Level of Disater Risk Reduction Management Implementation of Coastal Schools in Pampanga

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ABSTRACT

This study examined the extent of implementation of School Disaster Risk Reduction and Management (SDRRM) in coastal public schools in Pampanga, Philippines. Utilizing a descriptive research design, the study assessed SDRRM practices across four key dimensions, Safe Learning Facilities, School Disaster Management, Disaster Risk Reduction and Resilience Education, and Coastal School Risk Management; through the perspectives of school heads, SDRRM coordinators, and faculty club representatives. Respondents' profiles were analyzed based on designation, school level, school size, number of SDRRM trainings attended, and years of involvement in SDRRM.

Findings revealed that most respondents had substantial involvement in SDRRM activities, with varying designations and school contexts. Overall, SDRRM implementation was rated as "Implemented," with Disaster Risk Reduction and Resilience Education receiving the highest mean score, followed by School Disaster Management, Safe Learning Facilities, and Coastal School Risk Management. The latter received the lowest rating despite the coastal location of the schools, highlighting a critical gap in hazard-specific preparedness.

Statistical analysis using Kruskal-Wallis and Mann-Whitney U tests showed no significant differences in SDRRM implementation across respondent profiles and institutional characteristics, indicating a consistent perception and application of disaster preparedness measures. Strengths were noted in contingency planning, emergency drills, and curriculum integration of DRR concepts. However, challenges were identified, including limited infrastructure accessibility, lack of standardized training, and insufficient coastal hazard-specific interventions.

The study concluded that while coastal schools demonstrate foundational commitment to SDRRM, there is a pressing need for enhanced, context-specific strategies. These include improved funding mechanisms, sustained capacity-building, and stronger stakeholder collaboration to bridge the gap between policy and practice. An enhanced SDRRM implementation plan is proposed to address the identified gaps and strengthen disaster resilience in coastal educational settings.

Keywords: Coastal Schools, Disaster Risk Reduction Management, Doctor in Education Management, Polytechnic University of the Philippines- Open University System.

INTRODUCTION

Disaster Risk Reduction and Management (DRRM) has emerged as a global imperative in response to the increasing frequency and severity of natural hazards. The United Nations Office for Disaster Risk Reduction (UNDRR) and the Sendai Framework for Disaster Risk Reduction 2015–2030 emphasize the importance of building resilient communities through education, preparedness, and institutional capacity. These global frameworks recognize that schools are not only vulnerable to disasters but also serve as critical platforms for promoting safety and resilience. The integration of DRRM into education systems worldwide reflects a shared commitment to safeguarding lives and minimizing disruptions to learning, especially among children who are among the most affected during disasters.

Building on this global imperative, natural disasters annually cause 45,000 deaths and disrupt education for 37 million children globally due to hazards like tsunamis, floods, and storms (World Risk Report, 2023)[1]. This alarming figure underscores the urgent need for robust disaster preparedness strategies, particularly in the education sector. In 2021 alone, 432 natural hazards resulted in 10,492 fatalities and affected over 101.8 million people, with economic losses reaching US$252 billion (Kabra et al., 2023)[2].

This emphasizes the vulnerability of children, as approximately 175 million are affected by natural disasters annually (Lai & Greca, 2020). Furthermore, around 75 million children are either missing out on education, receiving substandard education, or are at risk of dropping out due to these disasters (Valenza & Stoff, 2023)[3].

Disasters have far-reaching global consequences that extend beyond immediate physical damage, often disrupting educational systems and hindering long-term development. The statistics mentioned in the preceding paragraphs highlighting the worldwide devastating impact of disasters and the necessity for proactive risk reduction measures. The findings reveal the long-term educational consequences of inadequate disaster preparedness and call for more inclusive and resilient school systems. Given the profound and lasting effects of disasters on education, these findings underscore the urgent need to assess and strengthen the implementation of disaster risk reduction management in schools, ensuring that these institutions are equipped in fostering safer, and more resilient learning environments.

