Frequency	Percentage (%)	Frequency	Percentage (%)
poor	0-8	-	-	-	-
average	9-16	24	80	-	-
Good	17-26	6	20	-	-
Excellent	27-32	-	-	30	100
Total		30	100	30	100

The above table 2 shows that prior to the administration of educational package .In the pre test; Majority (80%) had average level of knowledge. In the post test 100% of them had adequate level of knowledge. In the pretest 20% of them had good level of knowledge. In the pretest none had adequate knowledge whereas in the post test 100% of them had adequate knowledge.
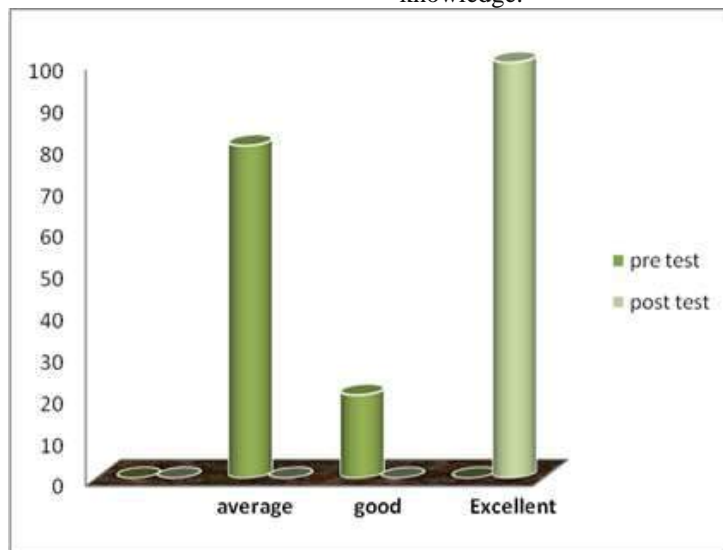
Figure 1: Percentage distribution of sample according to level of knowledge

Table: 3 Range of scores, mean, median and standard deviation of pre-test and post test knowledge level of people.

	Range of score	Mean	Median	SD
Pretest	11-23	14.93	15	2.72
post test	25-32	29.23	29	1.49

The data presented in the table:3 shows that post test knowledge score was in the range of 25-32 which was higher than pre test range 11-23 . The data also reveals that post test knowledge score mean (29.23) is significantly higher than mean pre test knowledge score (14.93)

Table: 4 Frequency and cumulative frequency distribution of pre-test and post-test knowledge score of the people.

Range	Pre-test		Post test	
	f	Cf	f	Cf
5 -9	-	-	-	-
10 -14	14	14	-	-
15 -19	14	28	-	-
20 -24	02	30	-	-
25 -29	-	-	20	20
30 -34	-	-	10	30
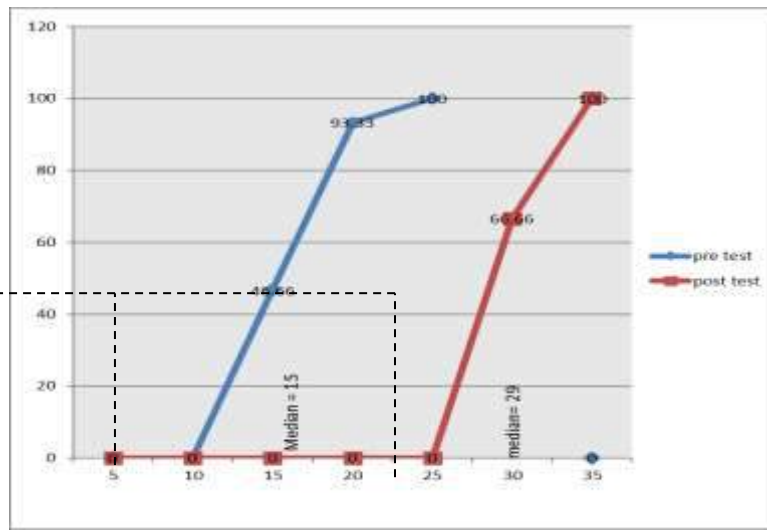
Figure: 2 Ogive representing pre and post test knowledge scores people regarding prevention of dermatitis.

The above figure 2 shows that Post test scores Ogive lies right to the pre test scores Ogive over the entire range shows that post test scores are more than pre test scores therefore planned teaching is effective. In the 50th percentile pre test score is 15 and post test score is 29.

Table: 5 Area wise mean, standard deviation of pre-test and post –test knowledge scores

Area	Maximum Score	Pre-Test		Post-Test		Mean Difference
		Mean	SD	Mean	SD	
Concept and cause	11	4.8	1.46	9.93	0.67	5.13
Clinical features and treatment	14	6.63	1.44	12.86	0.95	6.23
Prevention	7	3.53	1.38	6.43	0.55	2.9

The data in the table shows that mean score obtained by sample in different areas before and after the administration of educational package. It shows the difference between pretest means and post test means in different areas in the area of concept and cause 5.13, clinical features and treatment 6.23 and prevention 2.9.

Table: 6 Area –wise mean percentage and mean gain of pre-test and post-test knowledge score.

Areas of knowledge	Mean % knowledge score		Mean actual gain	%of modified gain score
	Pre-test	Post-test		
Concept and cause	43.63	90.27	46.64	82.73
Clinical features and treatment	60.27	91.85	31.58	79.86
Prevention	50.42	91.85	41.43	83.56

The data presented in the table shows that the percentage of modified gain score was maximum (83.56) in the area of definition least (-100).
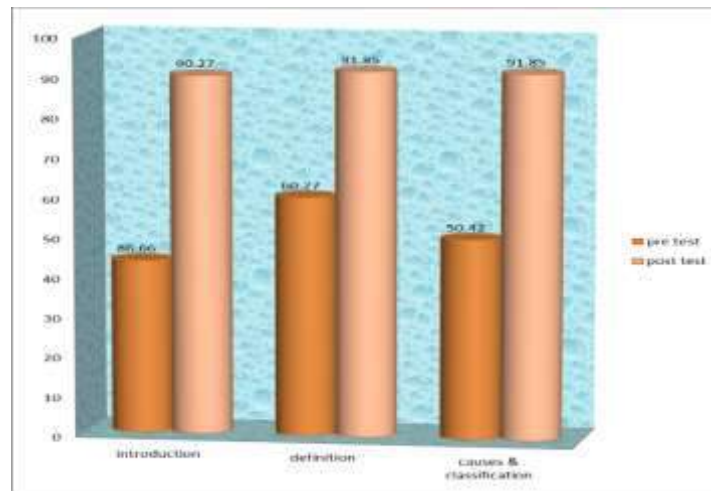
Figure 3: Bar figure showing the pre-test and post-test knowledge score.

Section C: Effectiveness of planned teaching programme on prevention of dermatitis

Comparison of over-all pretest and post test knowledge scores of participants

To find out the significant differences between the mean pre test and pot test knowledge score, paired "t" test was used .In order to test the statically significance between the pre test and post test knowledge score, the following null hypothesis was formulated .

H_2: The mean post test knowledge scores of people regarding the prevention of dermatitis will not be significantly higher than mean pre-test knowledge score at0.05 level.

Table: 7 Mean, Mean difference, SD & t value of pre test post test knowledge score.

Parameters	Mean	SD	Mean difference	t value
pre test	14.93	2.72	14.3	24.15
Post test	29.23	1.49		

$T_{49}= 2.045$, $P<0.05$

The data presented in the table shows that the mean post test knowledge score (29.23) was higher than the mean pre test knowledge score (14.93). The calculated t value (24.15), p 0.005 was greater than the table value ($T_9 =2.262$) at 0.005 level of significance. Hence it can be inferred that the planned teaching programme was effective in increasing the knowledge of people regarding prevention of dermatitis **H1 is accepted**.

Table 8: Comparison of area wise mean pretest and post test knowledge score:

Area	Pre-test		Post-test			
	mean	SD	mean	SD	Mean difference	't' value
Concept and cause	2.62	0.62	2.9	0.36	0.28	3.73
Clinical features and treatment	0.64	0.48	0.78	0.41	0.14	1.87
Prevention	5.06	2.83	7.18	2.40	2.12	6.69

$T_{49}= 2.045$, $P<0.05$

Section D: Association between per test knowledge scores and selected demographic variables.

The section deals the findings related to the association between pre test knowledge score and selected demographic variables .The Fisher exact probability test was used to determine the association between the pre test knowledge score and related demographic variables .The following null hypothesis was formulated.

H2: There will be **No significant** association between the pre test level of knowledge regarding prevention of dermatitis and selected demographic variables at 0.05 level of significance.

Table 9: The association between pre test knowledge score & selected demographic variables.

Sl no	Variables	F value	Inference
1	Age	0.04	significant
2	Gender	0.18	Not significant
3	occupation	0.035	significant
4	Income	0.14	Not significant
5	Type of family	0.08	Not significant
6	Family history of Skin allergy	0.30	Not significant

P=0.05

The above table 8 shows that there is no significant association between the selected demographic variables and pre test knowledge scores. Therefore **H2 is Rejected**.

DISCUSSION

The discussion section delves into the findings of the study, starting with an overview of dermatitis as a chronic, inflammatory skin condition influenced by genetic, environmental, and immune factors. Emphasizing the pivotal role of nurses in raising awareness to prevent dermatitis, the study evaluates the effectiveness of a planned teaching program among individuals in an industrial area in Bhopal. Employing a one-group pre-test post-test design, data were collected from 30 respondents before and after the teaching program's administration. The discussion is structured around four key areas: demographic characteristics, pre-existing knowledge of dermatitis prevention, effectiveness of the teaching program, and associations between knowledge and demographic variables.

The demographic analysis reveals notable trends, such as a higher prevalence of males and individuals aged 18-30 years in the sample. Comparisons with similar studies conducted in Iran and Iraq provide context to the prevalence and demographic distribution of dermatitis. Regarding pre-existing knowledge, findings indicate a moderate level of awareness among participants, with the highest mean percentage of knowledge scores observed in clinical features and treatment. However, overall knowledge is deemed poor across all areas of dermatitis prevention, highlighting the need for educational interventions.

The effectiveness of the teaching program is evident in the post-test results, with a significant increase in knowledge scores observed across all areas. Quartile distribution analysis further demonstrates substantial knowledge improvement post-intervention. Statistical analysis using paired t-tests confirms the efficacy of the teaching program, supporting the research hypothesis that post-test knowledge scores would be significantly higher than pre-test scores. Furthermore, associations between pre-test knowledge and demographic variables such as age and occupation are established through chi-square and Fisher exact tests, indicating significant correlations in certain cases. Conversely, no significant associations are found with variables like gender, income, type of family, and family history of skin allergy. Overall, the discussion underscores the importance of targeted educational initiatives in enhancing dermatitis prevention awareness and highlights areas for future research and intervention refinement.

SUMMARY & CONCLUSION

The study aimed to assess the effectiveness of a planned teaching program on dermatitis prevention among residents of a selected industrial area in Bhopal. Employing a one-group pre-test post-test design, data were collected from 30 respondents before and after the intervention. The objectives focused on determining pre-existing knowledge, evaluating the teaching program's effectiveness, and exploring associations between knowledge and demographic variables. Results indicated moderate baseline knowledge, with significant improvements post-intervention across all areas of dermatitis prevention. Notably, the teaching program demonstrated substantial effectiveness in enhancing participants' knowledge levels, as evidenced by the significant increase in post-test scores. Additionally, demographic analyses provided valuable insights into the characteristics of the sample population. Recommendations for future research include conducting similar studies with larger samples, incorporating control groups, and exploring diverse settings. Nursing implications underscore the role of nurses in educating communities on dermatitis prevention, highlighting the need for ongoing research and educational initiatives.

In conclusion, this study contributes to the understanding of dermatitis prevention among industrial area residents, emphasizing the crucial role of nursing interventions in promoting skin health. The findings suggest the effectiveness of planned teaching programs in enhancing knowledge levels and advocate for continued efforts in community education and awareness. Despite limitations such as sample size and lack of follow-up, the study offers valuable insights and sets the stage for further research in this area. Moving forward, ongoing studies and educational initiatives are vital in addressing dermatitis and improving public health outcomes in industrial areas.

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A PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFECT OF SELF-INSTRUCTIONAL MODULE ON KNOWLEDGE REGARDING PREVENTIVE MEASURES OF CHILD SEXUAL ABUSE AMONG PARENTS AT SELECTED SCHOOLS IN BHOPAL, M.P.

Prashant Shekhar Tripathi[1]

[1]Nursing Tutor, Psychiatric Nursing Department, Govt. Nursing college SSMC Rewa M.P.

