Global Scientific JOURNALS

GSJ: Volume 13, Issue 8, August 2025, Online: ISSN 2320-9186
www.globalscientificjournal.com

Awareness and Implementation Towards Resilience of School Disaster Risk Reduction Management

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Abstract: The increasing occurrence of natural disasters highlights the urgent need for proactive measures in schools, prompting the researcher to assess teachers' awareness and school implementation related to contextual factors. The main objective of the study was to determine the level of awareness and implementation towards resilience of School Disaster Risk Reduction Management in the Division of Cagayan de Oro City. Specifically, this aimed to: find the level of awareness in School Disaster Risk Reduction Management, assess the level of Implementation of School Disaster Risk Reduction Management, examine the teachers' level of resilience in School Disaster Risk Reduction Management, determine the significant relationship between the teacher's awareness, implementation and their resilience in School Disaster Reduction Management. This study used a descriptive-correlational method of research. Data were collected from two hundred (200) respondents using a stratified sampling and modified instrument. Findings revealed that teachers' awareness of disaster plans contrasts with lower scores in practical application and physical safety, leaving students potentially vulnerable during emergencies. The schools demonstrate strong preparedness through well-communicated policies, safe facilities, and robust health and hygiene practices, and indicating a confident, prepared school community. The theory resulting to this study is about the fact that the higher is the awareness and implementation of School Disaster Risk Reduction Management the higher is the resilience. It is recommended that schools should improve disaster preparedness through workshops, updated safety procedures, and facility maintenance.

Keywords: awareness, implementation, resilience, School Disaster Risk Reduction Management

Introduction

The escalating frequency and intensity of natural disasters worldwide underscore the urgent need for proactive disaster risk reduction measures, particularly within educational institutions. Schools serve as vital hubs for learning and community development, yet they are often vulnerable to the devastating impacts of natural hazards.

The Philippines is vulnerable to both natural and human-induced disasters because of its geographical and geological features, being situated within the Pacific Ring of Fire and the typhoon belt. (Tizon & Comighud, 2020). Moreover, it has been ranked third (3rd) among 173 countries in terms of disaster risk World Risk Index, 2021 released by the United Nations International Strategy for Disaster Reduction Gaillard, Liamzon, and Villanueva (2022).

The Philippine government has developed designs to counterbalance the effects of both natural and man-made disasters. The main intent of formulated laws and policies are to increase the resilience of vulnerable communities and the country against natural disasters and to reduce damage and loss of properties. In addition, R.A. 10121 otherwise known as the Philippine Disaster Risk Reduction and Management Act provided a paradigm shift from reactive to pro-active, from top-down and centralized management to bottom-up and participatory disaster risk reduction process (RA 1012, 2018). Through this Act, the National Disaster Risk Reduction Management Framework and National Disaster Risk Reduction Management Plan were developed. Both the National Disaster Risk Reduction Management Framework and National Disaster Risk Reduction Management Plan foresee a country which has safer, adaptive and disaster-resilient Filipino communities toward sustainable development.

Disaster Risk Reduction is the policy objective of anticipating and reducing risk. In contrast, disaster risk management is called the enactment of Disaster Risk Reduction as it defines the undertakings that seek to minimize risk (UNISDR Global Assessment Report, 2015). In the Philippines, disaster risk reduction and management are governed by Republic Act No. 10121, which established the National Disaster Risk Reduction and Management Council (NDRRMC). The Department of Education is a regular council member. One of its thrusts is the prime responsibility of instilling and inculcating awareness in pupils, which consists of knowledge, skills, and values on disaster risk reduction and management that will serve them to face the challenges of life beyond the academe (21st Gawad Kalasag, 2019). In this case, schools must establish and operationalize all possible mechanisms for students to be aware of the use of policy and plans, human resources, programs and activities, risk assessment and vulnerability, emergency preparedness and response and the partner of stakeholder agreement participated by the stakeholder. While on the other hand, implementation also such as safe learning facilities, school disaster management, and school safety procedures.

School Disaster Risk Reduction Management (SDRRM) is vital in safeguarding learners, teachers, and school personnel within the school environment. This research assessed the extent to which coastal schools in Cluster VII of the Division of Pampanga, Philippines, have effectively implemented their disaster risk reduction management systems (Cresencio & Yabut, 2023).

However, the National Disaster Risk Reduction Management Council forwarded four domains, wherein all lower and higher education institutions are encouraged to enhance their disaster risk reduction and management activities. These are policy and plans, capability/capacity; emergency preparedness and response; and partner or stakeholder agreement.