In the Philippine context, UNICEF's (2021)[4] study highlights the severe impact of natural disasters on Filipino children, with 9.7 million affected by coastal flooding and cyclones between 2016 and 2021, leading to significant educational, health, and psychological challenges. This was despite of the Philippine government's efforts to align with global efforts by passing into law the Republic Act (RA) No. 10121, known as the Disaster Risk Reduction and Management Act of 2010, which was enacted through the National Disaster Risk Reduction Management and Coordinating Council. This was even supported by Department of Education (DepEd) by issuing DepEd Order No. 37 in 2015, which aims to mitigate disasters' impact on schools, personnel, learners, and properties, which also institutionalized comprehensive risk reduction practices within the department using the Comprehensive School Safety Framework (DepEd, 2015)[5].

Despite the presence of well-articulated policies with the inclusion of the DepEd's Comprehensive Disaster Risk Reduction and Management (DRRM) Framework in Basic Education emphasizes three key pillars: Safe Learning Facilities, School Disaster Management, and DRR integration in the curriculum; a gap persists between policy intent and actual implementation, particularly in coastal schools where vulnerability to disasters is high (Lim, 2019) [6]. This disparity is further illustrated by Cubillas et al. (2022) [7], who found that the implementation of DRRM in Philippine schools is hindered by limited compliance with indicators for Safe Learning Facilities, School Disaster Management, and Risk Reduction and Resilience Education, primarily due to funding constraints.

These indicate a persistent gap between policy and practice in the Philippines' disaster risk reduction (DRR) efforts, particularly in coastal schools where vulnerability is highest. Despite the existence of comprehensive national frameworks and institutional support, the limited implementation, often due to resource constraints, continues to expose children to educational, health, and psychological risks during disasters. This underscores the critical need to assess the actual level of disaster risk reduction management implementation in coastal schools, to identify areas for improvement and ensure that policy commitments translate into meaningful protection and resilience for Filipino learners.

Meanwhile, the researcher's involvement in prior studies revealed that while secondary schools in Macabebe and Masantol, Pampanga showed high assessments in School Disaster Risk Reduction Management (SDRRM) due to consistent DRR activities, coastal schools' safety procedures were rated the lowest due to insufficient resources (Cresencio & Yabut, 2023)[8]. This contrast highlights the uneven implementation of DRRM across different school contexts.

In response to these observed gaps, the researcher noted that coastal schools face recurrent flooding not only during the monsoon sea son but also on ordinary days due to high tides, causing suspension of face-to-face classes. Moreover, classroom buildings were inaccessible to individuals with disabilities, especially on upper

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floors. Despite these unique challenges, SDRRM preparedness and mitigation measures remain primarily focused on earthquake and fire-related incidents. This narrow focus overlooks the significant risk of flooding faced by coastal schools, revealing a critical gap in current DRRM strategies.

Moreover, the insistent challenges and uneven implementation of SDRRM suggest that there is a clear need for an enhanced and more detailed implementation plan. Such a plan should be context-specific, addressing the unique vulnerabilities of coastal schools, including recurrent flooding and accessibility issues. It must also ensure inclusive participation, adequate funding, and continuous monitoring to bridge the gap between policy and practice. Strengthening the implementation of SDRRM will not only safeguard educational continuity but also promote resilience among school communities in disaster-prone areas.

Recognizing the foregoing challenges, the researcher has expanded the scope of this study from two municipalities in Pampanga to include all coastal schools across the province. This broader scope aims to enhance safety and reduce flood-related risks for teachers, learners, and parents. Motivated by these concerns, the researcher seeks to assess the extent of the implementation of the SDRRM program in coastal elementary and secondary schools within the Schools Division Office of Pampanga Province. This study will contribute to the limited body of literature on DRRM implementation in schools and inform future policy directions.

EXPERIMENTAL METHODS

The researcher employed a quantitative approach using a descriptive research design through the survey method to provide a general picture of the implementation of School Disaster Risk Reduction and Management (SDRRM) in coastal schools. The study aimed to assess SDRRM practices across four key dimensions: Safe Learning Facilities, School Disaster Management, Disaster Risk Reduction and Resilience Education, and Coastal School Risk Management.

