



MEDIATING EFFECT OF SELF-EFFICACY ON DISASTER RISK REDUCTION AND MANAGEMENT (DRRM) EDUCATION AND RISK PERCEPTION AMONG HIGH SCHOOL STUDENTS

Ayessa A. Sahagun

Rizal Memorial Colleges, Inc. Davao City, Philippines

Article DOI: <https://doi.org/10.36713/epra25803>

DOI No: 10.36713/epra25803

ABSTRACT

This study examined the mediating effect of self-efficacy on the relationship between Disaster Risk Reduction and Management (DRRM) education and risk perception among high school students in Cluster 14 public secondary schools in Davao City using Baron and Kenny's (1986) method of mediation. A non-experimental quantitative design with descriptive-correlation technique was employed, and data were gathered from 146 Grade 8 students selected through simple random sampling. Modified and pilot-tested survey questionnaires were used to assess DRRM education, risk perception, and self-efficacy. Findings indicated that DRRM education, risk perception, and self-efficacy were all rated as moderately extensive, with participation in drills being the most evident DRRM indicator, and hazard awareness the least. Risk perception was reflected more in avoidance behaviors than in open expression of concerns. Self-efficacy was demonstrated more in calmness and self-protection than in assisting others or decision-making under pressure. Correlational analysis revealed strong positive relationships between DRRM education and both risk perception and self-efficacy, while the relationship between risk perception and self-efficacy was weak but significant. Mediation analysis confirmed a suppression effect, where self-efficacy slightly weakened the positive impact of DRRM education on risk perception. These findings affirm the dual role of DRRM education in enhancing both confidence and risk awareness while emphasizing the need for instructional balance.

KEYWORDS: DRRM Education, Risk Perception, Self-Efficacy, Mediation Analysis, Disaster Preparedness

INTRODUCTION

Students' poor awareness of disaster risks and personal vulnerability remains a serious concern in many school settings, especially in disaster-prone communities. Despite the presence of Disaster Risk Reduction and Management (DRRM) education in schools, many learners still underestimate hazards and fail to recognize how disasters can directly affect them. This limited awareness weakens their sense of urgency and reduces their willingness to prepare or respond appropriately during emergencies. Such issues suggest that knowledge alone may not be enough to strengthen students' risk perception. These concerns highlight the need to examine the mediating effect of self-efficacy on the relationship between DRRM education and risk perception among high school students within Cluster 14 public secondary schools in Davao City.

Meanwhile, low levels of risk perception among students in the USA present significant challenges in fostering effective disaster preparedness, particularly regarding natural hazards such as earthquakes and floods. Aksa et al. (2020) highlighted that, similar to college students in other countries, American students often exhibit limited understanding of disaster risks due to insufficient knowledge and a sense of fatalism, leading to a diminished perception of the actual threat posed by disasters like earthquakes. This lack of awareness undermines their ability to take preventive measures or respond adequately during emergencies. Shah et al. (2020) further emphasize that poor disaster preparedness in schools contributes to low levels of risk perception among students, as many are not fully educated about the potential impacts of disasters or how to mitigate them. This issue is particularly concerning as it reduces students' motivation to engage in protective behaviors, increasing their vulnerability during disaster events. In many Arabian countries, low levels of disaster risk perception among students remain a serious concern that weakens overall preparedness and response capacity (Shanableh et al., 2023). Although basic disaster-related knowledge may be present in schools and communities, this awareness often fails to develop into a strong personal



sense of risk among learners. In some settings, students show limited understanding of hazards such as floods and other disasters, leading to an underestimation of the real dangers they may face (Shah et al., 2020). This disconnect between knowing about disasters and recognizing their seriousness reduces students' readiness to respond effectively during emergency situations. Such challenges point to the need for educational programs that place greater emphasis on psychological, behavioral, and experiential components of disaster preparedness to strengthen risk perception among students.