ABSTRACT

The global population of children is projected to remain stable at approximately 1.9 billion by 2050, accounting for 20% of the world's population. However, amidst this demographic trend, the alarming prevalence of child sexual abuse persists, with statistics indicating that 1 in 5 girls and 1 in 20 boys fall victim to such abuse. Moreover, research reveals that a staggering 16% of young individuals aged 14 to 17 experience sexual victimization annually, while 28% encounter such abuse in their lifetime. In light of these concerning statistics, this study aims to assess the effectiveness of a self-instructional module in enhancing parents' knowledge of preventive measures against child sexual abuse. The research objectives include evaluating pre- and post-interventional knowledge scores among parents, examining significant differences between pre- and post-interventional measures, and exploring associations between pre-interventional knowledge and demographic variables. The study adopts the Public Health Model as its theoretical framework and employs a pre-experimental research approach among 60 parents in Bhopal, M.P., utilizing a structured questionnaire for data collection. Major findings indicate a significant improvement in parents' knowledge following the intervention, with implications for nursing practice, education, administration, and research. Recommendations include disseminating findings to relevant stakeholders and conducting similar studies across diverse populations to address the pressing issue of child sexual abuse effectively. Despite limitations, the study underscores the importance of educational interventions in mitigating this pervasive issue and emphasizes the role of parents in safeguarding children's well-being and safety.

KEYWORDS: *Child sexual abuse, preventive measures, parents, self-instructional module, knowledge enhancement, public health model, pre-experimental study.*

INTRODUCTION

Now there are 1.9 billion children in the world that constitute 27% of the world population. In 2050 there will still be an estimated 1.9 billion kids, but they will constitute only 20% of the world population. The threatening rays of child sexual abuse reveals those 1 in 5 girls and 1 in 20 boys are a victim of child sexual abuse. 16% of young people aged between 14 to 17 had been sexually victimized every year. A staggering 28% of all the youngsters aged between 14 to 17 had been sexually victimized in their Lifetime**.**

Child sexual abuse is a pervasive and distressing issue that poses significant risks to the well-being and safety of children worldwide. In response to this urgent concern, educational interventions aimed at equipping parents with knowledge and skills to prevent child sexual abuse have garnered increasing attention. This pre-experimental study endeavors to assess the impact of a self-instructional module on enhancing parents' knowledge regarding preventive measures of child sexual abuse within selected schools in Bhopal, Madhya Pradesh. Recognizing parents as primary caregivers and advocates for their children's safety, this study aims to empower them with crucial information and resources necessary for recognizing, preventing, and responding to instances of child sexual abuse effectively.

Child sexual abuse is a complex and multifaceted issue that demands a proactive and comprehensive approach to safeguarding children's rights and well-being. By evaluating the effectiveness of a self-instructional module tailored to the specific context of Bhopal, this study seeks to contribute to the growing body of literature on preventive strategies for addressing child sexual abuse. Through empowering parents with knowledge and awareness, it is anticipated that this intervention will not only enhance parental protective behaviors but also foster a culture of vigilance, openness, and support within the school community, ultimately creating safer environments for children to thrive and flourish

OBJECTIVES OF THE STUDY

1. Assess the pre-interventional knowledge score regarding preventive measures of child sexual abuse among parents.
2. Assess the post-interventional knowledge score regarding preventive measures of child sexual abuse among parents.
3. Find out the significant difference of pre-and post-interventional measures of prevention of child sexual abuse among parents.
4. Associate the pre-interventional level of knowledge score regarding prevention of child sexual abuse among parents with their selected demographic variables.

RESEARCH HYPOTHESES

- **H1:** There will be a significant difference between pre and post interventional knowledge scores regarding preventive measures of child sexual abuse among parents at p ≤ 0.05 level of significant.
- **H2:** There will be a significant association of pre interventional knowledge score regarding preventive measures of child sexual abuse among parents with their selected demographic variables at p ≤0.05 level of significant.

ASSUMPTION

- ❖ Parents may have some knowledge regarding preventive measures of child sexual abuse.
- ❖ Knowledge can be imparted through Self-instructional module.
- ❖ Self-instructional module will be beneficial for the parents for enhancing knowledge regarding preventive measures of child sexual abuse.

Theoretical frame work used is Public Health Model *(The public health approach to violence prevention)*. The research approach adopted for the study was pre-experimental - non-equivalents intended to measure the gain of knowledge score of parents who were given self-instructional module to enhance their knowledge regarding preventive measures of child sexual abuse. The study was conducted among 60 parents, Mother Theresa Senior Secondary Co -Ed School. Non-probability convenient sampling technique was employed to select the sample subjects and structured questionnaire was developed by the investigator for data collection.

After conducting pilot study main study was carried out among 60 parents of school going children.

MAJOR FINDING OF THE STUDY
1. Description of sample characterizes

- The following are the findings with reference to the demographic variables. Majority of samples (parents) 31 (51.8%) of samples were away from children for job. Regarding the parents those who were away from children for job, in majority of the cases father 7 (64.5%). Majority of samples had two children, 43 (71.6%). Regarding the education of father, majority 21 (35%) were Graduates. The number was less with 9 (15%) samples who were Post Graduates and above. Regarding the education of the mother, majority of mothers 21 (35%) were secondary education. Regarding the age of mother, majority of mothers 32 (53.3%) were 31-40 year of age Regarding the age of father, majority of father 30 (50%) were belong to 21-30 year of age Types of the family: Majority, 31 (51.6%), were from joint-families whereas in 27 (45%) were from nuclear-families. Majority of the samples, 39 (65%) had a monthly family income of Rs. 10,000-20,000. Regarding the area of residence, majority of them lived in urban areas; 42 (70%). Regarding previous knowledge about prevention of sexual abuse, 37 (61.6%) numbers. With previous knowledge respectively. Regarding the source of information majority of them got information through multimedia - 18 (48.6%).

Table 1: Frequency and percentage distribution of selected demographic variables

S.N.	Demographic Variables		Frequency (*f*)	Percentage (%)
1.	Are you away from children for job			
	A. Yes		31	51.8
	B. No		29	48.2
2.	If yes, who			
	A. Father		20	64.5
	B. Mother		9	29
	C. Both		2	6.4
3.	Number of children in the family			
	A. One		13	21.6
	B. Two		43	71.6
	C. Three		4	6.8
	D. Four and above		0	0
4.	Education of father			
	A. Primary		13	20
	B. Secondary		18	30
	C. Graduation		21	35
	D. P.G and above		8	15
5.	Age of mother			
	A. Below 21 year		3	5
	B. 21- 30 year		20	33.3
	C. 31-40 year		32	53.3
	D. 41 year or above		5	8.3
6.	Age of father			
	A. Below 21 year		5	8.3
	B. 21- 30 year		30	50
	C. 31-40 year		5	8.3
	D. 41 year or above		20	33.3
7.	Education of the mother			
	A. Primary		17	28.3
	B. Secondary		21	35
	C. Graduation		15	25
	D. P.G and above		7	11.6
8.	Types of the family			
	A. Single-Parents family		0	0
	B. Nuclear -family		27	45
	C. Joint family		31	51.6
	D. Broken family		2	3.3

Figure 1: The pyramid diagram showing percentage distribution of number of children in the family.

2. Knowledge score prior to administration of self-instructional module.
- Data reveals that majority 36 (60%) had average knowledge, 4 (6.7%) had poor knowledge and only 20 (33.3%) had good knowledge.
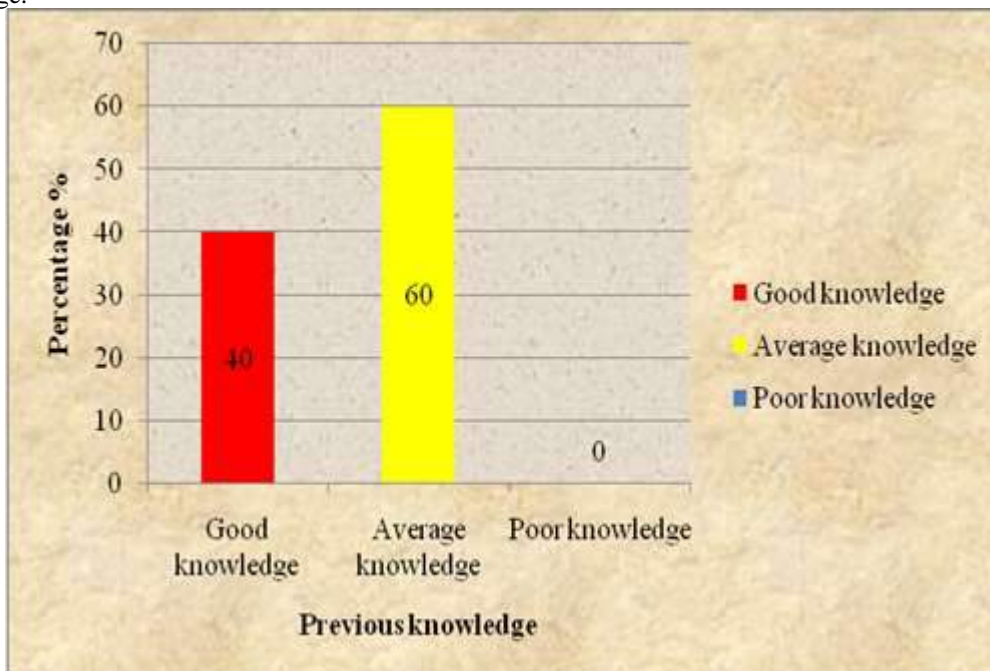
Figure 2: The Bar Diagram showing percentage wise distribution of pre-interventional knowledge score.

3. Knowledge score after the administration of self-instructional module.
Majority, 42 (70%) developed good knowledge, 18 (30%) developed average knowledge and nobody was with poor knowledge.

S.No	Knowledge score	Frequency (F)	Percentage (%)
1.	Good knowledge	42	70
2.	Average knowledge	18	30
3.	Poor knowledge	0	0

Table 2: Frequency and percentage distribution of post-intervention knowledge among parents.
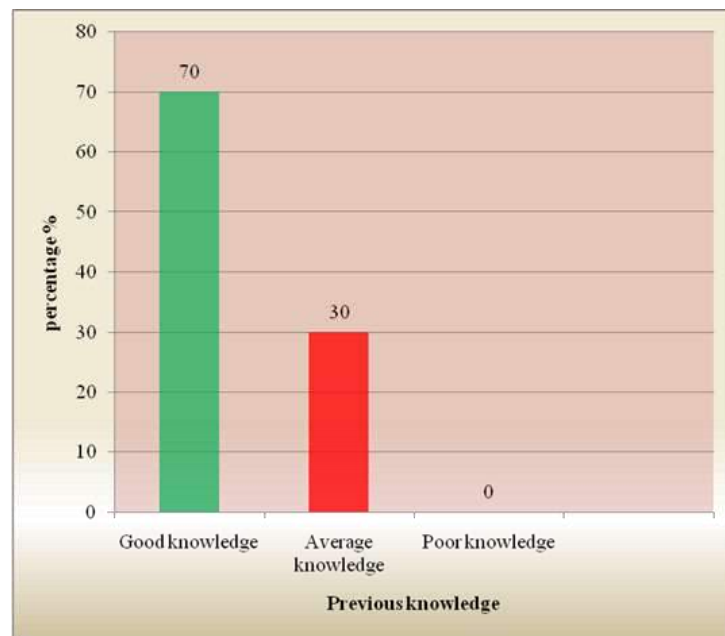
Figure 3: The percentage wise distribution showing post-interventional knowledge score.

4. Comparison between pre-and post-interventional knowledge score among the parents of school children.
Table 3:

Experimental Group	Mean	Mean difference	Mean percentage	SD	Paired "t" value
Pre-test	17.73	3.47	45.54	3.81	6.743
Post –test	21.2		54.45	3.42	

Comparison between pre-and post-interventional knowledge score among the parents of school children

Data in table 3 depicts that the pre-interventional level shows a mean value of 17.73 with standard deviation of +/-3.81, post-interventional level shows mean value as 21.2 with standard deviation of +/-3.42, the mean difference is 3.47, mean percentage of pre-interventional level is 45.54 and post-test is 54.45, computed paired "t" value is 6.743. Therefore, the obtained mean deference is a true difference and not by chance. This indicates the self-instructional module on prevention of child sexual abuse was effective in developing knowledge among parents. Hence research H2 is accepted.

5. Association between pre-interventional knowledge score among the parents of children with their demographic variables.
➢ The association between pre-interventional knowledge score with their demographic variables such as 'if yes', area of residence, and source of information about prevention of sexual abuse show a significant association with Chi-square value of 10.685, 10.25, 5.291. So the hypotheses, 'there will be a significant association of pre-interventional knowledge score with selected demographic variables at $p < 0.05$ level is accepted.
➢ The association between pre-interventional knowledge score with the demographic variables such as, are away from children for their job, 'if yes' - who, education of father with Chi-Square value obtained 16.79, 6.12, 12.34, respectively with pre-interventional knowledge score.