The population of the study consisted of school heads, SDRRM coordinators, and faculty club representatives from selected coastal elementary and secondary schools within the Schools Division Office of Pampanga. A total of 195 respondents participated in the study. To ensure fair representation across different roles and school contexts, the researcher employed stratified random sampling, a probability sampling technique that ensures specific subgroups are adequately represented.

A self-made questionnaire was used as the primary data-gathering instrument. The items were developed based on literature on SDRRM in coastal schools and aligned with the Comprehensive School Safety Framework and DepEd Order No. 37, s. 2015. The questionnaire was validated by three (3) experts in the field of education and disaster risk reduction, selected based on their professional experience, leadership roles, and familiarity with school-based DRRM implementation. This validation process ensured the appropriateness and content validity of the instrument.

The survey questionnaire was composed of three (3) parts. Part I gathered the demographic profile of the respondents, including designation, school level, school size, number of DRRM trainings attended, and years of involvement in SDRRM. Part II assessed the extent of SDRRM implementation across the four dimensions, with 5 items per category, totaling 20 items. Respondents rated each item using a 4-point Likert scale ranging from 1 (Not Implemented) to 4 (Highly Implemented). Part III captured the respondents' perception of success in implementing SDRRM, also composed of 20 items across the same four categories, using the same rating scale.

To determine the reliability of the instrument, Cronbach's Alpha was computed, yielding a coefficient of 0.950, indicating high internal consistency.

Prior to data collection, the researcher sought approval from the University Research Ethics Committee (UREC). Upon approval, a formal request to conduct the study was submitted to the Schools Division Superintendent, along with a request for access to relevant school data from the Division Planning Office. The questionnaires were distributed both in printed form and online via Google Forms to accommodate varying school contexts and accessibility.

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After administering the survey, the researcher retrieved the responses, tallied the data, and conducted statistical analysis. Respondents were properly informed about the purpose of the study and assured that their identities would remain confidential and that the data would be used solely for academic purposes.

For data analysis, the researcher employed percentage, weighted average mean, Mann- Whitney U Test, and Kruskal-Wallis test to determine the extent of SDRRM implementation and identify significant differences across respondent profiles and school characteristics.

RESULTS AND DISCUSSIONS

This section discusses the data gathered, its analysis and its interpretation from questionnaires completed by educators about the level of disaster risk reduction management implementation of coastal schools.

Table 1. Extent of Implementation of School Disaster Risk Reduction Management in Coastal Schools in the area of Safe Learning Facilities

The school...	Mean	Verbal Interpretation
Ensures the establishment of an Early Warning System and communication (i.e., bulletin board for weather advisories, printed and posted hazard map and evacuation plan in conspicuous places, bell/ siren emergency signals among others).	3.21	Implemented
Is accessible to individuals with mobility impairment including its offices, classrooms and ancillary facilities.	2.97	Implemented
Facilitates the conduct of regular building physical inspection and hazard mapping by experts then implements recommendations.	3.08	Implemented
Receives adequate funding for flood protection, repair and retrofit of damaged school facilities on a regular basis from DepEd and or other local government units.	2.70	Implemented
Has an existing designated safe evacuation area to be used for multi-hazard (earthquake, flood, and fire) drills.	2.94	Implemented
Composite Mean	**2.98**	Implemented

The respondents have evaluated the implementation of Safe Learning Facilities under the School Disaster Risk Reduction Management (SDRRM) program with a mean of 2.98, which shows that the program is implemented in general. The research identifies some of the factors that help ensure school safety, such as early warning systems, accessibility, physical inspections, funding, and evacuation areas.

With a mean score of 2.97, the data indicates that the majority of schools have improved in terms of accessibility of their facilities. Periodic physical checks and risk mapping are crucial in determining potential risks in school buildings. The research provides a mean of 3.08, which shows that such practices are in place but can be further enhanced. With a mean score of 2.70, funding allocation is an area that needs to be improved. Finally, the availability of designated evacuation zones for multi-hazard drills received a mean rating of 2.94. This indicates a moderate level of implementation across schools.