In many Asian countries, low levels of disaster risk perception among students continue to pose serious challenges to effective disaster preparedness. Learners in disaster-prone areas often show limited understanding of hazards such as earthquakes and volcanic eruptions, which weakens their ability to anticipate danger and respond appropriately during emergencies. This issue is commonly associated with insufficient disaster education, minimal exposure to preparedness activities, and limited opportunities to link classroom learning with real-life risk situations (Rahman, 2019). Consequently, students tend to underestimate the severity and possible impacts of natural hazards, reducing their capacity to adapt and respond safely when disasters occur (Thouret et al., 2022). These continuing problems emphasize the need to strengthen disaster education efforts that can improve students' risk awareness and preparedness. Meanwhile, low levels of disaster risk perception among students in the Philippines continue to present serious challenges to effective disaster preparedness, particularly in relation to earthquake hazards (Jaycee & Labor Jonalou). Many learners hold only subjective understandings of earthquakes, which weakens their ability to accurately assess danger and translate awareness into concrete preparedness actions. This limited perception often results in the underestimation of the severity and potential impact of disasters, reducing the sense of urgency to engage in mitigation and safety practices. Beyond earthquakes, the country's high exposure to multiple natural hazards is further compounded by weak disaster education and generally low risk awareness among students (Alcántara-Ayala et al., 2022). These persistent issues underscore the importance of strengthening students' risk perception to build a culture of preparedness and resilience in disaster-prone areas of the Philippines.

In the Davao Region, low levels of disaster risk perception among students continue to be a pressing issue that undermines effective disaster preparedness and response (Malasarte et al., 2024). Many learners display limited awareness of disaster risks and insufficient readiness for emergency situations, which weakens their ability to act proactively during hazard events. This condition is often associated with gaps in disaster risk reduction and management education, resulting in students' poor understanding of the severity, frequency, and possible impacts of disasters in their local context. In addition, cultural and psychological factors such as fatalistic beliefs and limited personal exposure to disaster experiences further contribute to the tendency to underestimate risks (Onipede et al., 2021). These ongoing challenges highlight the urgent need for strengthened educational interventions that can enhance students' risk perception and empower them to respond effectively to disaster threats.

In the researcher's setting, particularly in Cluster 14 Public Secondary Schools in Davao City, poor risk perception among students remains a serious concern despite their continued exposure to Disaster Risk Reduction and Management (DRRM) education. Many learners still underestimate the severity of disaster risks or believe that such events are unlikely to affect them personally, even though the area is vulnerable to various hazards. This weak sense of personal vulnerability often results in low preparedness, limited attention during drills, and a false sense of safety within the school environment. Furthermore, students may fail to fully appreciate the importance of disaster mitigation measures discussed in class, causing safety lessons to remain theoretical rather than practical. As a result, the gap between DRRM education and students' actual risk perception becomes a critical issue that threatens effective disaster preparedness and student safety in Cluster 14 public secondary schools.

A key temporal gap is that many discussions on DRRM education and student risk perception were developed before recent changes that shape how learners understand risk today, such as more frequent extreme weather events, repeated school disruptions, and the wider use of blended learning and digital information. These newer conditions can influence how students interpret warnings, assess danger, and decide whether risks apply to them personally. In addition, a clear methodological gap remains because available works often rely on simple description or direct relationships, giving limited attention to how DRRM education translates into stronger risk perception. Many studies also focus on general awareness outcomes rather than testing a mediation pathway using rigorous quantitative procedures. Because of these gaps, examining self-efficacy as a mediator becomes important to explain the missing link between learning about disasters and truly perceiving risk as real and personal.



An important empirical gap is the lack of setting-specific evidence among high school students in Cluster 14 public secondary schools in Davao City, where hazard exposure and school conditions may differ from other areas. Local differences in school resources, drill quality, teacher support, and community experience with disasters can shape students' confidence and risk judgment in unique ways. Thus, findings from other settings may not fully reflect the realities of Cluster 14 learners, especially regarding their poor awareness of disaster risks and personal vulnerability. For this reason, there is urgency to conduct the study in the researcher's setting to produce data that can guide targeted school actions, such as improving DRRM teaching strategies, strengthening practice-based learning, and building student confidence during drills. By testing the mediating effect of self-efficacy, the study can offer clearer evidence on what needs to be strengthened so DRRM education results in more realistic risk perception and safer student behavior.