The finding reveals that parents away from children for their job, 'if yes' then who, area of residence, and source of information about prevention of sexual abuse, education of father, etc. had a positive effect towards better awareness and prevention of child sexual abuse among parents.

Structured questionnaire and self-instructional module were validated by the experts. Reliability of the tool was done using KR 20 (Kuder and Richerdson) formula and it was found to be significant i.e. structured knowledge questionnaire (r = 0.7).
        Findings of the study have implication for nursing practice, nursing education, nursing administration, and nursing research.

Nursing Practice
As a nurse, one should promote the mental health of children in order to prevent sexual abuse and thereby reduce the risk of associated complications and mental trauma in children.

Nursing Administration
They can promote their nurses for in-service education programs, certification courses on prevention of child sexual abuse and may even start educational programs for nurse educators and child victims based on the lifestyle modification.

Nursing Education
As nurse educators, in Mental Health, Community Health, and Medical and Surgical Nursing it is our prime responsibility to update our knowledge to equip ourselves with the latest information on the prevention and management of sexual abuse

of children so that we are well qualified to train the parents. There is an urgent need for such training in order to save thousands of innocent children from being victims of sexual harassment.

Nursing Research
The finding of the study can be used by researchers or be disseminated to improve knowledge and awareness among parents to prevent sexual abuse of children.

RECOMMENDATIONS
On the basis of the findings and experience of investigator during conduction of this study the following recommendations are being made: -
o Data can be submitted to schools, hospitals, parents' associations and governmental and non-governmental organizations for planning of health education strategies to control sexual abuse of children.
o A similar study can be conducted on children so that preventive sex education would be more effective.
o The setting can be replaced in other communities with less educational status.
o A similar study can be done to identify the secondary health problems among children who are exposed to sexual abuse.
o A similar study can be done in different ages groups of children according to their understanding.
o A similar study with different module can be done for teachers, wardens, and others who are directly involved with the care of children.
o A descriptive study can be done in larger population.

LIMITATIONS
• The small number of subjects restricted the generalization of results.
• The study was limited to parents only.
• Self-instructional module was likely to be influenced by samples' environmental factors, busy schedule or investigators personal bias

CONCLUSION
The finding of the study concludes that self- instructional module, on knowledge regarding preventive measures of child sexual abuse among parents of school children was effective in enhancing knowledge level of parents. The baseline data of this study can be submitted to school, hospitals, parent's associations and governmental and non-governmental organizations for planning of health education strategies to control sexual abuse of children.

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A DESCRIPTIVE STUDY ON ASSESSING THE KNOWLEDGE REGARDING MENTAL ILLNESS AMONG B.SC. NURSING STUDENTS IN GWALIOR, INDIA

Akash Kushwah[1]

[1]Nursing Tutor, Psychiatric Nursing Department, Govt. Nursing College SSMC Rewa M.P.

INTRODUCTION

Mental illness encompasses a spectrum of conditions affecting mental and emotional well-being, often leading to significant disruptions in daily life activities. Despite advancements in treatment and understanding, societal attitudes towards mental illness persist, influenced by historical, cultural, and media portrayals. Stigma remains a formidable barrier, impacting individuals' interactions, employment opportunities, and quality of life. This study aims to assess the knowledge of mental illness among B.Sc. Nursing Students, recognizing the crucial role they play in healthcare delivery.

BACKGROUND

Historically, individuals with mental illness faced societal ostracization, rooted in misconceptions and fear. Even today, negative attitudes and stigma surround mental health conditions, leading to discrimination and isolation. Despite being treatable, mental illness is often misunderstood, with myths perpetuating misconceptions about its causes and manifestations. Media portrayal further exacerbates these misconceptions, reinforcing stereotypes of danger and violence associated with mental illness.

The prevalence of mental illness globally underscores the need for improved understanding and awareness. However, cultural beliefs and lack of education contribute to the perpetuation of stigma, hindering efforts for effective intervention and support. In India, where mental health resources are limited, addressing stigma becomes imperative for promoting holistic well-being.

OBJECTIVES

This study aims to:
1. Assess the knowledge of B.Sc. Nursing Students regarding mental illness.
2. Determine the association of knowledge with selected demographic variables.

HYPOTHESIS

Ho: There will be no significant relationship between B.Sc. Nursing Students' knowledge and selected demographic variables.
H1: There will be a significant relationship between B.Sc. Nursing Students' knowledge and selected demographic variables.

METHODOLOGY

Research Approach: A descriptive survey research approach will be employed to assess B.Sc. Nursing Students' knowledge of mental illness.

Research Design: A non-experimental research design will be utilized, focusing on data collection without intervention.

Variables: The dependent variable is the knowledge of B.Sc. Nursing Students regarding mental illness.
Setting: The study will be conducted at the School of Nursing Science, ITM University, Gwalior, India.

Population and Sample: The target population comprises B.Sc. Nursing Students at the selected college, with a sample size of 50 students selected through convenient sampling.

Data Collection: Data will be collected using structured questionnaires to assess knowledge levels, demographic information, and attitudes towards mental illness.

Data Analysis: Descriptive and inferential statistical analyses will be employed to assess knowledge levels and explore associations with demographic variables.
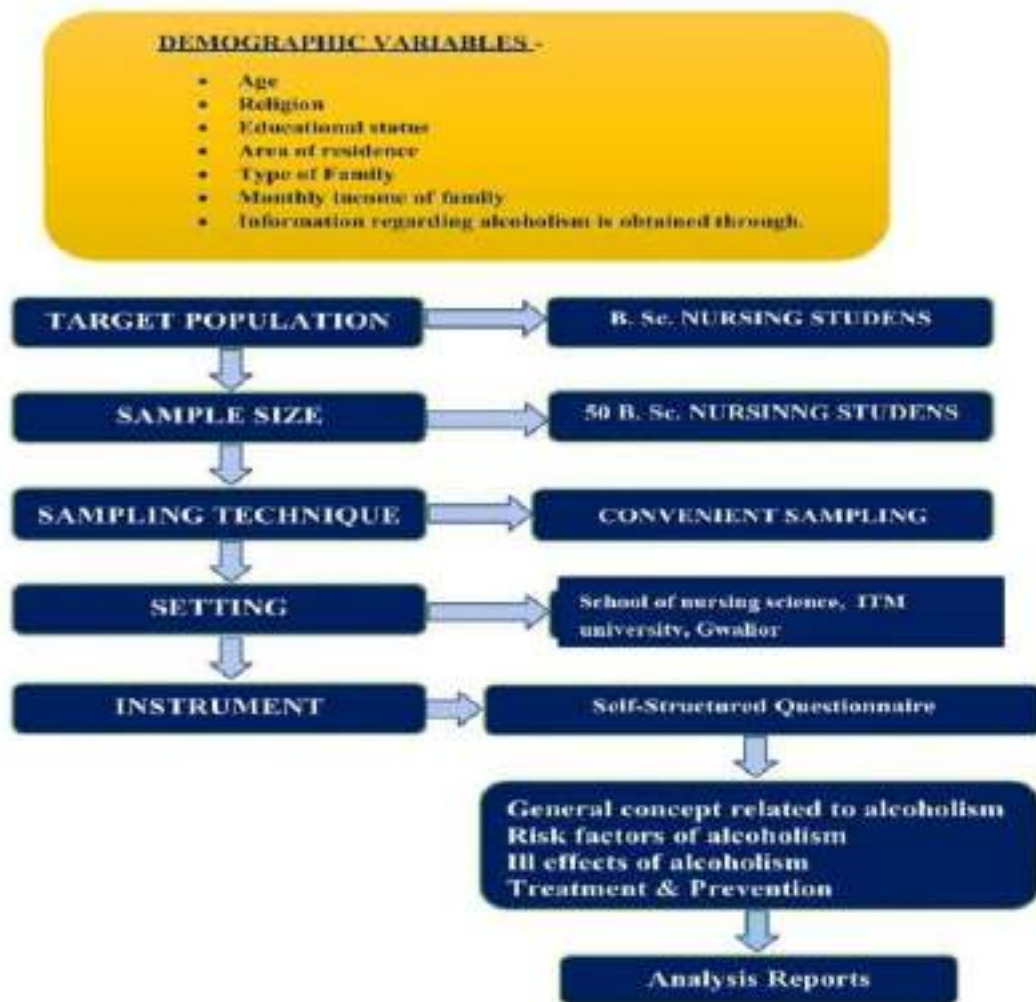
Figure 1: Schematic Representation of Methodology

DATA COLLECTION TOOLS AND TECHNIQUES

Data collection tools are critical devices used by researchers to gather data. A reliable and valid instrument ensures high-quality data collection. For a study aiming to assess the knowledge of B.Sc.

Nursing Students regarding mental illness, a structured knowledge questionnaire was developed. This questionnaire comprised two parts:

1. **Part I**: Socio-demographic data of the subjects.
2. **Part II**: 20 multiple-choice questions to assess knowledge regarding mental illness.

The scoring for the questionnaire was as follows:
- Score of 1 for every correct answer.
- Score of 0 for every incorrect answer.

Knowledge scores were categorized as follows:
- 0-10: Poor knowledge
- 11-15: Average knowledge
- 16-20: Good knowledge

PILOT STUDY

Polit & Hungler (1995) stated that the "pilot study is as small-scale version or trial run for the major study ". The primary objective of the pilot study is to test as many element of the research proposal as possible , in order to correct any part that does not work well. A pilot study was conducted on 10/03/2016 on B.Sc Nursing students studying in School of Nursing Science ITM University Gwalior (M.P.).

The B.Sc Nursing student were selected through non probability convenient sampling method.

DATA COLLECTION PROCEDURE

Permission was obtained from the Principal of the School of Nursing Science, ITM University, Gwalior, before data collection. The study was conducted on April 16, 2016. Prior to data collection, the purpose of the study was explained to the participants, and their consent was obtained. The data collection technique involved self-reporting using a paper-and-pencil method.

DATA ANALYSIS AND INTERPRETATION

Data collected from 50 B.Sc. Nursing Students from a selected college of nursing in Gwalior was analyzed using descriptive and inferential statistics. The analysis aimed to categorize, order, manipulate, and summarize the data to answer research questions and test relationships between variables.

OBJECTIVES OF THE STUDY

1. To assess the knowledge regarding mental illness among B.Sc. Nursing Students.
2. To determine the association of knowledge with selected demographic variables.
3. To find the association between pre-test and post-test knowledge scores and demographic variables.

PRESENTATION OF DATA

Data was organized and presented in three sections:

1. Description of demographic variables.
2. Description of pre-test knowledge scores.
3. Relationship between knowledge and selected demographic variables.
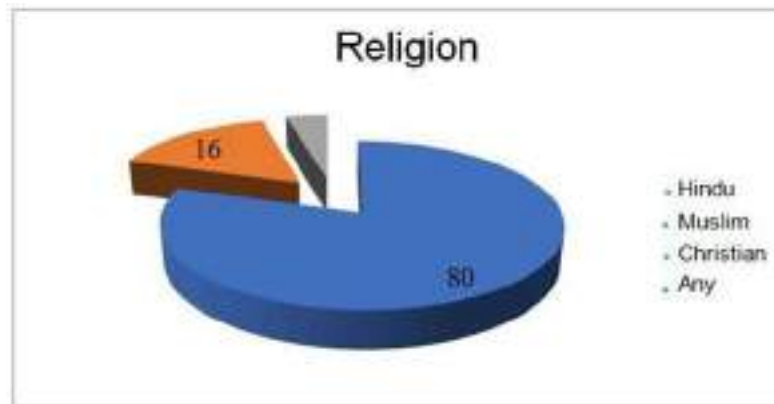
Fig 2 Pie Diagram Representing the Percentage Distribution of B. Sc. Nursing Students According to Religion The data presented in fig 2 depicts that majority of the B. Sc. nursing students 40 are Hindu, 8 of B. Sc. nursing students are Muslim and rest 2 are Christian.

Pre-test Knowledge	Frequency	Percent
Poor	37	74.0
Average	6	12.0
Good	7	14.0
Total	50	100.0

Table 1: Distribution of Pre-test according to Frequency and Percentage

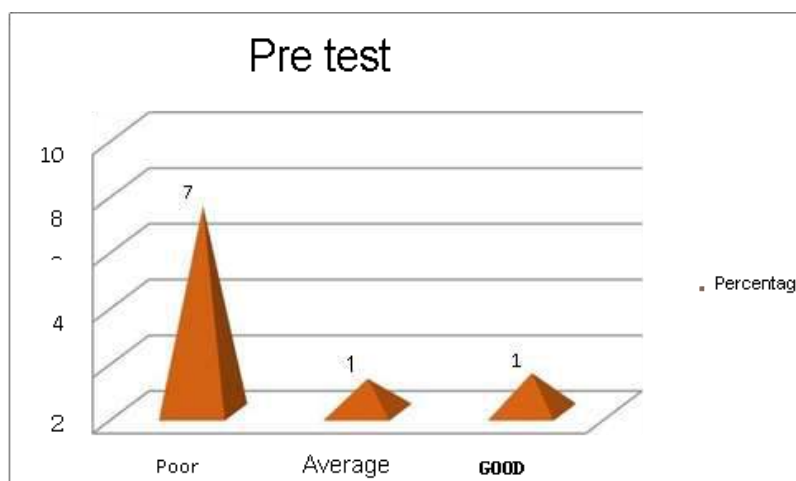**Fig 3: Cone Graph Representing the Percentage Distribution Pre-Test**

The data presented in fig 3 depicts that majority of the B. Sc. Nursing Students 37 had poor knowledge, 6 of the students had average knowledge, and 7 of the students had good knowledge.