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The school…	Mean	Verbal Interpretation
Has a Contingency Plan for each school hazard, developed by the planning team, with an evacuation plan and procedures that are regularly reviewed, monitored, and included in the School Improvement Plan.	3.3846	Implemented
Has an updated SDRRM-CCA Manual that guides effective DRRM, climate change adaptation, and education during emergencies, focusing on integration into development processes.	3.0615	Implemented
Has functional equipment for disasters and emergencies such as fire extinguishers, handheld/base radio, generator, etc. are available and are regularly checked.	2.7282	Implemented
Conducts planned and surprise drills for earthquakes, fires, floods, and other disasters regularly, with participation from BFP, medical teams, LGUs, NGOs, community members, SPTA officers, alumni, and others.	3.2256	Implemented
Has an existing designated safe place and a system of quick evacuation plan in the event of small- scale and large- scale floods during the actual and dry-run of small-scale and large-scale flood drills	2.9744	Implemented
Composite Mean	**3.0749**	Implemented

Table 2. Extent of Implementation of School Disaster Risk Reduction Management in Coastal Schools in the area of School Disaster Management

The information given on the school disaster management assessment confirms the tremendous measures taken by educational institutions in institutionalizing disaster risk reduction and management (DRRM) strategies. The total mean score of 3.07 with a deviation of 0.54 represents that schools were able to instill disaster readiness measures into school safety frameworks adhering to the best practices of school safety strategies.

Having a mean score of 3.06 indicates schools realize the need for organized directives in responding to disasters and adaptation to climate change. The availability and functionality of disaster response equipment in schools were rated low (M = 2.73, SD = 0.83), highlighting significant gaps in resources and maintenance. In contrast, drills and preparedness exercises showed stronger implementation (M = 3.23, SD = 0.67), with schools regularly conducting both planned and surprise drills in coordination with agencies like the BFP, LGUs, and NGOs. The designated safe areas and flood evacuation plans scored moderately (M = 2.97, SD = 0.73), indicating partial and uneven implementation across schools.

Table 3. Extent of Implementation of School Disaster Risk Reduction Management in Coastal Schools in the area of Disaster Risk Reduction and Resilience Education

The school…	Mean	Verbal Interpretation
Ensures that teachers comply in integrating key concepts on DRR, climate change adaptation (CCA) and Education in Emergencies (EiE) across the learning areas at all grade levels.	3.23	Implemented
Continuously trains and upskills teachers on the integration of DRR-CCA topics into the curriculum, and on the development of self-learning modules and learning materials for use during EIE.	3.02	Implemented
Engages internal and external stakeholders in planning, monitoring, and evaluation of DRR, CCA and EIE programs, projects and activities.	3.06	Implemented
Digitizes school vital records and leaning modules.	3.05	Implemented
Conducts alternative or distance mode of learning delivery when the school is encroached by high tide waters.	3.63	Implemented
Composite Mean	**3.20**	Implemented

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From the information provided, the general execution of risk reduction and resilience education in schools is scored at 3.20, which reflects a degree of implementation in various dimensions that has been put in place.

Instructors play a significant role in this process, and the research emphasizes that compliance in incorporating DRR-CCA-EiE in curricula is sufficiently done (Mean = 3.23, SD = 0.63). This is as per earlier findings that a curriculum that is well designed promotes disaster consciousness and preventive measures among students.

The study indicates that teachers' training and upskilling in the aspect of incorporating DRR-CCA and producing self-learning materials have been implemented (Mean = 3.02, SD = 0.69).

Another important component of resilience education is the involvement of stakeholders in planning, monitoring, and assessment of DRR, CCA, and EiE programs. The study indicates a mean score of 3.06 (SD = 0.67) in this area, reflecting the continuous coordination among internal and external partners in enhancing disaster preparedness initiatives. Digitization of school records and learning modules was given a mean score of 3.05 (SD = 0.69), reflecting a moderate level of implementation. The highest rated among the measures employed in the study is the implementation of alternative or distance learning procedures during school inundation by high tide waters with a mean of 3.63 and rated as highly implemented.