This study is grounded in Protection Motivation Theory (Rogers, 1975) and the Theory of Planned Behavior (Ajzen, 1985), which both explain how DRRM education can shape students' disaster preparedness by strengthening risk perception and self-efficacy. PMT emphasizes that perceived threat and belief in one's ability to respond influence protective action, while TPB highlights perceived behavioral control (closely linked to self-efficacy) as a key driver of intention and behavior in disaster contexts. Consistent with this, Kurata et al. (2023) suggest that DRRM education can enhance self-efficacy, which helps learners interpret risks and respond more proactively, supporting its role as a mediator between disaster education and risk perception.

The primary objective of this study was to evaluate the mediating effect of self-efficacy on the relationship between Disaster Risk Reduction and Management (DRRM) education and risk perception among high school students within Cluster 14 public secondary schools in Davao City. Therefore, the study sought to explore the extents of Disaster Risk Reduction and Management (DRRM) education, risk perception, and self-efficacy of high school students; significant relationship among Disaster Risk Reduction and Management (DRRM) education, and risk perception, and self-efficacy; and mediating effect of self-efficacy.

The following hypotheses were tested at 0.05 level of significance:

H0₁: There is no significant relationship among Disaster Risk Reduction and Management (DRRM) education, and risk perception, and self-efficacy.

H0₂: Self-efficacy mo not mediate the relationship between Disaster Risk Reduction and Management (DRRM) education and risk perception among high school students.

METHODOLOGY

The methodology outlined the procedures used to conduct the study, including the research design, respondents, ethical safeguards, research instrument, data gathering steps, and statistical treatment. The study utilized a quantitative descriptive-correlational approach with mediation analysis to determine the levels of DRRM education, risk perception, and self-efficacy and to examine their associations, including the indirect role of self-efficacy in the DRRM–risk perception link. This approach was appropriate because it enabled objective measurement of the variables through structured questionnaires and supported statistical testing of relationships and indirect effects without manipulating the natural school setting.

Ethical safeguards were emphasized through adherence to approved research protocols and ethics committee clearance prior to data collection. The study established social value by addressing student safety and school disaster preparedness in Cluster 14 public secondary schools in Davao City, while ensuring informed consent and assent given the minor status of respondents. Measures to protect vulnerable participants included neutral administration procedures, the option to skip items or withdraw without penalty, and safeguards against distress through age-appropriate and non-alarming items. Privacy and confidentiality were maintained through respondent coding, restricted access to raw data, secure storage of physical and digital records, and proper disposal of materials in compliance with the Data Privacy Act of 2012, complemented by transparency in procedures and a responsible dissemination plan.

A total of 146 junior high school students were selected through simple random sampling, guided by Slovin's formula and inclusion criteria related to enrollment, age range, exposure to DRRM education, and willingness to participate with appropriate permissions. The instrument comprised three adopted questionnaires measuring DRRM education,



risk perception, and self-efficacy, administered using a 5-point Likert scale and supported by acceptable to excellent reliability indices based on Cronbach’s alpha. Data were collected through systematic permission processes, pilot testing, respondent orientation, and either online or face-to-face administration, then encoded and analyzed using weighted mean to describe levels, Pearson product–moment correlation to determine relationships, and Baron and Kenny’s mediation procedure with the Sobel z-test to verify the significance of the indirect effect.

RESULTS AND DISCUSSION

This chapter presents the results generated from the data gathered. It is sequenced based on the objectives of the study as presented in the first chapter.