S.No.	Pre-test knowledge	Poor	Average	Good	Total	Chi-square test	Df	P value	Significance
1	**Age**								
	<20 years	18	0	0	18	29.873	6	.000*	S
	20-25 years	13	0	0	13				
	26-30 years	6	5	6	17				
	>30 years	0	1	1	2				
2	**Religion**								
	Hindu	31	4	5	40	3.793	4	.435	NS
	Muslim	5	2	1	8				
	Christian	1	0	1	2				
	Any other								
3	**Marital status**								
	Married	0	3	3	6	19.562	2	.000*	S
	Unmarried	37	3	4	44				
4	**Education**								
	B.Sc. Nursing 1st group	20	0	0	20	36.564	6	.000*	S
	B.Sc. Nursing 2nd group	12	0	0	12				
	B.Sc. Nursing 3rd group	2	4	2	8				
	B.Sc. Nursing 4th group	3	2	5	10				

Table 2 Association of Knowledge with Socio demographic data
*P value is significant at $P<0.05$.

As per association between pre-test knowledge score and demographic data, age, educational status and marital status is associated with pre-test knowledge score whereas religion, monthly income of the family, area of residence, and awareness about mental illness through, is not associated with pre-test knowledge score.

Hence, Hypothesis H1 was accepted and researcher failed to reject null hypothesis.

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, LIMITATIONS, SUMMARY, AND CONCLUSION

Discussion: The study's major findings were discussed in relation to other studies. It highlighted the poor knowledge among B.Sc. Nursing students regarding mental illness.

Implications: The study's findings suggest the need for incorporating mental illness topics into general and nursing education curricula. In-service education for nurses and health education programs for the community were recommended.

Recommendations: The study recommended conducting similar studies on a larger scale, evaluating the effectiveness of educational modules, and investigating attitudes towards mental illness.

Limitations: The study was limited by a small sample size and the specific location of the college, which restricts generalizability.

Summary and Conclusion: The study concluded that B.Sc. Nursing students had poor knowledge scores regarding mental illness. The association between knowledge scores and demographic variables was significant for age, educational status, and marital status.

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THE INTEGRAL ROLE OF CHILD HEALTH NURSES IN PROMOTING INFANT NUTRITION: A COMPREHENSIVE REVIEW

Ms. Achun Rongmei[1]

[1]Assistant Professor, Department of Nursing, Indira Gandhi National Tribal University, Amarkantak , Lalpur MP.484886

ABSTRACT

This review article explores the crucial role of child health nurses in promoting optimal infant nutrition. With a focus on evidence-based practices and innovative strategies, this paper highlights the multifaceted responsibilities of child health nurses in supporting breastfeeding, introducing complementary foods, and addressing nutritional challenges in infancy. Through a thorough examination of current literature, this review underscores the importance of effective nurse-led interventions in promoting healthy growth and development in infants. Keywords: Child Health Nursing, Infant Nutrition, Breastfeeding, Complementary Feeding, Nurse-led Interventions.

KEYWORDS*: Child Health Nursing, Infant Nutrition, Breastfeeding, Complementary Feeding, Nurse-led Interventions.*

INTRODUCTION

The critical importance of optimal nutrition during infancy cannot be overstated. The first years of life constitute a period of rapid growth and development, during which nutrition plays a foundational role in shaping long-term health outcomes. Recognizing the significance of early nutrition, healthcare providers, particularly child health nurses, assume a central role in supporting families to establish and maintain healthy feeding practices for their infants.

Child health nurses serve as frontline advocates for infant nutrition, offering guidance, education, and support to parents and caregivers. Their role extends beyond the clinical setting, encompassing community outreach, public health initiatives, and policy advocacy. In this review, we explore the multifaceted responsibilities of child health nurses in promoting infant nutrition, with a focus on evidence-based practices and innovative strategies.

Breastfeeding, widely recognized as the optimal mode of infant feeding, provides a unique blend of nutrients, antibodies, and bioactive factors essential for infant growth, development, and immune function. Child health nurses play a pivotal role in facilitating successful breastfeeding initiation and continuation. Through comprehensive lactation support programs, anticipatory guidance, and troubleshooting of breastfeeding challenges, nurses empower mothers to overcome barriers and achieve their breastfeeding goals.

As infants transition to complementary foods, child health nurses guide parents through this important stage of development, offering evidence-based recommendations on appropriate timing, texture, and variety of foods. They address common concerns related to infant feeding practices, such as picky eating and food refusal, and promote responsive feeding interactions that support healthy eating habits.

Moreover, child health nurses are trained to identify and address nutritional challenges that may arise during infancy, such as failure to thrive, food insecurity, and special dietary needs. Through comprehensive assessments, individualized care plans, and collaboration with interdisciplinary teams, nurses ensure that infants receive the nutrition they need to thrive.

In summary, child health nurses play a vital role in promoting infant nutrition through breastfeeding support, introduction of complementary foods, and addressing nutritional challenges. Their expertise, compassion, and advocacy contribute to the health and well-being of infants and families, underscoring the importance of investing in nurse-led interventions to optimize infant nutrition and improve long-term health outcomes.

Through this review, we aim to provide healthcare professionals and policymakers with a comprehensive understanding of the integral role of child health nurses in promoting infant nutrition, thereby fostering collaboration and innovation in the field of pediatric healthcare

BREASTFEEDING SUPPORT

Breastfeeding is universally recognized as the optimal feeding method for infants, providing unparalleled nutrition and immune protection. Child health nurses serve as crucial advocates and educators in supporting breastfeeding initiation and continuation among new mothers. The multifaceted role of child health nurses in breastfeeding support encompasses a range of activities aimed at empowering mothers and optimizing breastfeeding outcomes.

Education and Antenatal Counseling: Child health nurses play a vital role in educating expectant mothers about the benefits and mechanics of breastfeeding during prenatal consultations.

Through antenatal counseling sessions, nurses provide evidence-based information on the importance of breastfeeding, techniques for achieving a proper latch, and strategies for addressing common breastfeeding challenges. These sessions prepare mothers for the breastfeeding journey and instill confidence in their ability to nurture their infants.

Lactation Support and Assistance: Following birth, child health nurses offer immediate postnatal support to facilitate successful breastfeeding initiation. They assist mothers in achieving a proper latch, positioning the infant for optimal feeding, and ensuring adequate milk transfer. When mothers encounter difficulties such as nipple pain, engorgement, or perceived low milk supply, nurses provide expert guidance and practical solutions. Additionally, nurses collaborate with lactation consultants and other healthcare professionals to address complex breastfeeding issues and provide ongoing support throughout the breastfeeding journey.

Promotion of Skin-to-Skin Contact: Child health nurses advocate for skin-to-skin contact between mothers and newborns immediately after birth, promoting early bonding and initiation of breastfeeding. Skin-to-skin contact enhances maternal-infant attachment, regulates infant body temperature, and stimulates the release of hormones that facilitate breastfeeding success. Nurses encourage mothers to practice skin-to-skin contact frequently, both in the hospital setting and at home, to promote breastfeeding establishment and maintain milk supply.

Responsive Feeding Practices: Child health nurses promote responsive feeding practices that prioritize the infant's hunger and satiety cues, fostering a positive breastfeeding experience for both mother and baby. Nurses educate mothers on recognizing hunger cues, such as rooting and sucking motions, and encourage frequent, on-demand breastfeeding sessions to meet the infant's nutritional needs. Through responsive feeding, mothers learn to trust their instincts and develop a deeper understanding of their infant's feeding patterns, leading to successful breastfeeding outcomes.

Community Support and Peer Counseling: Child health nurses facilitate access to community-based breastfeeding support groups and peer counseling programs, creating a supportive network for breastfeeding mothers. These groups provide a forum for mothers to share experiences, seek advice, and receive encouragement from peers who have successfully navigated the breastfeeding journey. Nurses play a pivotal role in facilitating these support networks, offering guidance and reassurance to mothers as they navigate the challenges and joys of breastfeeding.

In summary, child health nurses play a pivotal role in promoting successful breastfeeding initiation and continuation through education, lactation support, promotion of skin-to-skin contact, responsive feeding practices, and community-based support networks. By empowering mothers with knowledge, skills, and emotional support, nurses contribute to improved breastfeeding outcomes and the overall health and well-being of infants and families.

INTRODUCTION OF COMPLEMENTARY FOODS

The introduction of complementary foods marks a critical milestone in an infant's nutritional journey, transitioning from exclusive breastfeeding or formula feeding to a varied diet that includes solid foods. Child health nurses play a pivotal role in guiding parents through this important phase, offering evidence-based information and support to ensure a smooth and nutritious transition.

1. **Guidance on Timing and Readiness:** Child health nurses provide valuable guidance to parents on the appropriate timing for introducing complementary foods, typically around six months of age, when infants show signs of readiness. These signs include sitting with minimal support, showing interest in food, and demonstrating the ability to chew and swallow. By educating parents on the importance of waiting until the recommended age, nurses help to mitigate the risk of early introduction of solids, which has been associated with an increased risk of allergies and gastrointestinal issues.

2. **Nutritional Recommendations:** Nurses offer comprehensive nutritional recommendations regarding the types of foods to introduce, emphasizing the importance of nutrient-rich options to support growth and development. They advocate for a diverse diet that includes fruits, vegetables, grains, protein sources, and healthy fats, while advising against the introduction of foods high in salt, sugar, and saturated fats. By promoting nutrient-dense choices, nurses contribute to the establishment of healthy eating habits that can last a lifetime.

3. **Texture and Variety:** Child health nurses assist parents in understanding the importance of gradually transitioning from smooth purees to lumpier textures and eventually to family foods, tailored to the infant's developmental readiness and oral motor skills. They emphasize the value of offering a variety of flavors and textures to expose infants to a wide range of tastes and encourage acceptance of different foods. Through practical demonstrations and educational materials, nurses empower parents to prepare and serve age-appropriate meals that meet their infant's evolving nutritional needs.

4. **Addressing Concerns and Challenges:** Child health nurses are equipped to address common concerns and challenges that may arise during the introduction of complementary foods. They provide guidance on managing issues such as food allergies, choking hazards, and feeding difficulties, offering practical strategies to promote safe and enjoyable mealtimes. Nurses also address parental anxieties related to infant feeding practices, offering reassurance and support as families navigate this new phase of their child's development.

5. **Promoting Responsive Feeding Practices:** Central to the role of child health nurses is the promotion of responsive feeding practices that foster a positive feeding relationship between parents and infants. Nurses educate parents on the importance of recognizing hunger and satiety cues, allowing infants to self-regulate their intake

and develop healthy eating habits. By encouraging responsive feeding interactions, nurses help to prevent overfeeding, reduce the risk of childhood obesity, and promote a positive mealtime environment.

In summary, the introduction of complementary foods represents a significant milestone in an infant's nutritional journey, and child health nurses play a crucial role in guiding parents through this transition. Through evidence-based guidance, nutritional recommendations, and support, nurses empower parents to provide their infants with a diverse and nutritious diet that promotes optimal growth, development, and lifelong health.

ADDRESSING NUTRITIONAL CHALLENGES

Child health nurses are tasked with identifying and managing a range of nutritional challenges that infants and their families may encounter. These challenges can include but are not limited to:

1. **Failure to Thrive:** Child health nurses are trained to recognize signs of failure to thrive, a condition characterized by inadequate weight gain and growth faltering. Through comprehensive assessments, nurses evaluate factors contributing to poor growth, such as inadequate caloric intake, underlying medical conditions, or psychosocial stressors. Nurses collaborate with families and healthcare providers to develop tailored interventions, which may involve nutritional counseling, feeding therapy, or referrals to specialists for further evaluation and management.

2. **Food Insecurity:** Food insecurity, defined as limited or uncertain access to adequate food, can have detrimental effects on infant nutrition and health. Child health nurses screen families for food insecurity and provide support in accessing food assistance programs, community resources, and nutrition education. Nurses work collaboratively with social workers, dietitians, and community organizations to address the underlying social determinants of food insecurity and advocate for policies that promote food equity and access.