Table 4. Extent of Implementation of School Disaster Risk Reduction Management in Coastal Schools in the area of Coastal School Risk Management

The school...	**Mean**	**Verbal Interpretation**
Utilizes the collected data on the frequency of occurrence of large-scale and small- scale floods in the school premises and the results of risk assessments to continuously improve flood contingency plans.	3.25	Implemented
Ensures that life-vest or lifejackets are provided to school personnel and learners during their boat travel to and from the school.	2.22	Slightly Implemented
Ascertains that source of potable water in the school is not contaminated before use after flooding by seeking the assistance the local government's health unit.	2.88	Implemented
Conducts regular awareness programs to enhance the knowledge and resilience of school personnel and learners on flood-related disasters.	3.13	Implemented
Maintains partnership among school's internal and external stakeholders, including LGUs, in reducing the effects of small- scale and large-scale flooding.	3.26	Implemented
Composite Mean	**2.95**	Implemented

Coastal school risk management is a highly crucial aspect of disaster preparedness, particularly in flood-risk areas. Referring to the evaluation of certain risk management practices in a coastal school setting, the overall implementation level is 2.95, indicating "Implemented." However, certain key aspects depict mixed levels of execution, which indicates areas of improvement and focus.

One of the most glaring school disaster risk management advantages is the fact that it makes use of learned flood histories and risk implications when updating its contingency plans on an occasional basis (M = 3.25).

The school also keeps good relations with internal and external partners, such as the local government units (LGUs), to reduce the impact of small-scale and large-scale flooding (M = 3.26). Periodic organization of awareness programs to enlighten school staff and students on flood disaster is also a commendable step (M = 3.13). One such urgent issue is the poor availability of life jackets or life vests for students and school staff

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during boat transport (M = 2.22). This low rate of implementation indicates a far-reaching risk to student safety, especially for students passing through water routes. The second section requiring improvement is ensuring water potability safety following floods (M = 2.88).

Table 5. Assessment of the Success of Safe Learning Facilities

The school…	Mean	Verbal Interpretations
Facilitated the posting of at least 95% of weather advisories, hazard maps, and evacuation plans in visible locations, and tested all emergency signals (bells/sirens) functional, with monthly documentation.	3.30	Agree
Had all of its buildings accessible to individuals with mobility impairments that complies with the local and national accessibility standards.	3.12	Agree
Completed 100% of required building inspections and hazard mapping bi-annually, with 90% of experts' recommendations implemented.	3.15	Agree
Received and utilized all requested funding for flood protection, repairs, and retrofitting with 100% of projects completed within 12 months of fund allocation.	2.96	Agree
Conducted one multi-hazard drill per quarter and ten unannounced multi-hazard drills.	3.29	Agree
Composite Mean	**3.16**	**Agree**

Table 5 shows that schools have successfully provided this requirement, with a mean score of 3.30, indicating overall consensus among stakeholders. The research establishes a moderate rate of compliance with accessibility standards among those with mobility impairments at 3.12. Building inspections and hazard mapping are imperative in addressing structural vulnerability and risk mitigation. Schools received an average of 3.15 on this factor, reflecting an overall positive reaction. The study also investigates spending and spending money on retrofitting, repair, and flood protection. Responses measure an average of 2.96 wherein funding is available but its use within the period when it is needed is not balanced.

Periodic drills form a vital component of disaster preparedness as they reinforce emergency response protocols and enhance coordination among stakeholders. The research establishes that schools organized an average of one multi-hazard drill per quarter and ten unannounced drills per year, with an average of 3.29. The assessment of safe learning facilities in school-based disaster risk reduction management had a mean of 3.16, which implies a general concurrence regarding the sufficiency of adopted measures.

Table 6. Assessment of the Success of School Disaster Management

The school...	**Mean**	**Verbal Interpretations**
Was able to identify all the hazards in the contingency plans with evacuation procedures reviewed and updated and all these plans were incorporated in the School Improvement Plan.	3.44	Agree
Updated the SDRRM-CCA Manual, and 100% of staff receive training on its contents within 12 months of each update.	3.10	Agree
Ensured that all the disaster and emergency equipment are functional.	3.25	Agree

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Conducted at least 4 multi-hazard drills annually, with 90% participation from students, staff, and external partners, including ten surprise multi-hazard drills.	3.34	Agree
Designated a safe place and this is utilized in 100% of multi-hazard drills, with evacuation completed within 5 minutes for both small-scale and large-scale scenarios.	3.27	Agree
Composite Mean	**3.28**	**Agree**

The evaluation of school disaster management practices indicates overall positive practice in the implementation of disaster risk reduction measures, consistent with an overall mean score of 3.28 falling into the "Agree" category. Schools have evidenced a commitment to being prepared for disasters, especially in the area of hazard identification, updating contingency plans, and incorporating these into their School Improvement Plans (SIPs).