With the given scenario, the researchers having been involved in the educational system as a teacher, would like to determine teachers' awareness and school implementation as related to context variables. For that purpose, the relationship between resilience in School Disaster Risk Reduction Management would be examined. Hence, the researcher strongly believes that a strong awareness and implementation of their plans and policy as one powerful factor for the success of DepEd's educational reforms and school-level improvement of basic education delivery.

Literature and Related Studies

Awareness on School Disaster Risk Reduction Management

Similarly, disaster awareness involves identifying activities to be undertaken within the topic of disaster risk management. Schools with proper disaster awareness manage the disaster risks very well. It is incumbent to have the entire school community being directly engaged in learning about disaster preparedness and identifying solutions to protect the schools (Kay, 2023). Moreover, according to (Grant, 2022), disaster awareness in schools can be incorporated in institution through strategically posting safety rules, installing firefighting equipment, evacuation maintain buildings, conducting seminars on disaster awareness and entailing child-to-child peer education, the use of songs, electronic and print media, action learning and using science education as means to introduce studies of disaster risk.

Policy and Plans

Domingo and Olaguera (2021) state that, The Philippines is considered one of the places where risks are imminent. The findings in this study on the awareness of students on the University's Disaster Risk Reduction Management plans could be related to the study of Padernal and Borja in (2019) of a certain school in Surigao City, where they found a resounding awareness of students regarding their Disaster Risk Reduction Management undertakings. Likewise, in the study of Pasion (2020) among students of Balligui Senior High School in

Quirino province. These studies highlighted the efforts of administrators in following the guidelines set forth by the National Disaster Risk Reduction Management Plan.

Human Resources

Tizon and Comighud (2020), in their study in all public schools of Bayawan City Division, Negros Oriental for SY 2018-2019 regarding their implementation of the public schools' disaster risk reduction management program and level of capabilities to respond, revealed a similar result showing that the level of awareness of students is high but noted that the level of awareness was highest in human resources. They then emphasized the need for established human resources in schools to work mainly on the various aspects of Disaster Risk Reduction Management and represent the school in seminars, training, and workshops that the National Disaster Risk Reduction Management Council national and local are conducting.

Programs and Activities

Concerning curriculum integration, Rogayan and Dollete (2020), based on their study on disaster awareness and preparedness in Zambales, Philippines, proposed the following topics in various curricular programs the Disaster Science Management Concepts in Environmental Science. Hence, the implementation of disaster risk reduction management plans and activities is encouraged at all levels. Both public and private sectors should be made aware of their roles and responsibilities in times of disasters. As Espinas (2018) and Bueza (2019) put emphasis, organized disaster risk reduction management team should support the implementation of all thematic areas of disaster risk reduction and management.

Risk Assessment and Vulnerability

The disaster risk reduction approach identifies hazards and assesses risks; develops and applies practices that prevent, mitigate, prepare for, or recover from disasters; and evaluates the effectiveness of the current programs and strategies (Cutter, 2023). Accomplishing the disaster risk reduction approach involves focusing on a community's vulnerabilities. Once the disaster risk has been identified and assessed, the disaster risk reduction approach is followed through by actions taken to minimize or reduce that disaster risk through mitigation or preventative measures (Tuladhar et al., 2023). Also, Catanus (2018) and Mamhot (2019) further supported this finding by saying that the respondents' assessments on the mentioned areas are more or less the same since the Philippine government at present focuses on disaster risk reduction.

Emergency Preparedness and Response

The important aspect is for leaders, administrators, or decision-makers to impose, monitor, and sustain these established mechanisms (Domingo & Olaguera, 2021). Many communities are focused on bouncing back and returning to a pre-disaster sense of normal (Cutter, 2023). In the Philippines, the study of Sanchez, et al. (2019) revealed that their student-respondents were aware of some aspects of disaster risk reduction management. However, it does not coincide with the actual assessment of their awareness. They then recommended stricter compliance and adherence to university drills and strengthened connections between students and the safety team.

Partner of Stakeholder Agreement

Mamhot (2019) who affirmed this statement through sharing the findings that human resources in DepEd Siquijor Province have high level of involvement in disaster risk reduction management plan through the establishment of the school disaster management committee in the grassroots level (disaster prevention and mitigation); organization of an assessment team to check all facilities for safety and security (disaster preparedness); direction, regulation, and activation of response mechanism by the disaster risk reduction management team, rescuers and volunteers (disaster response); and conduct of trainings in line with the development programs for recovery among others.