3. **Special Dietary Needs:** Some infants may have special dietary needs due to medical conditions, food allergies, or intolerances. Child health nurses play a crucial role in educating families about appropriate dietary modifications, such as elimination diets, hypoallergenic formulas, or specialized feeding techniques. Nurses work closely with pediatricians, allergists, and dietitians to develop individualized feeding plans that ensure optimal nutrient intake while minimizing risk of adverse reactions. They also provide ongoing monitoring and support to help families navigate the challenges associated with managing special dietary needs.

4. **Nutritional Education and Counseling:** Child health nurses provide evidence-based nutritional education and counseling to empower families to make informed decisions about infant feeding and nutrition. They offer guidance on age-appropriate feeding practices, portion sizes, and dietary diversity to promote optimal growth and development. Nurses address common misconceptions and myths surrounding infant nutrition, emphasizing the importance of responsive feeding, mealtime routines, and

positive feeding interactions. They also provide practical tips and resources to help families overcome barriers to healthy eating, such as limited food budgets, cultural preferences, or feeding difficulties.

5. **Community Engagement and Advocacy:** Child health nurses engage with community stakeholders and advocate for policies and programs that support infant nutrition and food security. They collaborate with local agencies, schools, and healthcare providers to promote breastfeeding-friendly environments, improve access to healthy foods, and address food deserts in underserved communities. Nurses participate in public health initiatives, such as breastfeeding awareness campaigns, nutrition education workshops, and community health fairs, to raise awareness about the importance of infant nutrition and mobilize resources to support families in need.

In summary, child health nurses play a vital role in addressing nutritional challenges in infancy through comprehensive assessment, individualized interventions, and advocacy efforts. By providing holistic care that addresses the social, emotional, and cultural determinants of health, nurses contribute to the promotion of optimal nutrition and well-being for all infants and their families.

CONCLUSION

In conclusion, child health nurses play a critical role in promoting infant nutrition through breastfeeding support, introduction of complementary foods, and addressing nutritional challenges. By employing evidence-based practices and fostering collaborative partnerships with families and communities, nurses contribute to the health and well-being of infants and families. Continued investment in nurse-led interventions is essential to ensure optimal nutrition and improve long-term health outcomes for future generations.

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ASSESSING NEW STRATEGIES IN PRINCIPAL'S MANAGEMENT CAPACITY AS A PREDICTOR OF TEACHER'S JOB PERFORMANCE IN SENIOR SECONDARY SCHOOLS (SSS) IN ADAMAWA STATE, NIGERIA

Amina Mohammed, Ph.D[1], Lawson Luka[2], Sa'ad Mohammed[3]

Federal College of Education, Yola, Educational Foundations

ABSTRACT

Assessing new strategies such as monitoring and supervision strategies, motivation strategies, role model strategies and social media strategies among others in principals' management capacity in planning, organizing, directing, coordinating and controlling is paramount for teachers' job performance in lesson plan, lesson delivery, teaching strategies, lesson notes and classroom management. This study was carried out using correlational research design. The population of the study is 309 principals and 4,388 teachers in Senior Secondary Schools (SSS) in Adamawa State. A sample of 46 principals and 439 teachers was used for the study. Two questionnaires were used for the study. Results obtained shows that there is a significant relationships between principal's management capacity in planning, organizing, directing, coordinating and controlling as it predicts teachers' job performance in lesson plan, lesson delivery, teaching strategies, lesson notes and classroom management. Based on this it is recommended that; Principals should emphasize on their planning capacity for proper guidance on what teachers need to do for effective teaching/learning in SSS in Adamawa State, Principal should assign duties and responsibilities to teachers for effective teaching/learning in SSS in Adamawa State, Principals should use effective monitoring and supervision strategies in working with teachers for effective teaching/learning in SSS in Adamawa State.

INTRODUCTION

Education is a tool for growth and progress; it does not only inculcate knowledge but also prepare individuals for the development of themselves and the society in which they live. No education can rise above the quality of its teachers. The quality of teachers is determined by their training and capability in carrying out their responsibilities. Some teachers are intrinsically motivated and hence they need only to be provided with necessary facilities needed for their task; and they can work effectively with little or no supervision. However, there are also teachers who are not willing to work except with constant supervision. Uzoechina and Nwankwo cited in Ozuluonye, Ifeanyichukwu and Chijiuka (2020) identified truancy, lateness, poor performance and negative attitudes of teachers as issues of major concern that affect secondary schools. In the same vein, even though most of the public Senior Secondary Schools (SSS) have better facilities, school environment, qualified teachers and principals than most private SSS in the state, many parents prefer to send their children to private SSS. This may not be unconnected with the fact that teaching and learning is far better in private SSS than the public SSS.

Principals' management capacity in planning, organizing, directing, coordinating and controlling the activities of SSS is necessary to enhance teachers' job performance. However, weaknesses are displayed by principals in using these management functions to improve teachers' job performance. Some principals sit in their offices immediately they arrived in schools or after assembly and do not bother about what goes on in the classrooms, staffroom or the school premises. Monitoring and supervision of staff is neglected, instructional supervision of lesson plan, lesson note, lesson delivery and other job responsibilities of teachers are left for vice principals or senior masters or mistresses. Such activities may not be supervised well and the principal may or may not also be aware of the situation, thereby leading to poor job performance from the teachers.

Principals Management Capacity and Teachers Job Performance

This study adopts theory X and theory Y propounded by Douglas McGregor in 1950. According to Arslan and Staub (2013), McGregor argued that there are two types of managers. Those managers, who assume that workers are lazy, avoid responsibility and will always stand by without doing the organizational tasks (theory X). There are also those managers who assume that workers have regard for the organization, will carry out their responsibilities and exercise self-control (theory Y). Theory X emphasized on the authorization style of management where managers are required to give instructions and constantly supervise the employee. This is based on the assumption that employees are not motivated and dislike to carry out their task. Theory X explains the importance of supervision, external

rewards and penalties. Theory Y on the other hand deals with the participative style of management where employees are regarded as self-directed and self-motivated to work for the achievement of the organizational goals. Theory Y highlights the motivating role of job satisfaction and encourages workers to do their work without direct supervision. Theory X and theory Y can affect employee motivation and productivity, hence the need for managers to employ strategies from both theories in the day to day management of their organization.

These theories fit in to this study because in every school you find teachers who are motivated to do their work with little or no supervision. Similarly, in the same school you find teachers who are not willing to carry out their responsibilities except with constant checks and supervision. Principals are faced with these situations on a daily basis and therefore need to employ the use of theory X and theory Y to enhance teachers' job performance in their schools. In the same vein, the use of these theories will enable a principal to employ new strategies in using the management functions for the improvement of teachers' job performance in the management of their schools.

Managerial strategies as defined by Obiekwe, Thompson and Ikedimma (2021) are those competences required for effective and efficient planning, staffing, organizing, coordinating, controlling and decision making. The researchers further defined Managerial strategies for principals as their ability to successfully plan, organize, coordinate, control, make decisions and initiate actions to aid the effective management of schools. Such managerial strategies that enhance principals' management capacity (ability to plan, organize, direct, coordinate and control the activities of their schools effectively) include: monitoring and supervision strategies, motivation strategies, role model strategies, staff personnel strategies, students personnel strategies and social media strategies among others.

Bihar (2015) opined that Planning is the most basic or primary function of management. It refers to thinking ahead before engaging in any act. Planning takes care of what should be done, how it should be done and who should do it. Planning is done ahead of other functions because a manager plans before he acts. Planning involves determining the objectives and selecting a course of action to achieve them. It implies looking ahead and deciding in advance what should be done, when and where it is to be done, how and by whom it should be done. Fabunmi (2019) considers planning as essential for operations to be efficient and effective in education and that most educational plans failed because of deficiencies that manifest right from the planning process. Onuara and Eziamaka (2021) asserts that principals carry out planning strategies such as staff meetings, effective delegation of duties, proper channel of communications and setting up of committees for the improvement of their schools; which in turn enhance teachers' job performance.

An organization is an inclusion of two or more people to work together in certain structure, working towards a particular purpose or purposes as a whole. An organization involves the division of

labor, authority, and resources among the organization's members and their adaptation, which allows them to achieve organizational goals. Organization is therefore a permanent management process which forms and keeps the organizational structure (Paunskiene, Antanaviciene, Peleckis in Vanagas and Stankevic, 2014). Principals can use new management strategies to organize the work activities in their institutions. Division of labor and resources should be based on specialization and good management strategies.

Bihar (2015) is of the view that Directing involves leading, influencing and motivating employees to perform the responsibilities assigned to them. This involves creating an enabling environment that encourages staff to carry out their duties effectively. It is the managerial function of guiding, supervising, motivating and leading people towards the attainment of goals and objectives of management. According to Mohammed (2016) to supervise means to direct, oversee; guide and to ensure that expected goals and objectives are attained. Supervision is regarded as the everyday guidance of all educational operations, coordination of the detailed work and the development of good working inter-personal relations among all people involved in the teaching-learning process.

Coordination is the process of integration of individual parts of the organization's activity to achieve common goals (Vanagas and Stankevic, 2014). Coordination is another important administrative function through which activities are made for goal realization in the organization. This signifies that coordination brings together workers with different but interrelated work tasks in order to achieve the organizational goals. Each workplace has a task assigned to it and each employee's duty is specified to him based on tasks, responsibility and authority. Assigning duties to employees is an avenue that helps managers to coordinate all the entire work process.

According to Bihar (2015), Controlling is the function of management that deals with monitoring of organizational performance towards the realizations of goals and objectives. Controlling is necessary in order to ensure that the work within the organization is moving in the right direction and that progress is made for the realization of goals and objectives. For controlling to be effective, principals should establish standards for work performance to be measured; Measure the actual performance and comparing it with the standards; find the difference between the two and the reasons for such disparities and take corrective action for correcting deviations to ensure attainment of objectives.

Teachers' job performance is defined by Oyewole, Ola-Ogundele and Bamidele (2020) as "the duties performed by a teacher at a particular period in the school system in achieving organizational goals or the ability of teachers to combine relevant inputs for the enhancement of teaching and learning processes". Achmad (2017) while referring to teachers job performance opined that performance is what the teacher achieved by carrying out the task assigned to him based on his skills, experience, sincerity and the

time available. Individual's job performance depends on his capability, motivation and the managerial leadership support.

Some of the tasks teachers perform in their day to day activities in schools and especially in the classroom are lesson plan, lesson delivery and use of teaching strategies, lesson notes and classroom management. These tasks are the core primary assignment of teachers which translates in to quality teaching and learning and better academic performance of students. Principals' management capacity will enhance better job performance of teachers while carrying out these tasks under the guidance of the principal.

Teachers are the backbone of any successful and qualitative education system. They are responsible for lesson plans, lesson delivery and use of teaching strategies, lesson notes and classroom management among others. No matter how motivated a teacher is, there is the need for guidance under the principal leadership. Principals are responsible for ensuring that teachers carry out their job responsibilities effectively.

Teachers in SSS in Adamawa State need to constantly update their knowledge on current trends in education especially in relation to lesson plan, lesson delivery, lesson notes, teaching strategies and classroom management skills which are all prerequisite for effective teaching and learning. However, on the job training is often left for Non-Governmental Organizations (NGOs) or government. In house workshop or training for teachers is often neglected by principals. And it is a well-known fact that for institutions to be competitive and recognized in the world education class, they should possess modern facilities and higher quality, relevant educational programs taught by competent, motivated and highly qualified staff utilizing innovative teaching methods that integrate local knowledge with international perspectives (Yego, 2016).

As the society is changing, education and education processes and procedures in management also need to change for effective improvement in teaching/learning process. Principals' effective use of the management functions while applying new strategies to meet the changes in the attitudes of teachers towards their job is tantamount to enhancing teachers' job performance in lesson plan, lesson delivery, lesson note, teaching strategies and classroom management. Assessing new strategies such as monitoring and supervision strategies, motivation strategies, role model strategies and social media strategies among others in principals' management capacity in planning, organizing, directing, coordinating and controlling is paramount for teachers' job performance in lesson plan, lesson delivery, teaching strategies, lesson notes and classroom management.

The consequential effect of not constantly updating principals knowledge on administrative management capacity and teachers knowledge on teaching responsibilities is poor monitoring and supervision, poor instructional management, poor job performance which will translate to poor quality in lesson plan,

poor quality in lesson delivery, poor quality in teaching strategies, poor quality in lesson notes and poor quality in classroom management. The overall effect is poor quality of SSS students learning and poor quality in their academic achievements.