The most significant of these findings is the prioritization of training and education, as seen in the mean score of 3.10 on updating the School Disaster Risk Reduction and Management – Climate Change Adaptation (SDRRM-CCA) Manual and providing all staff with training within 12 months following each update. Operability of emergency and disaster devices is another crucial one, with a mean score of 3.25.

Among the critical components of disaster preparedness is the performance of multi-hazard drills, which is at 3.34 mean score. There should be at least four drills per year with surprise exercises incorporated, reflecting a strong preparation campaign. The high rate of involvement of students and teachers (90%) also has a critical contribution to the basis of the effectiveness of such drills in developing a readiness culture.

Besides that, the assurance and execution of safe zones within drills with an average score of 3.27 provide foundations for the effectiveness of well-conceived evacuation systems.

Table 7. Assessment of Success of Risk Reduction and Resilience Education

The school...	**Mean**	**Verbal Interpretations**
Integrated DRR, CCA, and EiE concepts into all lessons, with 90% of lesson plans showing this integration during quarterly reviews.	3.16	Agree
Achieved 100% teacher participation in yearly training on DRR-CCA and EiE materials, with 80% of them applying new skills in the classroom.	3.13	Agree
Had at least 3 stakeholder engagement sessions (including planning, monitoring, and evaluation) been held annually, with participation from 80% of invited stakeholders.	3.20	Agree
Had 100% of its vital records and at least 90% of its learning modules were digitized and securely stored within 12 months.	3.22	Agree
Had implemented Alternative or distance learning within 48 hours of high tide encroachment, with at least 90% of students participating in these learning modes.	3.45	Agree
Composite Mean	**3.23**	Agree

The inclusion of Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA), and Education in Emergencies (EiE) into lesson plans with a mean score of 3.16 is indicative of the overall agreement among teachers on the effectiveness of this approach. The relatively high mean suggests progress, but there remains room for improvement, particularly in ensuring consistent application across all learning areas.

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Teacher participation in yearly training on DRR-CCA and EiE materials achieved full attendance, with 80% of teachers applying their new skills in the classroom (mean = 3.13).

Stakeholder participation in DRR is central, as evidence that at least three stakeholder meetings were organized annually with an 80% attendance rate (mean = 3.2) substantiates.

The digitalization of 100% of key school documents and 90% learning modules within a period of 12 months presents an impressive expression of commitment towards resiliency through safe handling of information (mean = 3.22).

The deployment of alternative or distance learning within 48 hours after high tide encroachment, with 90% student involvement (mean = 3.45), reflects the resilience of schools in crisis response. Overall, the composite Mean of 3.23 indicates a high institutional commitment to DRR and resilience education, with all but one indicator in the "agree" range. This means that schools are in fact sincerely striving disaster preparedness and learning, though with irregularities in practice that identify areas to be further strengthened with efforts. Enhancing teacher training, enhancing ongoing stakeholder involvement, enhancing cyber infrastructure, and enhancing accessible and equitable access to alternative learning modes are required in constructing a more resilient education system.

Table 8. Assessment of Success of Coastal School Risk Management

The school...	**Mean**	**Verbal Interpretations**
Updated 100% of flood contingency plans annually using data on flood frequency and risk, with 90% of plans including new improvements.	3.37	Agree
Had 100% of its school personnel and learners using boat as transportation are provided with life-vests or lifejackets during boat travel, with 100% of trips documented for compliance.	2.75	Agree
Had 100% of its water sources are tested and confirmed safe by the local health unit before being used, with 100% of test results documented within 7 days of flooding.	3.03	Agree
Had conducted at least 4 awareness programs annually, with 90% of school personnel and learners participating and showing increased knowledge as measured by pre- and post-program assessments.	3.18	Agree
Had at least two collaborative meetings with internal and external stakeholders, including LGUs, annually, with at least 90% of their action items completed as planned within the schoolyear.	3.23	Agree
Composite Mean	**3.11**	**Agree**