Implementation of School Disaster Risk Reduction Management

According to UNESCO (2020), preparedness plans are dynamic ventures which need to be reviewed, modified, updated and tested on a regular basis. Preparing for disasters can reduce potential damage and save lives, which can assist in the speed and efficiency of recovery efforts (King & Tarrant, 2018). Gubalane (2019) stated that contingency planning is actually a fundamental tool, but good plan cannot stand alone without having an empowered citizenry, infrastructures, emergency response mechanisms, rehabilitation, and other important logistics. Moreover, according to Brooks (2021) and Cutter (2023), taking responsibility requires an approach that involves top-down and bottom-up efforts that include everyone from the national level all the way down to the grassroots setting" when it comes to preparing for and responding to disasters.

Safe Learning Facilities

Safe learning facilities refer to the physical and other related structures of the schools. It also involves the establishment of temporary learning spaces that can be used by learners (DepEd Order No. 37 s. 2015). According to Lim (2019), the key responsibilities of schools include safe school site selection and making sure that disaster-resilient design and construction are followed to assure that every new school is a safe school and the plans that prioritize retrofitting and replacement (including relocation) of unsafe schools are implemented. The school should also have a plan for implementing climate-smart interventions like looking for ways to have renewable sources of energy (Lim , 2019). In establishing a Safe Learning Facilities, parties in charge of education sector and planning, architects, engineers, builders, and school community members are the ones deciding the safe location, design, construction, and maintenance (including the safe access) for the facility.

School Disaster Management

School disaster management involves the collaboration of all authorities from the national level to the subnational level of education and local communities to make sure that a safe and conducive learning environment and a plan of action for educational continuity are maintained even in disasters (Lim, 2019). According to Selby and Kagawa (2021), a broad-based engagement among these players can be established through local school communities (including students and parents) and national and sub-national education authorities working together with their counterparts in disaster management at each jurisdiction to maintain safe learning environments and plan for educational continuity in accordance with international standards. Selby and Kagawa (2018) further stress that efficient and effective school disaster management can be established if all stakeholders who have stakes in education work together and consolidate disaster risk reduction efforts to create a safe learning environment and plans of action for the continuation of education.

School Safety Procedures

The word "safety," comes from a Latin word salvus which means uninjured or in good health (Maddox, 2020). The first records of the word were noticed from around 1250. According to Safeopedia (2021) safety is a concept that includes all measures and practices taken to preserve the life, health, and bodily integrity of individuals. Safety is the condition of being protected from harm or other non-desirable outcomes. Safety can also refer to the control of recognized sources of danger (hazards) in order to achieve an acceptable level of risk. California School Board Association (2018) explained that a safe school is one where teaching and learning are not distracted; disruptions are school disasters (flood, typhoon, earthquake and fire), minimized; violence, drugs, bullying and fear are not present; learners are not discriminated against; expectations for behavior are clearly communicated; and consequences for infractions are consistently and fairly applied. The most effective approach to creating safe and supportive

school environments requires a comprehensive, coordinated effort including school wide, districtwide and communitywide strategies.

Resilience of School Disaster Risk Reduction Management

Risk reduction and resilience education are designed in a way that will develop safety and resilient communities (Lim, 2019). It also included responsibilities to provide teachers with need-based training on disaster risk reduction curriculum, materials and approaches and how to integrate these into formal, non-formal and extracurricular education systems in partnership with the local communities Disaster Risk Reduction Management is necessary to attain the education sector's resilience. The United Nations Conversation on the Rights of Children in 1989 states "every child has the right to education, irrespective of disability and without discrimination of any kind (Ferguson, 2019).

Physical Condition

Nakum, Ahamed, Isetani, Chatterjee, Shaw, and Soma (2022) developed a framework for enhancing school resilience to support risk-informed decision-making in disaster contexts. It is primarily seen as the condition of the school building as it has a direct impact on the overall functioning of the school and the continuation of education during a disaster (Tong et.al, 2023). Physical condition has two key elements – structural elements and non-structural elements. Structural elements look into the quality of the construction, adherence to appropriate building codes, provision of emergency exits, the appropriate size of corridors and staircases, and appropriateness to physically challenged people (Shiwaku, 2019). Non-structural elements look into electrical installations, gas installations, non-structural mitigation measures carried out in libraries, laboratories, offices and classrooms, such as fixing and securing almirahs, shelves, blackboards, ceiling fans, coolers, water tanks etc. to the walls or floor and keeping corridors and staircases clear of obstruction (Widowati, 2021).