Disaster Risk Reduction and Management (DRRM) Education. The results showed that students’ DRRM education in Cluster 14 public secondary schools in Davao City was moderately extensive overall ($M = 3.30$), meaning DRRM knowledge and practices were present but not consistently demonstrated. Among the domains, participation in DRRM drills obtained the highest rating ($M = 3.42$, extensive), while awareness of hazards had the lowest mean ($M = 3.18$, moderately extensive). This pattern suggests that schools had stronger implementation of routine, school-led preparedness activities than sustained hazard-awareness strengthening. This trend supports the view that DRRM becomes more effective when it is embedded across school practices and not treated as a one-time lesson (Cubillas et al., 2022; Manabo & Signo, 2023).

In specific domains, students were moderately extensive in knowledge of safety procedures ($M = 3.33$) and emergency preparedness planning ($M = 3.23$), which implies that correct actions were known but not consistently applied. The drill results were strong (e.g., “actively participating” was high), but lower means in mock activities and information-seeking suggest the need for more realistic, scenario-based experiences and student agency. This aligns with evidence that DRRM learning improves when learners repeatedly practice skills through simulations and participatory activities that build deeper internalization (Arcegon et al., 2024; El-Sherbini et al., 2020).

Table 1. Disaster Risk Reduction and Management (DRRM) Education in Cluster 14 Public Secondary Schools in Davao City

Indicators	Mean	Descriptive Equivalent
Awareness of Hazards	3.18	Moderately Extensive
Knowledge of Safety Procedures	3.33	Moderately Extensive
Participation in Disaster Reduction Risk and Management (DRRM) Drills	3.42	Extensive
Emergency Preparedness Planning	3.23	Moderately Extensive
Community Involvement in DRRM Activities	3.34	Moderately Extensive
<i>Overall</i>	<i>3.30</i>	<i>Moderately Extensive</i>

Risk Perception. Risk perception was moderately extensive overall ($M = 3.37$), showing that students sometimes displayed risk-aware behaviors, but these were not consistent across all indicators. The strongest areas were avoidance of risky situations ($M = 3.43$, extensive) and seeking information and advice ($M = 3.42$, extensive), suggesting developing caution and help-seeking habits. These findings reflect the idea that when learners perceive threats more clearly, they are more likely to avoid hazards and adopt protective actions. This is consistent with literature emphasizing risk perception as a key driver of preparedness and protective behavior (Rahmani et al., 2022; Mena et al., 2019).

However, weaker areas appeared in expressing concerns about potential risks ($M = 3.25$, moderately extensive) and selected safety-rule behaviors, such as protective-gear use. This indicates that students may recognize danger but still hesitate to communicate concerns or sustain compliance in less structured contexts. Studies highlight that risk communication improves when students are given supportive channels to voice concerns and participate in safety dialogue, rather than relying solely on adult-led instruction. Building these communication opportunities is crucial for a safer school environment (Casas Jr. et al., 2021; Yildiz et al., 2020).



Table 2. Risk Perception of Students in Cluster 14 Public Secondary Schools in Davao City

Indicators	Mean	Descriptive Equivalent
Avoidance of Risky Situations	3.43	Extensive
Adherence to Safety Rules	3.39	Moderately Extensive
Seeking Information and Advice	3.42	Extensive
Expressing Concerns About Potential Risks	3.25	Moderately Extensive
<i>Overall</i>	<i>3.37</i>	<i>Moderately Extensive</i>

Self-Efficacy. Students’ self-efficacy was moderately extensive (M = 3.24), indicating that confidence in handling disaster situations existed but was not stable across items. The highest-rated aspect was confidence in handling unexpected challenges (M = 3.62), which suggests that many students believed they could cope during emergencies. In disaster contexts, self-efficacy is important because it influences how learners think, feel, and act when facing threats and stressful situations. This supports the view that stronger self-belief improves readiness and performance under pressure (Mızrak & Turan, 2023; Roditi et al., 2019).