OBJECTIVES OF THE STUDY
The main objective of this study is to assess new strategies in principals' management capacity as a predictor of Teacher's Job Performance in Senior Secondary Schools in Adamawa State, Nigeria. The specific objectives are to:

1. Examine the planning abilities of principals as a predictor of teachers' job performance in Senior Secondary Schools in Adamawa state.
2. Determine the organizing skills of the principals as a predictor of teachers' job performance in Senior Secondary Schools in Adamawa state.
3. Evaluate principals directing capacity as a predictor of teachers' job performance in Senior Secondary Schools in Adamawa state.
4. Assess the coordinating abilities of the principals as a predictor of teachers' job performance in Senior Secondary Schools in Adamawa state.
5. Determine the Controlling abilities of the principals as a predictor of teachers' job performance in Senior Secondary Schools in Adamawa state.

RESEARCH QUESTIONS
1. What is the level of Principal's planning abilities in enhancing teachers' job performance in Senior Secondary Schools in Adamawa state?
2. What is the level of organizing skills of the Principals in enhancing teachers' job performance in Senior Secondary Schools in Adamawa state?
3. What is the level of Principal's directing capacity in enhancing teachers' job performance in Senior Secondary Schools in Adamawa state?
4. What is the level of Principal's coordinating abilities in enhancing teachers' job performance in Senior Secondary Schools in Adamawa state?
5. What is the level of controlling abilities of Principal's in enhancing teachers' job performance in Senior Secondary Schools in Adamawa state?

HYPOTHESES
1. Principals' planning abilities does not significantly predict teachers' job performance in Senior Secondary Schools in Adamawa state.
2. Principals' organizing skills does not significantly predict teachers' job performance in Senior Secondary Schools in Adamawa state.
3. Principals' directing capacity does not significantly predict teachers' job performance in Senior Secondary Schools in Adamawa state.

4. Principals' coordinating abilities does not significantly predict teachers' job performance in Senior Secondary Schools in Adamawa state.
5. Principals' controlling abilities does not significantly predict teachers' job performance in Senior Secondary Schools in Adamawa state.

METHODOLOGY
The research design adopted for the study is correlational research design. The area of the study is Adamawa State with its capital in Yola. The five educational zones in Adamawa State: Yola, Mubi, Gombi, Ganye and Numan comprise of the study area. The population of the study comprise of all principals in the 309 SSS and 4,388 teachers in the schools (UNICEF, the World Bank and Adamawa State BESDA Program 2018/2019 ASC Report.) Purposive and multistage sampling technique was used to select 15% as sample for the principals and 10% as sample for the teachers. The sample for the study is 46 principals and 439 teachers.

Researcher developed questionnaire was used to collect data. Two instruments were developed for the study; the instruments were named Principal's Management Capacity Questionnaire (PMCQ) and Teachers Job Performance Questionnaire (TJPQ). The instruments were validated by three experts. The major corrections made were on the length of the items, uniformity and equal number of items suggested for each variable. Hence the questionnaires which initially had 28 items were reduced to 25 items each. To test the reliability of the instrument, 20 copies of each questionnaire was pilot tested. Cronbach alpha method was used to calculate the correlation coefficient of the instrument. A reliability coefficient of 0.79 and 0.85 was obtained for PMCQ and TJPQ respectively.

The questionnaires were distributed. 46 copies of PMCQ were distributed to 46 principals in the selected schools spread across the five education zones; out of the ones retrieved, only 37 was used for the study because they were appropriately filled. 439 copies of TJPQ were distributed to 439 teachers in the education zones. 398 were retrieved and 376 were found appropriate for the study.

Mean and standard deviation was used to answer research questions. The cut-off point for the weighted mean is any item that weighs 3.00 and above indicates high level and any item that weighs below 3.00 indicates low level. Linear regression statistics was used to test hypotheses 1-5 at 0.05 level of significance. The decision rule is that the null hypothesis is upheld if the computed value is less than the critical value while it is rejected if the computed value is greater than the critical value.

DATA ANALYSIS AND INTERPRETATION
Results
Research Question One: What is the level of principals' planning abilities in enhancing teachers' job performance in senior secondary schools in Adamawa State?
This research question was answered by analyzing the responses of the 37 principals on planning capacity in senior secondary schools using descriptive statistics of mean and standard deviation. The results are presented in Table 1.

Table 1: Summary of Mean and Standard Deviation of Principals' Planning Capacity in Senior Secondary Schools

S/N	Items n = 37	Mean	SD	Remark
1	Preparing for effective lesson plan strategies.	3.19	1.35	ML
2	Preparing for effective lesson delivery strategies.	3.29	1.41	ML
3	Preparing for the usage of effective teaching strategies.	3.34	1.35	ML
4	Preparing for effective lesson notes for students.	3.17	1.33	ML
5	Preparing for effective classroom management strategies.	3.31	1.42	ML
	Grand Mean	**3.26**		**ML**

Table 1 displays data for the mean scores and standard deviations of Principals' planning capacity for items 1 to 5. The mean scores fall in the range of 3.17 to 3.34, denoting a moderate level of preparedness in these areas. The standard deviations exhibit some degree of variability in responses, ranging from 1.33 to 1.42. On average, the preparation for these teaching aspects received a moderate rating from the principals, as indicated by the grand mean of 3.26 across all items.

Research Question Two: What is the level of organizing skills of principals in enhancing teachers' job performance in senior secondary schools in Adamawa State?

The research question was addressed by examining the responses regarding the organizing capacity of principals in senior secondary schools through the utilization of descriptive statistics of mean and standard deviation. The outcomes are outlined in Table 2.

Table 2: Summary of Mean and Standard Deviation of Principals' Organizing Capacity in Senior Secondary Schools

S/N	Items n = 37	Mean	SD	Remark
6	Proper allocation of the subject to a teacher for effective lesson planning.	3.29	1.36	ML
7	Provision of instructional materials for effective lesson delivery.	3.33	1.33	ML
8	Ensuring that effective teaching strategies are used.	3.30	1.38	ML
9	Ensuring that the lesson notes are effective.	3.03	1.36	ML
10	Providing an avenue for effective classroom management.	3.20	1.41	ML
	Grand Mean	**3.23**		**ML**

The data from items 6 to 10 in Table 2 provide insights into different aspects related to effective principals' organizing capacity in senior secondary schools. The mean scores for proper allocation of subjects to teachers, provision of instructional materials, ensuring the use of effective teaching strategies, effectiveness of lesson notes, and providing an avenue for effective classroom management range from 3.03 to 3.33. These indicate a moderate level of readiness in principals' organizing' capacity. The standard deviations vary from 1.33 to 1.41, showing some variability in responses. Overall, principals rated their organizing capacity as moderate with a grand mean of 3.23.

Research Question Three: What is the level of principals' directing capacity in enhancing teachers' job performance in senior secondary schools in Adamawa State?

Descriptive statistics of mean and standard deviation were employed to analyze the responses regarding principals' directing capacity in senior secondary schools. The results are depicted in Table 3.

Table 3: Summary of Mean and Standard Deviation of Principals' Directing Capacity in Senior Secondary Schools

S/N	Items n = 37	Mean	SD	Remark
11	Supervising teachers for effective lesson planning.	3.14	1.29	ML
12	Motivating teachers for effective lesson delivery.	3.15	1.36	ML
13	Monitoring teachers for the use of effective lesson strategies.	3.27	1.41	ML
14	Supervising lesson notes of teachers.	3.34	1.39	ML
15	Motivating teachers for effective classroom management.	3.27	1.36	ML
	Grand Mean	**3.23**		**ML**

The details outlining the principals' capability to manage and supervise senior secondary school teachers are presented in Table 3. This encompasses ensuring lesson planning is effective, motivating teachers to deliver quality lessons, monitoring teaching strategies, supervising lesson notes, and encouraging classroom management. The scores reveal moderate levels of effectiveness, ranging from 3.14 to 3.34. The standard deviations indicate some inconsistency among respondents' opinions. The overall grand mean of 3.23 suggests the directing capacity of senior secondary school principals is moderate.

Research Question Four: What is the level of principals' coordinating abilities in enhancing teachers' job performance in senior secondary schools in Adamawa State?

The responses on the coordinating capacity of principals in senior secondary schools were analyzed using mean and standard deviation. Table 4 provides a visual representation of the results.

Table 4: Summary of Mean and Standard Deviation of Principals' Coordinating Capacity in Senior Secondary Schools

S/N	Items n = 37	Mean	SD	Remark
16	Harmonizing teachers' performance on lesson planning.	3.06	1.33	ML
17	Bringing together teachers' performance in lesson delivery.	3.04	1.38	ML
18	Specifying the teaching strategies used by teachers.	3.25	1.36	ML
19	Ensuring the effectiveness of teachers' lesson notes.	3.13	1.38	ML
20	Specifying the effectiveness of classroom management strategies.	3.38	1.36	ML
	Grand Mean	**3.17**		**ML**

Table 4 presents valuable insights into the ability of principals to coordinate activities in senior secondary schools. This includes critical aspects such as aligning teacher performance on lesson planning, consolidating teacher performance during lesson delivery, defining the teaching strategies used by teachers, ensuring the effectiveness of their lesson notes, and specifying the efficiency of classroom management strategies. The average scores range between 3.04 to 3.38, indicating a moderate level of performance in these areas. Meanwhile, the standard deviations highlight differences in responses, suggesting various levels of agreement or consistency among participants. Overall, the data suggests that the coordinating capacity of principals in senior secondary schools is at a moderate level, with a grand mean of 3.17.

Research Question Five: What is the level of principals' controlling abilities in enhancing teachers' job performance in senior secondary schools in Adamawa State?

Descriptive statistics of mean and standard deviation were used to analyze the responses on principals' controlling capacity in senior secondary schools. The results are illustrated in Table 5.

Table 5: Summary of Mean and Standard Deviation of Principals' Controlling Capacity in Senior Secondary Schools

S/N	Items n = 37	Mean	SD	Remark
21	Measuring teachers' effectiveness in lesson planning.	3.03	1.32	ML
22	Correcting deviations in teachers' lesson delivery.	3.19	1.31	ML
23	Measuring the effectiveness of teaching strategies used.	3.31	1.32	ML
24	Ensuring for the usage of effective lesson notes.	3.21	1.42	ML
25	Measuring the classroom management strategies.	3.08	1.42	ML
	Grand Mean	**3.16**		**ML**

The data in Table 5 provides information about the controlling capacity of principals in senior secondary schools. The data encompasses measuring the effectiveness of teachers' lesson planning and delivery, evaluating teaching strategies, ensuring the use of effective lesson notes, and measuring classroom management strategies. The mean scores for the items range from 3.03 to 3.31 suggesting that principals have a moderate level of controlling capacity. The standard deviations indicate that there were varying levels of agreement among participants. Overall, the data implies that principals rated their controlling capacity in senior secondary schools with a grand mean of 3.16.

Hypotheses
H0$_1$: Principals' planning abilities does not significantly predict teachers' job performance in senior secondary schools in Adamawa State.

Table 6: Summary of Regression Analysis between Principals' Planning Abilities and Teachers' Job Performance

Predictor	Beta β	Std. Error	t-statistic	Sig
Planning Abilities	.534	.078	10.123	.000*
R Square	.285			
Adjusted R Square	.282			
Std. Error	.149			
Sum of Squares	2.286			
F-statistic	102.475			

*Significant; $p < 0.05$.

The results obtained from the regression analysis carried out to determine whether planning capacity of principals and job performance of teachers is significant. The R-squared value is 0.285, indicating that approximately 28.5% of the variance in teachers' job performance can be explained by principals' planning capacity. The adjusted R-squared value which takes into account the number of predictors in the model, was slightly lower at 0.282 (28.2%).

Furthermore, the model was statistically significant, as evidenced by an F-statistic of 102.475 with a p-value less than 0.05 (p = 0.000). This suggests that the observed predictive relationship between principals' planning capacity and teachers' job performance is unlikely to have occurred by random chance. More so, the Beta coefficient (β) for principals' planning capacity was noted as 0.534 (53.4%), with a t-statistic of 10.123, all of which were statistically significant ($p < 0.05$). This implies that principals' planning capacity significantly predicted teachers' job performance. Principals' planning capacity appears to explain a substantial portion of the variance observed in teachers' job performance.

H0$_2$: Principals' organizing skills does not significantly predict teachers' job performance in senior secondary schools in Adamawa State.

Table 7: Summary of Regression Analysis between Principals' Organizing Skills and Teachers' Job Performance

Predictor	Beta β	Std. Error	t-statistic	Sig
Organizing Skills	.682	.088	14.958	.000*
R Square	.465			
Adjusted R Square	.463			
Std. Error	.129			
Sum of Squares	3.732			
F-statistic	223.747			

*Significant; $p < 0.05$.

The regression analysis between principals' organizing capacity and teachers' job performance revealed compelling results. The R-squared value obtained was 0.465, indicating that approximately 46.5% of the variance in teachers' job performance can be accounted for by principals' organizing capacity. The adjusted R-squared value, which considers the number of predictors in the model, was slightly lower at 0.463 (46.3).