Institutional Issues

Institutional Issues involves the availability of an updated School Disaster Management Plan, hazard, vulnerability and capacity assessment, disaster management organization/ committee and teams emergency evacuation planning, demarcation of assembly points, availability of emergency alarm/fire alarm, fire safety equipment, First Aid Kits, the conduct of mock drills, CCTV surveillance, and provision of disaster management funds (Shiwaku, 2019). Selecting a site for establishing a school often considers natural conditions, especially the exposure of an area to different hazards. Natural conditions consider the frequency and severity of hazards in the school's area and their impact on the school. It also considers the surrounding environment, how far the school is from industrial areas, and harmful chemical exposure (Sakurai, 2021).

Health and Hygiene

India's National Disaster Management Guidelines on School Safety Policy 2016 provides due weightage to the home-to-school-to-home approach. It defines school safety as "creating safe environments for children starting from their homes to their schools and back." (National Disaster Management Authority, 2019). Also, States in India adhered to the guidelines and considered health and hygiene, transportation safety and cyber safety-critical for school safety (Widowati, 2021). Health and hygiene involve food, safe drinking water, toilets and hygiene facilities.

Scope and Limitations

This study focused on the awareness, implementation and resilience of School Disaster Risk Reduction Management among teachers in the Division of Cagayan de Oro City School Year 2024 – 2025. The respondents were the two hundred (200) public elementary school teachers in Central and Non-Central Schools in the division mentioned above. The independent

variables were limited to teachers' awareness and implementation of School Disaster Risk Reduction Management. The teacher's awareness dealt on policy and plans, human resources, programs and activities, risk assessment and vulnerability, emergency preparedness and response and partner of stakeholder agreement while the implementation of School Disaster Risk Reduction Management inquired in safe learning facilities, school disaster management and school safety procedures. Further, the dependent variables were limited to teachers' resilience in School Disaster Risk Reduction Management, namely physical condition, institutional issues and health and hygiene.

Methodology

Research Design

This study made use of descriptive-correlational method of research. This determines the level of awareness and implementation towards resilience of School Disaster Risk Reduction Management in the Division of Cagayan de Oro City. According to Jacobs (2018), descriptive studies collect data to answer questions about a subject or topic of study. Descriptive research makes use of instruments such as surveys to explore individual's preferences, attitudes, interests, practices, and concerns. One major benefit of such methodology is that it posits expertise with the participants, rather than with the researcher (J.B. Burns, 2019). Further, Correlational method of research is a procedure in which subjects scores on two variables are simply measured, without manipulation of any variables, to determine whether there is a relationship. It is correlational because it attempted to trace the significant relationship between the awareness, and implementation and resilience in School Disaster Reduction Management.

Study Setting

The study was conducted in the different Central and Non – Central Schools in Cagayan de Oro City. The Division of Cagayan de Oro City is composed of 10 (ten) districts namely: Central, North I, North II, South, South West I, South West II, West I, West II, East I, and East II District. Each district has Central and Non-Central Schools but included only those schools which belong to large and medium categories. South West I district do not have schools that belong to large and medium categories.

Cagayan de Oro is located along the north central coast of Mindanao island facing Macajalar Bay and is bordered by the municipalities of Opol to the west, Tagoloan to the east, and the provinces of Bukidnon and Lanao del Norte to the south of the city. According to the 2020 census, the city has a population of 728, 402, making it the 10th most populous city in the Philippines. In this study, nine (9) Districts with sixteen (16) Central and Non – Central Schools within Cagayan de Oro City Division were considered as part of the research area where the teachers of the different respective schools are expected to participate as respondents of the study. The researcher considers only the large and medium schools since teachers in these schools can provide the data needed in the study. These school had experience devastated calamities like Typhoon Sendong last 2011. So, the level of resiliency can be checked. The selection of the research location was strategically plan with the various considerations like teacher, populations, accessibility of the school location in terms of distance and transportation and security of the place.

Research Respondents and Sampling Technique

The study involved two hundred (200) public elementary school teachers from the nine (9) districts within the Cagayan de Oro City Division, encompassing sixteen (16) central and non-central schools. These teachers represent a portion of the 1,277 teachers employed in the aforementioned schools within the city. Table A shows the distribution of respondents as coded. To obtain the sample size, the researcher used Slovin's formula with five percent (5%) confidence level and a population of one thousand two hundred seventy-seven (1277) teachers to arrive at the desired number of respondents which is two hundred (200) teachers. Further, a

stratified sampling procedure was also employed to get the appropriate number of respondents in every school.