Yet, self-efficacy was lower in helping others during calamities (M = 3.07) and other action-based items, implying that confidence may be more personal than prosocial or leadership-oriented. This points to a need for programs that strengthen both individual coping and helping behaviors through guided practice, peer-led tasks, and realistic role assignments during drills. Research emphasizes that disaster-related self-efficacy improves through practical experiences that promote both competence and community-oriented action. Strengthening these elements supports resilience beyond the individual level (Bodas et al., 2019; Roditi et al., 2019).

Table 3. Self-Efficacy of Students in Cluster 14 Public Secondary Schools in Davao City

Statement	Mean	Descriptive Rating
1. Believing in my ability to remain calm during a calamity.	3.18	Moderately Extensive
2. Confidently following emergency procedures during a disaster.	3.16	Moderately Extensive
3. Trusting my skills to help others in need during calamities.	3.07	Moderately Extensive
4. Taking effective action to protect myself in a disaster situation.	3.24	Moderately Extensive
5. Knowing that I can handle unexpected challenges during a calamity.	3.62	Moderately Extensive
6. Feeling capable of making quick decisions in the face of a disaster.	3.08	Moderately Extensive
7. Successfully managing stress and fear during emergency situations.	3.25	Moderately Extensive
8. Being prepared to take responsibility for my safety during a calamity.	3.35	Moderately Extensive
Mean	3.24	<i>Moderately Extensive</i>

Relationship Among Variables. Correlation results showed a moderate, significant positive relationship between DRRM education and risk perception ($r = 0.620, p = 0.000$), meaning higher DRRM exposure was associated with higher awareness and caution toward risks. This suggests that when schools deliver stronger DRRM learning opportunities, students become more capable of recognizing hazards and adopting safer behaviors. Such findings align with literature indicating that disaster education increases students’ interpretation of risks and encourages preventive action. Therefore, strengthening DRRM delivery can support a culture of preparedness in school communities (Alarte, 2024; Cubillas et al., 2022).



Table 4. Relationship among Disaster Risk Reduction and Management (DRRM) Education, Risk Perception, and Self-Efficacy of the Students in Cluster 14 Public Secondary Schools in Davao City

Variables	Risk Perception	Self-Efficacy
<i>Disaster Risk Reduction and Management (DRRM)</i>	0.620**	0.725**
	0.000	0.000
	<i>Reject H0</i>	<i>Reject H0</i>
<i>Risk Perception</i>	1	0.224**
		0.007
		<i>Reject H0</i>

A strong, significant positive relationship was also found between DRRM education and self-efficacy ($r = 0.725, p = 0.000$), indicating that DRRM experiences were closely linked with greater confidence to act during emergencies. Meanwhile, risk perception and self-efficacy had a weak but significant positive relationship ($r = 0.224, p = 0.007$), suggesting that risk awareness only slightly moved together with confidence. This pattern supports the idea that knowledge and training can strongly build coping beliefs, but confidence does not always rise at the same rate as perceived risk. Mastery experiences and repeated practice strengthen efficacy, while risk perception depends on continued threat appraisal and risk cues (Labaria et al., 2020; Tang et al., 2021).

Mediating Effect of Self-Efficacy. Mediation analysis revealed a suppression effect of self-efficacy on the relationship between DRRM education and risk perception. DRRM education had a strong positive direct effect on risk perception (estimate = 0.919, $p < .001$) and significantly increased self-efficacy (estimate = 0.800, $p < .001$), but self-efficacy negatively predicted risk perception (estimate = -0.410, $p < .001$). This means that as students felt more capable of managing disasters, they tended to perceive lower risk, even while DRRM education itself increased risk perception. This pattern reflects a cognitive balance where high coping confidence can reduce perceived vulnerability (Maddux & Rogers, 1983; Kurata et al., 2023).