Table 8 shows the disaster risk management efforts of coastal schools, in relation to many key performance indicators (KPIs), portray a strong commitment towards preparedness and safety in flood-prone zones. The assessment of the risk management efforts of the schools presents an overall positive tone in disaster readiness, namely flood contingency planning, boat transport personnel safety, water safety procedures, and community awareness through awareness campaigns and stakeholder collaboration. The average score for overall risk management activities is 3.11, which translates to "agree," indicating persistent but diversified levels of implementation for various initiatives.

One of the significant strengths is updating the flood contingency plans, where 100% of the plans are updated every year based on flood frequency data, and 90% of the updates include new enhancements.

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Safety of students and staff in boat transport is also given maximum priority, whereby 100% of staff on boat transport wear life-vests or lifejackets and all transportation is documented for conformity.

The findings highlight strong performance in water safety and disaster awareness initiatives within schools. Additionally, schools conduct at least four awareness programs annually, engaging 90% of staff and students.

Lastly, the collaborative efforts between schools and their internal and external stakeholders, particularly local government units (LGUs), demonstrate a strong commitment to community engagement and shared responsibility in disaster risk management. These partnerships reflect a proactive approach, where schools do not operate in isolation but instead integrate their preparedness strategies with broader community initiatives. The successful completion of 90% of action items discussed in coordination meetings is a clear indicator of effective communication, mutual accountability, and a unified vision for resilience.

Table 9. Kruskal Wallis Test: Significant Difference on the Assessment of the Respondents in the extent of Implementation of School Disaster Risk Reduction Management According to Designation

Indicators	**Designation of Respondent**	**Mean**	**Kruskal Wallis Test**	**p-value**	**Decision**	**Remarks**
A. Safe Learning Facilities	School Head	3.03	0.3681	0.8319	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	2.97				
	Faculty Club President or Any Representative	2.94				
B. School Disaster Management	School Head	3.03	0.8507	0.6535	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	3.12				
	Faculty Club President or Any Representative	3.08				
C. Risk Reduction and Resilience Education	School Head	3.24	0.3817	0.8263	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	3.15				
	Faculty Club President or Any Representative	3.20				
D. Coastal School Risk Management	School Head	2.98	1.3397	0.5118	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	2.90				
	Faculty Club President or Any Representative	2.97				

The examination of implementation of School Disaster Risk Reduction Management (SDRRM) across respondent profiles such as designation, school level, school size, number of SDRRM training attended, and years of involvement indicates no substantial differences in the level of implementation across main SDRRM components. This is apparent from the Kruskal-Wallis test p-values, all of which are above the standard level of 0.05. The results reveal that whether designation is school head, SDRRM coordinator, or faculty club president, the implementation level is in fact quite consistent.

Under Risk Reduction and Resilience Education, no significant difference in implementation levels was noted, which may be attributed to the uniform curriculum and training provided to school personnel.

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Lastly, Coastal School Risk Management findings demonstrate no differences in implementation between respondent groups.

Table 10. Mann- Whitney U: Comparison on the Assessment of the Respondents in the extent of Implementation of School Disaster Risk Reduction Management (SDRRM) According to School Level

Indicators	School Level	Mean	Mann-Whitney U	p- value	Decision	Remarks
Safe Learning Facilities	Elementary	2.94	2811.5000	0.0860	Fail to Reject Ho	Not Significant
	Secondary	3.12				
School Disaster Management	Elementary	3.04	2912.5000	0.1599	Fail to Reject Ho	Not Significant
	Secondary	3.19				
Risk Reduction and Resilience Education	Elementary	3.17	2891.5000	0.1408	Fail to Reject Ho	Not Significant
	Secondary	3.29				
Coastal School Risk Management	Elementary	2.94	3207.5000	0.6112	Fail to Reject Ho	Not Significant
	Secondary	2.98				

The Mann-Whitney U test outcomes do not exhibit any statistically significant difference between elementary and secondary schools in disaster risk reduction management in four significant aspects: Safe Learning Facilities, School Disaster Management, Risk Reduction and Resilience Education, and Coastal School Risk Management. These findings indicate that the same amount of disaster preparedness and execution of risk reduction mechanisms is implemented at elementary and secondary schools, indicative of possible policy implementation standardization and allocation.