Research Instruments

The study used a three-part questionnaire, modified with teacher-friendly language to ensure clarity and accuracy of responses. Part I assessed teachers' awareness of School Disaster Risk Reduction Management (SDRRM), covering policies, resources, preparedness, and stakeholder involvement, based on Cresencio (2019). Part II evaluated the implementation of SDRRM in terms of safe facilities, disaster management, and safety procedures, adapted from Yabut (2023). Part III focused on teachers' resilience during disasters, examining physical location, institutional issues, and health and hygiene, based on Nakum et al. (2022). The instrument aimed to gather reliable data on SDRRM awareness, practices, and resilience among educators.

Statistical Treatment of Data

Descriptive statistics like mean and standard deviation were used to describe the independent variables particularly the awareness and level of implementation towards resilience in school disaster risk reduction management. Finally, Pearson Product-Moment Correlation (ɲ) was used to establish significant relationship between the respondent's awareness and implementation toward resilience in School Disaster Risk Reduction Management.

Ethical Considerations

The research upheld strong ethical standards to protect participants and ensure study integrity. Informed consent was obtained from all teachers, who were fully briefed on the study's purpose and procedures. Anonymity and confidentiality were maintained by not collecting personal data and ensuring privacy in all reports. The researcher transparently communicated objectives, acknowledged all sources using APA referencing, and recognized personal biases to avoid influencing data analysis. Academic integrity and intellectual property were respected, and responsibility was taken for any potential harm. These ethical measures fostered trust, respect, and academic rigor throughout the research process.

Results and Discussion

Problem 1. What is the respondents' level of awareness in School Disaster Risk Reduction Management in terms of policy and plans, human resources, programs and activities, risk assessment and vulnerability, emergency preparedness and response and partner of stakeholder agreement?

Table 1
Summary of the Respondents' Level of Awareness on School Disaster Risk Reduction Management

Variable	Mean	SD	Interpretation
Policy and Plans	3.57	0.48	Fully Aware
Human Resources	3.43	0.53	Fully Aware
Programs and Activities	3.35	0.65	Fully Aware
Risk Assessment and Vulnerability	3.34	0.62	Fully Aware
Emergency Preparedness and Response	3.46	0.60	Fully Aware
Partner of Stakeholder Agreement	3.48	0.56	Fully Aware
Overall	**3.44**	**0.52**	**Fully Aware**

Legend: *3.26-4.00 At All Times / Fully Aware* *1.76-2.50 Sometimes / Slightly Aware*
2.51-3.25 Most of the Time / Aware *1.00-1.75 Never / Not Aware*

Table 1 presents the summary of the respondents' level of awareness on Disaster Risk Reduction Management with an overall mean of **3.44 (SD=0.52),** interpreted as **Fully Aware.** This means that teachers who are confident in the school's plan are more likely to feel prepared

to protect their students in an emergency. Even though teachers have a positive view, it's important to continue to refine and improve the school's preparedness and response plans. The needs of the school and the community may change over time Smith (2023). The result indicates that teachers being fully aware of disaster risk reduction management and confident in school plans is good as it helps them prepare to protect students in emergencies, but its important to keep improving these plans as the school and community needs change over time.

The variable, **Policy and Plans,** got the highest mean of **3.57 (SD= 0.48)** with an interpretation of Fully Aware. It means that the school has invested in clear, well-communicated policies and plans, and teachers are well-versed in them. While high awareness is a good starting point, it's crucial to ensure that these policies and plans are not just theoretical constructs Reeves (2018). This indicates that the school having clear, well communicated disaster policies and plans those teachers know well is a good start but they need to be more than just theory.

On the contrary, the variable which obtained the lowest is ***Risk* Assessment and Vulnerability** with the mean of **3.34 (SD= 0.62)**, interpreted as Fully Aware. This signals a critical gap in preparedness. This indicates a lack of understanding of potential hazards, inadequate vulnerability assessments, and a failure to proactively address risks. Cress (2019) states that, this deficiency compromises the school's ability to develop effective disaster preparedness plans, allocate resources, and protect students and staff during emergencies. To address this, the school must prioritize risk assessment and vulnerability analysis, educate teachers and staff, foster a culture of safety, and involve external experts to ensure a more resilient and safer learning environment (Sheen, 2020). Indicates that the low score on risk assessment and vulnerability in the teacher awareness survey shows a big gap in school, disaster preparedness, so the school needs to focus on these areas, teaching staff, create a safety culture, and get help from experts to make the school safer.

Problem 2. What is the respondents' level of Implementation of School Disaster Risk Reduction Management based on safe learning facilities, school disaster management and school safety procedures?