The indirect pathway confirmed this suppression, as the indirect effect (DRRM → self-efficacy → risk perception) was significantly negative (estimate = -0.328, $p < .001$), while the total effect remained positive (estimate = 0.591, $p < .001$). The significant Sobel test ($z = -5.0782, p = 0.000$) indicated that the mediating pathway meaningfully changed how DRRM education related to risk perception. Practically, this suggests that DRRM can raise both threat understanding and coping confidence, but increased confidence may soften perceived urgency if risk cues are not reinforced. Thus, DRRM instruction should pair confidence-building with continued emphasis on realistic hazard severity and local risk reminders (Maddux & Rogers, 1983; Kurata et al., 2023).

Table 14. Mediation Analysis on Mediation Analysis on Disaster Risk Reduction and Management (DRRM) Education, Risk Perception, and Self-Efficacy of the Students in Cluster 14 Public Secondary Schools in Davao City

Path Coefficients					
Steps	Estimate	Std. Error	z-value	p-value	
(Step 1) DRRM → RP	0.919	0.082	11.243	< .001	
(Step 2) SE → RP	-0.410	0.074	-5.532	< .001	
(Step 3) DRRM → SE	0.800	0.063	12.705	< .001	
Step 4 (Parameter Estimates)					
Effect Type	Parameter Estimates	Estimate	Std. Error	z-value	p-value
Indirect Effect Components	DRRM → SE → RP	-0.328	0.065	-5.072	< .001
Direct Effect	DRRM → RP	0.919	0.082	11.243	< .001
Total Effect	DRRM → RP	0.591	0.062	9.545	< .001
Ratio Index = -0.55499					
Sobel z-Test value = -5.0782, p=0.000					

Legend: DRRM = Disaster Risk Reduction and Management Education; RP = Risk Perception; & SE = Self-Efficacy



These findings offered partial support for Protection Motivation Theory and the Theory of Planned Behavior in explaining student disaster readiness. Under PMT, DRRM education strengthened both threat appraisal (risk perception) and coping appraisal (self-efficacy), but the suppression result showed that coping confidence can reduce perceived threat when confidence becomes high (Rogers, 1975; Maddux & Rogers, 1983). Under TPB, DRRM education likely shaped attitudes about safety and increased perceived behavioral control, yet sustained risk sensitivity still depends on ongoing communication and social reinforcement. This underscores the need for DRRM programs that build competence while keeping students attentive to real risks through inclusive dialogue and consistent risk communication (Ajzen, 1985; Shaw et al., 2021).

CONCLUSIONS

The study concludes that DRRM education, risk perception, and self-efficacy among high school students in Cluster 14 public secondary schools in Davao City are all moderately extensive, indicating that students sometimes show preparedness-related knowledge and behaviors, with drill participation and avoidance of risky situations being most evident, while hazard awareness and expressing concerns about risks are least observed, suggesting the need to strengthen real-life hazard awareness activities and promote open risk communication in schools.

Students also demonstrate moderate disaster self-efficacy, showing greater confidence in staying calm and protecting themselves but less confidence in helping others and making quick decisions, implying that DRRM programs should include psychological preparedness and confidence-building components. Correlation results confirm that DRRM education is significantly and positively related to both risk perception and self-efficacy, while risk perception and self-efficacy are weakly but significantly related, indicating that both are connected yet shaped by additional psychosocial factors.

Finally, mediation analysis reveals a suppression effect where DRRM education increases risk perception directly, but increased self-efficacy slightly reduces perceived risk, emphasizing the need to balance empowerment with sustained threat awareness; overall, the findings support Protection Motivation Theory and the Theory of Planned Behavior by showing that coping beliefs and planned responses influence how students evaluate risks, while highlighting the importance of reinforcing realistic risk cues even among confident learners.

RECOMMENDATIONS

The study recommends that DepEd strengthen DRRM policy by integrating more contextualized, experiential, and psychologically informed components—especially hazard awareness and risk communication—while providing teacher training and monitoring outcomes that balance confidence with realistic risk sensitivity. School heads and teachers should expand DRRM beyond routine drills through hazard mapping, scenario-based simulations, and reflective discussions that encourage learners to voice concerns and build decision-making and peer-support skills. Learners should take active roles in preparedness activities and information-seeking habits, while future researchers may explore other psychosocial influences and use longitudinal or intervention-based designs to refine DRRM programs that sustain both self-efficacy and accurate risk perception.