The model demonstrated statistical significance, as indicated by an F-statistic of 223.747 with a p-value less than 0.05. More so,

the Beta coefficient (β) for principals' organizing capacity is 0.682 (68.2%), with a t-statistic of 14.958, all of which were statistically significant ($p < 0.05$). This implies that principals' organizing capacity improves with a corresponding improvement in teachers' job performance.

H0₃: Principals' directing capacity does not significantly predict teachers' job performance in senior secondary schools in Adamawa State.

Table 8: Summary of Regression Analysis between Principals' Directing Capacity and Teachers' Job Performance

Predictor	Beta β	Std. Error	t-statistic	Sig
Directing Capacity	.259	.092	4.296	.000*
R Square	.067			
Adjusted R Square	.063			
Std. Error	.171			
Sum of Squares	.537			
F-statistic	18.458			

*Significant; $p < 0.05$.

The data presented in Table 9 showcases the results of a linear regression analysis that examines the correlation between directing capacity of principals and job performance of teachers. The R-squared value is 0.067, indicating that only 6.7% of the variation in teachers' job performance can be elucidated by directing capacity of principals, suggesting other factors influence job performance besides directing capacity. The adjusted R-squared value is 0.063, indicating a 6.3% fit for the data.

The F-statistic is 18.458, which tests the overall significance of the regression model. This shows that the regression model is significant; implying that principals' directing capacity significantly predicted teachers' job performance ($F = (1, 257) =$

18.458, $p = 0.000 < 0.05$). The Beta coefficient for principals' directing capacity is 0.259, which implies that a one-unit increase in directing capacity leads to a 0.259 unit increase in job performance. The p-value of 0.000 suggests that this coefficient is statistically significant at the 0.05 level. This data implies that teachers' job performance in secondary schools was predicted to improve with corresponding improvement in principals' directing capacity.

H0₄: Principals' coordinating abilities does not significantly predict teachers' job performance in senior secondary schools in Adamawa State.

Table 9: Summary of Regression Analysis between Principals' Coordinating Abilities and Teachers' Job Performance

Predictor	Beta β	Std. Error	t-statistic	Sig
Coordinating Abilities	.759	.059	18.701	.000*
R Square	.576			
Adjusted R Square	.575			
Std. Error	.114			
Sum of Squares	4.622			
F-statistic	349.717			

*Significant; $p < 0.05$.

Table 10 shows the R-squared value is 0.576, which means that 57.6% of the variation in teachers' job performance can be explained by coordinating capacity of principals. This is a relatively high value, which suggests that coordinating capacity of principals is a strong predictor of teachers' job performance. The adjusted R-squared value is 0.575, which is slightly lower than the R-squared value,

The F-statistic is 349.717, which tests the overall significance of the regression model. The p-value for the F-test at df(1, 257) is also 0.000, which means that the model is statistically significant.

The coefficient for principals' coordinating capacity is 0.759, which means that principals' coordinating capacity improves with corresponding improvement in teachers' job performance increases. This coefficient is statistically significant at the 0.05 level, as indicated by the p-value of 0.000, which is less than 0.05. This principals' coordinating capacity significantly predicted teachers' job performance.

H0$_5$: Principals' controlling abilities does not significantly predict teachers' job performance in senior secondary schools in Adamawa State.

Table 10: Summary of Regression Analysis between Principals' Controlling Abilities and Teachers' Job Performance

Predictor	Beta β	Std. Error	t-statistic	Sig
Controlling Abilities	.184	.089	3.005	.003*
R Square	.034			
Adjusted R Square	.030			
Std. Error	.174			
Sum of Squares	.272			
F-statistic	9.032			

*Significant; $p < 0.05$.

Table 11 shows the results of a simple linear regression analysis between principals' controlling capacity and teachers' job performance. The R-squared value is 0.034, which means that 3.4% of the variation in teachers' job performance can be accounted for by principals' controlling capacity. This is a relatively low value, which suggests that controlling capacity is a weak predictor of teachers' job performance. The adjusted R-squared value is 0.030 (3.0%), which is slightly lower than the R-squared value, accounts for the number of predictors in the model.

The F-statistic is 9.032, which tests the overall significance of the regression model, shows that the model is statistically significant at df (1, 257) and p-value of 0.003, which is lesser than 0.05. The coefficient for principals' controlling capacity is 0.184 (18.4%), which means that for every one unit increase in principals' controlling capacity, the expected value of teachers' job performance increases by 0.184 units, holding all other factors constant. This coefficient is statistically significant at the 0.05 level, as indicated by the p-value of 0.003, which is less than 0.05. This means that principals' controlling capacity significantly predicted teachers' job performance.

FINDINGS OF THE STUDY
1. Principals rated their planning capacity as moderate with a grand mean of 3.26. Principals' planning capacity significantly predicted teachers' job performance ($R^2 = 28.5\%$, F = 102.475, p = 0.000 < 0.05).
2. Principals rated their organizing capacity as moderate with a grand mean of 3.23. Principals organizing capacity significantly predicted teachers' job performance ($R^2 = 46.5\%$, F = 223.747, p = 0.000 < 0.05).
3. Principals rated their directing capacity as moderate with a grand mean of 3.23. Principals directing capacity significantly predicted teachers' job performance ($R^2 = 6.7\%$, F = 18.458, p = 0.000 < 0.05).
4. Principals rated their coordinating capacity at a moderate level with a grand mean of 3.17. Principals' coordinating capacity significantly predicted teachers' job performance ($R^2 = 57.6\%$, F = 349.717, p = 0.000 < 0.05).
5. Principals rated their controlling capacity in senior secondary schools with a grand mean of 3.16. Principals' controlling capacity significantly predicted teachers' job performance ($R^2 = 3.4\%$, F = 9.032, p = 0.000 < 0.05).

CONCLUSION AND RECOMMENDATIONS
The study finds out that principals management capacity translates to effective teachers job performance in Adamawa State. Therefore, it is concluded that principals are the backbone of effective teachers job performance in lesson plan, lesson delivery, lesson note, teaching strategies and classroom management. Principals achieve all these through monitoring and supervision strategies, motivation strategies, role model strategies and social media strategies. Principals management capacity in planning, organizing, directing, coordinating and controlling is paramount for teachers' job performance in lesson plan, lesson delivery, teaching strategies, lesson notes and classroom management. Based on this, it is recommended that:
1) Principals should emphasize on their planning capacity for proper guidance on what teachers need to do for effective teaching/learning in SSS in Adamawa State.
2) Principal should assign duties and responsibilities to teachers for effective teaching/learning in SSS in Adamawa State.

3) Principals should use effective monitoring and supervision strategies in working with teachers for effective teaching/learning in SSS in Adamawa State.

4) Principals should integrate all work activities in the school to determine the achievement of goals and objectives through effective teaching/learning in SSS in Adamawa State.

5) Principals should ensure that all plans are achieved through proper guidance and correction from all deviations for effective teaching/learning in SSS in Adamawa State.

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TRANSFORMATIVE LEADERSHIP IN BANGLADESHI NPOS: FOSTERING SUSTAINABLE HUMAN CAPITAL DEVELOPMENT

Asaduzzaman Sikder

PhD Fellow, Texila American University

ABSTRACT

This research article explores the role of transformative leadership in Bangladeshi non-profit organizations (NPOs) and its impact on sustainable human capital development. Drawing upon theoretical frameworks, empirical evidence, and real-world examples, the study examines the characteristics of transformative leadership, the challenges and opportunities faced by NPOs in Bangladesh, and the strategies for enhancing leadership effectiveness and organizational resilience. Through case studies and qualitative analysis, the research identifies key factors influencing transformative leadership in Bangladeshi NPOs and offers actionable recommendations for practitioners, policymakers, and researchers to advance the field of transformative leadership and organizational development in the Bangladeshi context. By shedding light on the transformative power of leadership in NPOs, this research contributes to the ongoing discourse on sustainable development, social impact, and leadership effectiveness in Bangladesh and beyond.

KEYWORDS: *Transformative leadership, Non-profit organizations (NPOs), Sustainable human capital development, Leadership effectiveness, Social impact.*

INTRODUCTION

Non-profit organizations (NPOs) play a crucial role in addressing societal needs and fostering development in Bangladesh. In a country marked by economic challenges, social disparities, and environmental concerns, NPOs serve as catalysts for positive change, leveraging their resources and networks to tackle pressing issues and empower communities. Central to the effectiveness of NPOs is their ability to develop and nurture human capital, ensuring that their workforce is equipped with the skills, knowledge, and motivation to drive sustainable impact (Amagoh, 2015).

Human capital development in NPOs goes beyond mere skill-building; it encompasses a holistic approach to employee engagement, professional growth, and organizational culture. At the heart of this process lies transformative leadership, a dynamic and visionary style of leadership that inspires individuals to transcend their personal interests and work towards common goals. Transformative leaders in NPOs foster innovation, empower their teams, and cultivate a culture of collaboration and continuous improvement (BFIU, 2015).

In the context of Bangladesh, where NPOs operate amidst unique socio-cultural and economic challenges, the role of transformative leadership in driving sustainable human capital development is particularly critical. By understanding the local context, navigating institutional barriers, and leveraging their leadership capabilities, NPOs can maximize their impact and contribute to the country's development agenda (Islam & Siengthai, 2010).

The objective of this article is to explore the concept of transformative leadership in Bangladeshi non-profit organizations (NPOs) and its role in fostering sustainable human capital development. By examining theoretical frameworks, empirical evidence, and real-world examples, this article aims to define transformative leadership and its key components in the context of NPOs. This article also aims to analyze the challenges and opportunities faced by Bangladeshi NPOs in developing sustainable human capital. Moreover, with the thorough review of exemplary practices and case studies of transformative leadership in Bangladeshi NPOs, it will help to provide insights for practitioners, policymakers, and researchers to advance the field of transformative leadership and organizational development in the Bangladeshi context.

METHODOLOGY

This article adopts a multi-disciplinary approach, drawing upon insights from leadership studies, organizational behavior, development studies, and social sciences. A comprehensive review of academic literature, research papers, books, and reports on transformative leadership, human capital development, and non-profit management in the context of Bangladesh- provides the theoretical foundation and conceptual framework for the analysis. It also incorporates real-world case studies and examples of transformative leadership practices in Bangladeshi NPOs. These case studies are drawn from primary and secondary sources, including interviews with organizational leaders, field observations, and documentary evidence.

Qualitative analysis techniques are utilized to analyze the data collected from case studies and literature review. Themes,

patterns, and insights are identified through in-depth analysis and interpretation of qualitative data, providing rich and nuanced perspectives on transformative leadership and human capital development in Bangladeshi NPOs. Insights and perspectives from practitioners, policymakers, and researchers in the field of non-profit management and leadership are incorporated throughout the article. Expert interviews and consultations provide valuable insights into emerging trends, challenges, and opportunities in the Bangladeshi non-profit sector.

THEORETICAL FRAMEWORK: TRANSFORMATIVE LEADERSHIP

Transformative leadership is a compelling approach to organizational management that emphasizes vision, empowerment, and collaboration. Rooted in the works of scholars such as James MacGregor Burns and Bernard Bass, transformative leadership theory posits that effective leaders inspire and motivate their followers to achieve higher levels of performance by appealing to their values, aspirations, and sense of purpose (Samad, Ahmad, & Suria, 2023).

Transformative leaders serve as role models and exemplify the values and behaviors they wish to instill in their followers. Through their actions and words, they inspire trust, respect, and admiration, cultivating a sense of loyalty and commitment among their team members. They articulate a compelling vision of the future and rally their followers behind a shared sense of purpose. By communicating their vision with passion and conviction, they ignite enthusiasm and create a sense of belonging, fostering a collective commitment to organizational goals. Transformative leaders encourage critical thinking, creativity, and innovation among their followers (Paredes, Moreno, & Santos, 2019). They challenge the status quo, invite diverse perspectives, and create opportunities for learning and growth. By fostering a culture of inquiry and exploration, they empower individuals to question assumptions, experiment with new ideas, and contribute to organizational success. They also demonstrate empathy, compassion, and concern for the well-being of their followers. They recognize the unique strengths, needs, and aspirations of each individual and tailor their leadership approach accordingly. By providing personalized support, coaching, and feedback, they empower their team members to reach their full potential and thrive in their roles (Kitonga, Bichanga, & Muema, 2016).

In the context of Bangladeshi NPOs, transformative leadership takes on added significance as organizations navigate complex socio-economic challenges and strive to make a meaningful impact in the lives of marginalized communities. By embracing the principles of transformative leadership, NPO leaders can inspire their teams, mobilize resources, and drive sustainable change, ultimately advancing the collective welfare and prosperity of Bangladesh.

CONTEXTUALIZING BANGLADESHI NPOS

Bangladesh, a country marked by a rich cultural heritage and a history of resilience, is home to a vibrant and diverse landscape of non-profit organizations (NPOs) dedicated to addressing a wide range of social, economic, and environmental challenges.