Table 2
Summary of the Respondents' Level of Implementation on School Disaster Risk Reduction Management

Variable	Mean	SD	Interpretation
Safe Learning Facilities	3.48	0.58	Highly Implemented
School Disaster Management	3.47	0.59	Highly Implemented
School Safety Procedures	3.29	0.68	Highly Implemented
Overall	3.41	0.58	Highly Implemented

Legend: *3.26-4.00 At All Times / Highly Implemented* *1.76-2.50 Sometimes / Slightly Implemented*
2.51-3.25 Most of the Time / Implemented *1.00-1.75 Never / Not Implemented*

Table 2 presents the summary of the respondents' level of implementation on School Disaster Risk Reduction Management with an overall mean of **3.41 (SD=0.58)** interpreted as **Highly Implemented.** This means that a high level of implementation in school disaster reduction management is a very positive thing. It means that schools are taking steps to prepare their students and staff for potential emergencies, which is crucial for ensuring safety and well-being (Arcojada, 2021). Schools are likely implementing physical safety measures like earthquake-resistant buildings, fire safety systems, and emergency supplies. Teachers are also likely trained in emergency response procedures. The result indicates that the high level of school disaster risk reduction management implementation is great as it shows schools are preparing learners and staff for emergencies, likely with physical safety measures and teacher training, which is crucial for safety and well-being.

The variable, **Safe learning facilities** got the highest mean of **3.48 (SD= 0.58)** with an interpretation of **Highly Implemented**. It means that schools are recognizing that a safe physical environment is fundamental to ensuring the safety of students and staff during a disaster. This includes addressing potential hazards like flooding, landslides, or earthquakes, depending on the

specific risks in the area. This finding is a positive sign that schools are taking steps to create safer learning environments for their students and staff (Manuel (2021). It is important to continue to invest in physical safety measures and ensure that facilities are regularly inspected and maintained to ensure ongoing safety. Schools are likely equipped with essential safety equipment like first aid kits, fire extinguishers, and emergency supplies (Kennedy, 2019). Additionally, safe learning facilities significantly decrease the risk of injuries and fatalities during a disaster, as students and staff are protected from collapsing buildings, fires, or other hazards. It indicates that, schools recognize safe learning facilities and are crucial in disasters, are taking steps to address risks, likely have safety gear, which reduces harm, so keep investing and maintaining them.

On the contrary, the variable which obtained the lowest is **School Safety Procedures** with the mean of **3.29 (SD= 0.68)**, interpreted as Highly Implemented. This directly indicates that the effective disaster response relies on well-rehearsed and coordinated actions. If teachers are not fully confident and proficient in safety procedures, the response to a disaster may be less efficient, leading to delays and potentially compromising student safety. A lower implementation of SDRRM in school safety procedure level means that students and staff are potentially more vulnerable to hazards during a disaster. This could lead to a higher risk of injuries, property damage, and disruption to learning (Beyer, 2021). Ensuring teachers have access to current and relevant resources, including manuals, checklists, and training materials. It indicates that, it is important to engage with external experts in disaster preparedness and safety to provide guidance and support to teachers.

Problem 3. What is the respondents' level of resilience in School Disaster Risk Reduction Management considering physical condition, institutional issues and health and hygiene?

Table 3
Summary of the Respondents' Level of Resilience on School Disaster Risk Reduction Management

Variable	Mean	SD	Interpretation
Physical	3.43	0.52	Very Positive
Institutional Issues	3.48	0.57	Very Positive
Health and Hygiene	3.56	0.49	Very Positive
Overall	**3.49**	**0.48**	**Very Positive**

Legend: *3.26-4.00 Strongly Agree / Very Positive* *1.76-2.50 Disagree / Negative*
2.51-3.25 Agree / Positive *1.00-1.75 Strongly Disagree / Very Negative*

Table 3 presents the summary of the respondents' level of resilience on School Disaster Risk Reduction Management. The overall mean score of **3.49 (SD=0.48)** with an interpretation of **Very Positive** indicates that it is a promising description and it indicates a shared sense of confidence and preparedness within the school community. The positive results suggest a shared understanding and commitment to disaster preparedness among teachers, administrators, students, parents, and potentially other community members involved in the school's safety. According to Berham (2019), a positive perception of disaster preparedness can enhance the overall resilience of the school community. Additionally, the positive results suggest a high level of trust between stakeholders. This trust can facilitate collaboration and communication, which are essential for effective disaster response Caralos (2022).