REFERENCES

1. Aksa, F. I., Utaya, S., Bachri, S., & Handoyo, B. (2020). *The role of knowledge and fatalism in college students related to the earthquake-risk perception*. *Jambá: Journal of Disaster Risk Studies*, 12(1), 1-6.
2. Alarte, T. (2024). *Implementation of Disaster Risk Reduction and Management in the Context of Inclusive Education*. Available at SSRN 4818643.
3. Alcántara-Ayala, I., Gomez, C., Chmutina, K., van Niekerk, D., Raju, E., Marchezini, V., ... & Gaillard, J. C. (2022). *Disaster Risk*. Routledge.
4. Arcegon, W. J., Olorga, A. V., & Sumandal, M. B. (2024). *Disaster Awareness and Preparedness and Disaster Risk Reduction Practices among Secondary Schools*. *International Journal of Education and Teaching Zone*, 3(1), 94-106. <https://jurnal.yayasannurulyakin.sch.id/index.php/ijetz/article/view/149>
5. Bodas, M., Peleg, K., Shenhar, G., & Adini, B. (2019). *Light search and rescue training of high school students in Israel—Longitudinal study of effect on resilience and self-efficacy*. *International journal of disaster risk reduction*, 36, 101089.
6. Casas Jr, E. V., Pormon, M. M., Manus, J. J., & Lejano, R. P. (2021). *Relationality and resilience: Environmental education in a time of pandemic and climate crisis*. *The Journal of Environmental Education*, 52(5), 314-324. <https://www.tandfonline.com/doi/abs/10.1080/00958964.2021.1981205>