From grassroots community-based organizations to large-scale international NGOs, NPOs in Bangladesh play a vital role in advocating for human rights, promoting sustainable development, and empowering marginalized populations. However, the operating environment for NPOs in Bangladesh is characterized by a unique set of socio-economic and cultural factors that shape their organizational structures, strategies, and leadership practices. Challenges such as poverty, inequality, political instability, and environmental degradation present formidable obstacles to NPOs seeking to make a meaningful impact in the communities they serve (Khondaker, 2006).

Despite these challenges, Bangladeshi NPOs have demonstrated remarkable resilience and adaptability, leveraging their local knowledge, networks, and resources to drive positive change. From providing essential services such as healthcare, education, and disaster relief to advocating for policy reforms and grassroots mobilization, NPOs in Bangladesh are at the forefront of efforts to build a more just, equitable, and sustainable society. At the same time, Bangladeshi NPOs face a host of challenges that impact their ability to effectively fulfill their missions and achieve their goals. Limited funding and resource constraints, bureaucratic hurdles, and regulatory barriers often hamper the operations of NPOs, forcing them to navigate a complex and uncertain landscape (Rahman & Sultana, 2012). In addition, cultural norms, gender dynamics, and power structures within Bangladeshi society can influence leadership styles and organizational dynamics within NPOs. Traditional hierarchies, paternalistic attitudes, and a reluctance to embrace innovation and change may pose significant challenges to transformative leadership and human capital development within NPOs.

COMPONENTS OF SUSTAINABLE HUMAN CAPITAL DEVELOPMENT

Sustainable human capital development lies at the heart of organizational success and social impact for Bangladeshi non-profit organizations (NPOs). It encompasses a comprehensive approach to recruiting, training, retaining, and empowering employees to fulfill the organization's mission and achieve its goals effectively (Moldavanova & Goerdel, 2018).

Effective recruitment and talent acquisition strategies are essential for NPOs to attract individuals who align with their values, mission, and objectives. This involves identifying key competencies, skills, and experiences required for various roles within the organization, as well as leveraging diverse recruitment channels such as job boards, social networks, and professional associations. NPOs should also prioritize diversity, equity, and inclusion in their recruitment efforts to ensure a workforce that reflects the communities they serve (Glavas & Kelley, 2014).

Investing in training and capacity-building programs is critical for enhancing the skills, knowledge, and capabilities of NPO employees. These programs may include workshops, seminars, certifications, and on-the-job training opportunities tailored to the specific needs and priorities of the organization. By providing employees with access to continuous learning and

professional development opportunities, NPOs can foster a culture of growth, innovation, and excellence.

Engaging and motivating employees is key to maximizing their potential and performance within NPOs. This may involve creating a positive work environment, recognizing and rewarding achievements, soliciting feedback, and fostering open communication and collaboration among team members. NPO leaders can also empower employees by delegating authority, providing autonomy, and involving them in decision-making processes that impact their work and the organization as a whole (Nga & Shamuganathan, 2010).

Implementing robust performance evaluation and feedback mechanisms allows NPOs to assess employee performance, identify areas for improvement, and recognize accomplishments. This may include regular performance reviews, goal setting, peer feedback, and 360-degree evaluations that solicit input from supervisors, peers, and subordinates. By providing constructive feedback and support, NPO leaders can help employees develop their skills, address challenges, and achieve their full potential (Phipps & Burbach, 2010).

CASE STUDIES: EXEMPLARY PRACTICES IN BANGLADESHI NPOS

Examining real-world examples of transformative leadership in Bangladeshi NPOs provides valuable insights into effective strategies, innovative approaches, and best practices for driving sustainable human capital development. Through case studies, we can explore how NPO leaders inspire, empower, and mobilize their teams to achieve remarkable results and create lasting impact in their communities.

Case Study 1: JAAGO Foundation

JAAGO Foundation is a non-profit organization in Bangladesh, dedicated to promoting access to quality education for underprivileged children and youth. Under the transformative leadership of its management body, JAAGO Foundation has implemented a range of innovative programs and initiatives aimed at improving educational outcomes and empowering marginalized communities.

One of the key initiatives spearheaded by JAAGO Foundation is the "Distance Learning Program", which main objective is To create distance learning equal opportunities for school-going children of 10 primary schools in Moheshkhali Island of Cox's Bazar through ICT technology. JAAGO partnered with the International Organization for Migration (IOM) and the Government of Bangladesh (GoB) to deliver English language education via distance learning to 9,300 children on Moheshkhali Island. This initiative covered 10 government primary schools supported by IOM and Korean Telecom. JAAGO created an online course comprising 13 instructional videos aimed at teacher training in classroom management techniques. This course was made available on Muktopath, a free e-learning platform facilitated by Access to Information (a2i), and received high praise and usage among teachers. JAAGO is currently expanding its course offerings with additional content in development.

The transformative leadership style of JAAGO Foundation's top management emphasizes collaboration, empathy, and a deep commitment to social justice. By fostering strong partnerships with government agencies, NGOs, and community stakeholders, they have mobilized resources, built trust, and catalyzed collective action to address systemic barriers to education in Bangladesh. Through their visionary leadership, the have inspired a team of dedicated staff and volunteers who share her passion for social change and educational equity. By prioritizing employee engagement, professional development, and recognition, she has created a culture of empowerment and innovation within JAAGO Foundation, enabling individuals to unleash their full potential and make meaningful contributions to the organization's mission.

Case Study 2: Nari Uddug Kendra (NUK)

The Nari Uddug Kendra (NUK) is a national non-governmental organization dedicated to advancing gender equality, human rights, and empowering women and girls across Bangladesh. NUK's mission encompasses providing capacity-building assistance, fostering networking opportunities, and advocating for human rights on behalf of women and relevant organizations.

Under the transformative leadership of NUK's management, it has implemented a range of programs and initiatives aimed at empowering women economically, socially, and politically. NUK's Garment Factories Support Programme collaborates with both management and workers to enhance working conditions and safeguard workers' rights. This initiative aims to ensure the sustained competitiveness and sustainability of Bangladesh's garment export industry in an increasingly global market that demands adherence to international labor and ethical business standards.

The leadership style of Nari Uddug Kendra (NUK) management body is characterized by vision, resilience, and a deep sense of empathy for the women and communities they serve. By amplifying the voices of marginalized women, building coalitions, and leveraging strategic partnerships, they have successfully mobilized support and resources to effect meaningful change in the lives of thousands of women and girls across Bangladesh. Through their unwavering commitment to transformative leadership, they inspired a new generation of leaders and change-makers who are dedicated to advancing gender equality and social justice in Bangladesh and beyond. By nurturing a culture of empowerment, collaboration, and solidarity, they have positioned NUK as a driving force for positive social change and women's rights in the region.

CHALLENGES AND SOLUTIONS

While transformative leadership holds immense potential for driving sustainable human capital development in Bangladeshi non-profit organizations (NPOs), it is not without its challenges. NPO leaders often face a host of obstacles and barriers that can impede their ability to effectively lead their organizations and achieve their goals. However, by recognizing these challenges and implementing targeted solutions, NPOs can overcome adversity and realize their full potential for positive social impact.

Many NPOs in Bangladesh operate on shoestring budgets and struggle to secure funding for their programs and initiatives. This limited financial capacity can hinder their ability to invest in human capital development, including leadership training, staff retention, and professional development opportunities. Traditional leadership paradigms and hierarchical organizational structures may resist efforts to embrace transformative leadership and foster a culture of innovation and collaboration. Resistance to change can create inertia and hinder progress, making it difficult for NPOs to adapt to evolving societal needs and challenges. NPOs in Bangladesh often face bureaucratic hurdles and regulatory barriers that can stifle creativity, innovation, and agility. Complex administrative procedures, burdensome reporting requirements, and opaque decision-making processes can frustrate NPO leaders and divert valuable time and resources away from mission-driven activities.

NPOs can adopt strategic resource mobilization strategies to diversify their funding sources and strengthen their financial sustainability. This may include building partnerships with donors, corporate sponsors, and philanthropic organizations, as well as exploring alternative revenue streams such as social enterprise ventures and earned income initiatives (Gajdová & Majdúchová, 2018). NPO leaders can cultivate a culture of innovation and experimentation within their organizations by encouraging risk-taking, rewarding creativity, and embracing failure as a learning opportunity. Creating spaces for dialogue, collaboration, and co-creation can empower staff to generate new ideas, challenge conventional wisdom, and drive positive change. NPOs can advocate for policy reforms and regulatory changes that support a conducive environment for transformative leadership and organizational development. By engaging with policymakers, government agencies, and civil society stakeholders, NPOs can amplify their voices, shape public discourse, and influence decision-making processes at local, national, and international levels.

IMPACT AND OUTCOMES
The impact of transformative leadership in Bangladeshi non-profit organizations (NPOs) extends far beyond organizational boundaries, influencing the lives of individuals, communities, and society as a whole. By empowering individuals, fostering innovation, and driving positive change, transformative leaders in NPOs are reshaping the landscape of social impact and advancing the collective welfare and prosperity of Bangladesh.

Transformative leadership has a profound impact on the organizational culture, performance, and sustainability of NPOs in Bangladesh. By fostering a culture of collaboration, innovation, and accountability, transformative leaders inspire their teams to achieve higher levels of performance and effectiveness. This results in improved program outcomes, enhanced stakeholder engagement, and increased organizational resilience in the face of adversity. The ripple effects of transformative leadership extend beyond the confines of NPOs, influencing broader social and economic systems. By championing inclusive and participatory approaches to development, transformative leaders empower marginalized communities, amplify diverse voices, and address systemic

barriers to social justice and equity. This creates pathways for transformative change at the grassroots level, catalyzing sustainable development and empowering individuals to build better lives for themselves and future generations.

Transformative leaders in NPOs play a pivotal role in shaping public discourse, influencing policy agendas, and advocating for systemic reforms. By leveraging their expertise, networks, and credibility, transformative leaders amplify the voices of marginalized communities, raise awareness of pressing social issues, and mobilize support for policy solutions that promote human rights, social inclusion, and environmental sustainability. This enables NPOs to serve as powerful catalysts for policy change and social transformation, driving meaningful progress towards a more just, equitable, and sustainable society. The transformative impact of leadership in Bangladeshi NPOs is not only immediate but also enduring, laying the foundation for long-term sustainability and resilience. By investing in human capital development, building strategic partnerships, and fostering a culture of learning and adaptation, transformative leaders ensure that their organizations are equipped to navigate complex challenges, seize emerging opportunities, and remain relevant and impactful in a rapidly changing world.

RECOMMENDATION AND CONCLUSION
As Bangladeshi non-profit organizations (NPOs) continue to navigate complex socio-economic challenges and strive to make meaningful impact in their communities, there is a growing need for innovative approaches and evidence-based strategies to enhance transformative leadership and drive sustainable human capital development. NPOs should prioritize investment in leadership development programs that equip leaders with the skills, knowledge, and competencies needed to excel in their roles. These programs may include workshops, seminars, coaching, and mentorship initiatives focused on transformative leadership principles, communication skills, conflict resolution, and strategic management. NPOs must actively promote diversity, equity, and inclusion within their organizations to ensure that all voices are heard, valued, and respected. This may involve implementing policies and practices that foster a culture of belonging, equity-based decision-making processes, and inclusive leadership models that embrace diversity as a source of strength and innovation. NPOs should strengthen collaboration and partnership with government agencies, civil society organizations, academia, and the private sector to leverage collective expertise, resources, and networks for greater impact. By forging strategic alliances and building coalitions, NPOs can amplify their voices, pool resources, and address complex challenges more effectively. NPOs should embrace technology and innovation to enhance organizational effectiveness, streamline operations, and reach new audiences. This may involve leveraging digital platforms for fundraising, communication, and advocacy, as well as adopting innovative tools and methodologies for monitoring, evaluation, and learning. NPOs must foster a culture of learning and adaptation that encourages experimentation, reflection, and continuous improvement. This may involve establishing feedback mechanisms, conducting

regular evaluations, and soliciting input from stakeholders to inform decision-making and programmatic priorities.

NPOs should advocate for supportive policies and enabling environments that facilitate transformative leadership and organizational development. This may include advocating for reforms to legal and regulatory frameworks, promoting transparency and accountability in governance structures, and securing adequate funding and resources for NPOs to thrive. Researchers and academics should invest in research and knowledge sharing initiatives that advance our understanding of transformative leadership in the context of Bangladeshi NPOs. This may involve conducting empirical studies, case analyses, and comparative research to identify best practices, assess impact, and inform evidence-based policy and practice.

By implementing these recommendations, NPOs can enhance their capacity to drive transformative change, foster sustainable human capital development, and advance the collective welfare and prosperity of Bangladesh. Together, we can build a more just, equitable, and sustainable society where all individuals have the opportunity to thrive and fulfill their potential.

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