The variable, **Health and Hygiene** got the highest mean **3.56 (SD=0.49)** with an interpretation of Very Positive. It means that the teachers may be not worried much about access to clean water and sanitation facilities during and after a disaster, teachers may still have confidence in the availability of essential hygiene supplies like soap, hand sanitizer, and masks, teachers may be concerned about the school's ability to prevent the spread of diseases during a disaster and teachers may have trust in the availability of basic health services and healthcare professionals in the event of an emergency. In contrary according to Merian (2019), a lack of focus on health and hygiene during a disaster can significantly increase the risk of illness and

disease outbreaks among teachers and students. This can further complicate the situation, leading to more casualties, stress, and disruption to learning. Indicates that teachers should focus on health and hygiene because its crucial to avoid sickness and learning disruption.

On the contrary, the variable which obtained the lowest is **Physical** with the mean of **3.43 (SD= 0.52)**, interpreted as Very Positive. This means that teachers do not believe the school building is structurally sound and able to withstand potential hazards, not confident in the school's evacuation plans and the availability of clear, safe exit route and trust that the school has adequate emergency equipment like fire extinguishers, first aid kits, and communication systems.

According to Robertson (2019), the disparity in result suggests that the school might not be prioritizing physical infrastructure over other critical aspects of disaster preparedness. This could lead to a false sense of security, as a safe building alone does not guarantee the well-being of the school community during a disaster. The result indicates that teachers lack trust in school safety features. The school may neglect physical preparation which is risky as a safe building alone is not sufficient for disaster protection.

Problem 4. Is there a significant relationship between the respondents' awareness, implementation and their resilience in School Disaster Reduction Management?

Table 4

Result of the Test on Relationship between the Respondents' Awareness and their Resilience in School Disaster Reduction Management

		Respondents Resilience			
Respondents' Awareness		**Physical Condition**	**Institutional Issues**	**Health and Hygiene**	**Overall**
Policy and Plans	r-value	.535**	.639**	.559**	0.577**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Human Resources	r-value	.577**	.677**	.642**	0.632
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Programs and Activities	r-value	.660**	.772**	.651**	0.694**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Risk Assessment and Vulnerability	r-value	.648**	.755**	.669**	0.697**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Emergency Preparedness and Response	r-value	.632**	.769**	.698**	0.699**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Partner Stakeholder Agreement	r-value	.677**	.754**	.662**	0.697**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**

Note: Significant if r-value (p< 0.05)

Table 4 demonstrates a statistically significant relationship between the respondents' awareness and their resilience in School Disaster Reduction Management. The correlation analysis, revealing a significant r-value ($p < 0.05$), supports the rejection of the null hypothesis and confirms a positive association between these variables. This finding aligns with established disaster management theory, which emphasizes the crucial role of preparedness in building resilience. The data suggests that increased teacher awareness—encompassing policy understanding, resource allocation, risk assessment, and stakeholder collaboration—directly correlates with improved implementation of SDRRM practices, such as the maintenance of safe learning facilities and the execution of effective emergency response plans. This improved implementation, in turn, fosters greater resilience within the school community, enhancing its capacity to withstand and recover from disruptive events. The significant relationship underscores the critical need for proactive engagement and empowerment of teachers in SDRRM initiatives. Schools striving for optimal resilience cannot afford to overlook the vital contribution of informed and actively involved teachers in developing and implementing comprehensive disaster preparedness strategies. Further research could explore the specific aspects of awareness

and implementation that contribute most significantly to resilience, and the potential for targeted interventions to enhance teacher capacity in this area.

It is related to the study of Torres (2021) that the findings of the study indicate that the School Disaster Risk Reduction Management positive correlations emphasize the importance of a holistic approach to disaster reduction in schools. It's not just about individual teacher actions but also about the school's overall policies, plans, resources, and partnerships. The findings of the study reveal a significant relationship (p-value = 0.000) between respondents' awareness and implementation of School Disaster Risk Reduction and Management and their resilience across three key areas: physical condition, institutional issues, and health and hygiene. The overall correlation values suggest that higher awareness and effective implementation of SDRRM measures lead to greater school resilience.

Among the variables, awareness on SDRRM has the strongest correlation (r = .825) with overall resilience, particularly in institutional issues (r = .820), highlighting that well-informed school personnel contribute significantly to disaster preparedness and management. Similarly, risk assessment and vulnerability (r = .770) and emergency preparedness and response (r = .772) also exhibit strong positive relationships with resilience, indicating that schools that actively assess risks and prepare response plans tend to be more adaptive to disasters.

On the other hand, policy and plans (r = .638), while still significant, show the lowest correlation with school resilience, suggesting that while policies are necessary, their impact is dependent on effective implementation and integration into school practices. Human resources (r = .697) and progress and activities (r = .767) also contribute significantly, emphasizing the role of well-trained personnel and continuous disaster preparedness initiatives in building resilience.