7. Cubillas, A. U., Aviles, G. M., & Cubillas, T. E. (2022). Awareness, compliance and implementation of disaster risk reduction and management in flood-prone public elementary schools in Butuan city, Philippines. *International Journal of Educational Policy Research and Review*, 9(5), 157.
8. Cubillas, A. U., Aviles, G. M., & Cubillas, T. E. (2022). Awareness, compliance and implementation of disaster risk reduction and management in flood-prone public elementary schools in Butuan city, Philippines. *International Journal of Educational Policy Research and Review*, 9(5), 157.
9. El-Sherbini, H. H., Badawy, S. S. M., Mohammed, N. Y., & Toama, Z. T. Y. (2020). The Effect of Applying a Developed Disaster Risk Reduction Guideline on Governmental Primary School Student's Safety Behaviors-Alexandria Governorate, Egypt. *International Journal for Research In Health Sciences And Nursing*, 6(7), 31-58.
10. Jaycee, S. C., & Labor Jonalou, S. Are the youth prepared for earthquakes? Subjective knowledge, risk perception and mitigation behaviors among the youth in Metro Manila, Philippines.
11. Kurata, Y. B., Ong, A. K. S., Ang, R. Y. B., Angeles, J. K. F., Bornilla, B. D. C., & Fabia, J. L. P. (2023). Factors affecting flood disaster preparedness and mitigation in flood-prone areas in the Philippines: An integration of protection motivation theory and theory of planned behavior. *Sustainability*, 15(8), 6657.
12. Labaria, E. C., Acosta, A., & Gotangco, C. K. (2020). Minding Mental Health in Disaster Risk Reduction and Management: Enhancing Resistance Through Disaster Prevention, Mitigation, and Preparedness. In *Resistance, Resilience, and Recovery from Disasters: Perspectives from Southeast Asia* (pp. 53-71). Emerald Publishing Limited.
13. Malasarte, B. D., Molde, M. M., Son, J. S., & Quezada, R. J. C. (2024). Awareness and Preparedness of Pupils Towards Disaster Risk Reduction Management: Basis for Intervention Program. *Asian Journal of Education and Social Studies*, 50(9), 200-212.
14. Manabo, C. E., & Signo, C. (2023). Risk Reduction and Disaster Preparedness (RRDP) Program Implementation of the Public Academic Institutions in Carmona, Cavite. *Psychology and Education: A Multidisciplinary Journal*, 14(5), 564-576. https://scimatic.org/show_manuscript/2129
15. Mena, R., Hilhorst, D., & Peters, K. (2019). *Disaster risk reduction and protracted violent conflict*. London: Overseas Development Institute.
16. Mızrak, S., & Turan, M. (2023). Effect of individual characteristics, risk perception, self-efficacy and social support on willingness to relocate due to floods and landslides. *Natural hazards*, 116(2), 1615-1637. <https://link.springer.com/article/10.1007/s11069-022-05731-y>
17. Onipede, F. M., Cayamanda, K. J. G., Paunlagui, M. M., Baconguis, R. D., Quimbo, M. A. T., Than, W. W., ... & Mercurio, J. R. A. (2021). *International Review of Social Sciences Research: Volume 1 Issue 1*.
18. Rahman, M. L. (2019). High School Students' Seismic Risk Perception and Preparedness in Savar, Dhaka. *Educational Research and Reviews*, 14(5), 168-177.
19. Rahmani, M., Muzwagi, A., & Pumariega, A. J. (2022). Cultural factors in disaster response among diverse children and youth around the world. *Current psychiatry reports*, 24(10), 481-491.
20. Roditi, E., Bodas, M., Jaffe, E., Knobler, H. Y., & Adini, B. (2019). Impact of stressful events on motivations, self-efficacy, and development of post-traumatic symptoms among youth volunteers in emergency medical services. *International journal of environmental research and public health*, 16(9), 1613.
21. Shah, A. A., Gong, Z., Ali, M., Sun, R., Naqvi, S. A. A., & Arif, M. (2020). Looking through the Lens of schools: Children perception, knowledge, and preparedness of flood disaster risk management in Pakistan. *International Journal of Disaster Risk Reduction*, 50, 101907.
22. Shah, A. A., Gong, Z., Pal, I., Sun, R., Ullah, W., & Wani, G. F. (2020). Disaster risk management insight on school emergency preparedness—a case study of Khyber Pakhtunkhwa, Pakistan. *International Journal of Disaster Risk Reduction*, 51, 101805. <https://www.sciencedirect.com/science/article/abs/pii/S2212420920313078>
23. Shanableh, S., Alomar, M. J., Palaian, S., Al-Ahmad, M. M., & Ibrahim, M. I. M. (2023). Knowledge, attitude, and readiness towards disaster management: A nationwide survey among healthcare practitioners in United Arab Emirates. *PloS one*, 18(2), e0278056.
24. Shaw, R., Sakurai, A., & Oikawa, Y. (2021). New realization of disaster risk reduction education in the context of a global pandemic: Lessons from Japan. *International Journal of Disaster Risk Science*, 12, 568-580. <https://link.springer.com/article/10.1007/s13753-021-00337-7>
25. Tang, J. S., Chen, C. L., Lin, C. H., & Feng, J. Y. (2021). Exploring teachers' risk perception, self-efficacy and disease prevention measures during the outbreak of 2019 novel coronavirus disease in Taiwan. *Journal of infection and public health*, 14(3), 358-364.
26. Thouret, J. C., Wavellet, E., Taillandier, M., Tjahjono, B., Jenkins, S. F., Azzaoui, N., & Santoni, O. (2022). Defining population socio-economic characteristics, hazard knowledge and risk perception: The adaptive capacity to persistent volcanic threats from Semeru, Indonesia. *International Journal of Disaster Risk Reduction*, 77, 103064.
27. Yildiz, A., Teeuw, R., Dickinson, J., & Roberts, J. (2020). Children's earthquake preparedness and risk perception: A comparative study of two cities in Turkey, using a modified PRISM approach. *International journal of disaster risk reduction*, 49, 101666.