Overall, the study underscores the importance of awareness, structured policies, proactive risk assessment, and stakeholder partnerships in strengthening schools' disaster resilience. Schools that prioritize institutional readiness, regular training, and active stakeholder engagement are better equipped to mitigate risks and ensure the safety and well-being of learners and staff.

Table 5
Result of the Test on Relationship between the Respondents' Implementation and their Resilience in School Disaster Reduction Management

		Respondents Resilience			
Respondents' Implementation		**Physical Condition**	**Institutional Issues**	**Health and Hygiene**	**Overall**
Safe Learning Facilities	r-value	.762**	.838**	.682**	0.760**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Disaster Management	r-value	.709**	.826**	.696**	0.743**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**
Safety Procedures	r-value	.747**	.816**	.795**	0.786**
	p-value	.000	.000	.000	.000
	Interpretation	**S**	**S**	**S**	**S**

Note: Significant if r-value (p< 0.05)

Table 5 demonstrates a statistically significant Relationship between the Respondents' Awareness, Implementation and their Resilience in School Disaster Reduction Management. The findings indicate a significant relationship between the implementation of School Disaster Risk Reduction and Management (SDRRM) measures and the resilience of respondents across physical condition, institutional issues, and health and hygiene. The high correlation values suggest that schools with stronger SDRRM implementation exhibit greater overall resilience in disaster preparedness and response. Among the variables, Safe Learning Facilities (r = .841) has the strongest correlation with overall resilience, particularly in institutional issues (r = .838). When the learning facilities are high quality, it creates a positive cycle that significantly boosts both the implementation of school disaster risk reduction management and overall school resilience. This emphasizes the importance of structurally sound school buildings, emergency infrastructure, and secure learning spaces in ensuring safety and preparedness. Likewise, Disaster

Management (r = .822) and Safety Procedures (r = .806) also show strong positive relationships, reinforcing the need for clear disaster response protocols and continuous training to enhance school resilience. This indicates a significant and interconnected relationship between these factors and a school's ability to withstand and recover from disasters.

Interestingly, Safety Procedures (r = .795 in Health and Hygiene) had the highest correlation in this category which demonstrates a strong, direct relationship indicating that well-established safety measures contribute significantly to maintaining hygiene and health standards during and after disasters. Meanwhile, Safe Learning Facilities (r = .682 in Health and Hygiene) had the lowest correlation, suggests a weaker, less direct relationship compared to other factors. While safe facilities are important for overall resilience, they might not directly impact health and hygiene as strongly as other factors like safety procedures or disaster management plans. This could be because health and hygiene practices are more influenced by specific protocols and training rather than solely relying on the physical infrastructure.

Overall, the study highlights that a well-implemented SDRRM framework—encompassing safe infrastructure, disaster response strategies, and clear safety protocols—directly strengthens school resilience. Schools that prioritize both physical safety and procedural preparedness are better equipped to handle disasters, minimize risks, and protect students and staff effectively.

Conclusion

The study reveals a high level of awareness among respondents regarding School Disaster Risk Reduction Management (DRRM), particularly in understanding and aligning with existing policies, plans, and guidelines, which enhances informed decision-making, compliance, and governance. Respondents also demonstrate strong practice in maintaining Safe Learning Facilities, emphasizing community participation, consistent safety protocol adherence, hazard mitigation, and ongoing improvements supported by regular maintenance and teacher training. Additionally, there is a very high level of resiliency observed in Health and Hygiene, with strict enforcement of proper waste disposal, promoting proactive health measures, effective waste management, and hygiene practices that contribute to a resilient, health-conscious school environment.

Recommendations

1. School heads should regularly conduct comprehensive hazard mapping and vulnerability assessments to reduce gaps in risk assessment and vulnerability. Presenting updated risk information in clear and accessible ways will help everyone respond more effectively to potential hazards.
2. School heads should strengthen school safety procedures by developing clear and practical standard operating procedures that are regularly reviewed and integrated into daily routines. Conducting hands-on training and frequent drills for various emergency scenarios will help build a culture of preparedness, making safe practices second nature for everyone in the school community.
3. School heads are encouraged to focus on maintaining safe and sturdy school buildings by ensuring regular inspections, prompt repairs, and necessary upgrades of older structures. Keeping evacuation routes and emergency exits clear of hazards is vital to protect students and staff. By committing to these measures, school leaders help create a secure, supportive environment where learning can continue smoothly, even during unexpected events.
4. Future researchers are encouraged to use this study as a helpful reference when exploring awareness, implementation, and resilience in school disaster risk reduction management. Expanding this work in different contexts or adding new variables will further enrich understanding and support stronger, safer school communities.

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