The mean value for Safe Learning Facilities were 2.94 for elementary schools and 3.12 for secondary schools with a p-value of 0.0860, which gives rise to not rejecting the null hypothesis (Ho). This indicates that school differences do not significantly impact the learning facility safety.

Primary schools had an average of 3.04, while secondary schools had an average of 3.19 with a p-value of 0.1599, indicating no significant difference.

Having mean scores of 3.17 for primary and 3.29 for secondary schools, the p-value of 0.1408 indicates no considerable difference. This alignment guides the Philippines in its shift towards prioritizing disaster education as part of school curricula.

The lowest mean scores were registered in Coastal School Risk Management, elementary schools' being 2.94 and secondary schools' being 2.98, having a p-value of 0.6112, indicating no significant difference. This shows that coastal schools, whether at elementary or secondary level, face equal issues regarding disaster preparedness.

Table 11. Kruskal Wallis Test: Significant Difference on the Assessment of the Respondents in the extent of Implementation of School Disaster Risk Reduction Management According to School Size

Indicators	School Size	Mean	Kruskal Wallis Test	p-value	Decision	Remarks
	Small	3.00	1.2986	0.7295	Fail to Reject Ho	Not Significant
	Medium	2.93				

A. Safe Learning Facilities	Large	3.01				
	Mega	3.20				
B. School Disaster Management	Small	3.10	1.6196	0.6550	Fail to Reject Ho	Not Significant
	Medium	3.02				
	Large	3.13				
	Mega	3.20				
C. Risk Reduction and Resilience Education	Small	3.23	2.4140	0.4910	Fail to Reject Ho	Not Significant
	Medium	3.14				
	Large	3.20				
	Mega	3.45				
D. Coastal School Risk Management	Small	2.97	0.1253	0.9886	Fail to Reject Ho	Not Significant
	Medium	2.95				
	Large	2.90				
	Mega	2.90				

The outcome of the Kruskal-Wallis test indicates that there are no significant differences in the implementation of disaster risk reduction and management (DRRM) by various school sizes—small, medium, large, and mega. All the components discussed, namely Safe Learning Facilities, School Disaster Management, Risk Reduction and Resilience Education, and Coastal School Risk Management, did not result in statistically significant differences. These findings suggest that school size does not play a determinative role in the application of DRRM, in line with previous research on the universal applicability of disaster preparedness measures.

Indicators	Number of SDRRM Trainings Attended	Mean	Kruskal Wallis Test	p-value	Decision	Remarks
A. Safe Learning Facilities	0	2.79	5.2676	0.5100	Fail to Reject Ho	Not Significant
	1-2	2.95				
	3-4	3.08				
	5-6	3.10				
	7-8	3.23				
	9-10	3.10				
	11 and above	3.07				
B. School Disaster Management	0	2.99	9.5435	0.1452	Fail to Reject Ho	Not Significant
	1-2	2.99				
	3-4	3.15				
	5-6	3.29				
	7-8	3.18				
	9-10	3.20				
	11 and above	3.60				
C. Risk Reduction and Resilience Education	0	3.14	4.9415	0.5513	Fail to Reject Ho	Not Significant
	1-2	3.12				
	3-4	3.28				
	5-6	3.31				
	7-8	3.35				
	9-10	3.25				
	11 and above	3.33				
D. Coastal School Risk Management	0	2.77	9.4773	0.1485	Fail to Reject Ho	Not Significant
	1-2	2.92				
	3-4	3.14				
	5-6	2.86				
	7-8	2.93				
	9-10	3.15				
	11 and above	2.87				

Table. Kruskal Wallis Test: Significant Difference on the Assessment of the Respondents in the extent of Implementation of School Disaster Risk Reduction Management According to Number of SDRM Trainings Attended

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The research on School Disaster Risk Reduction and Management (SDRRM) training attendance and school disaster preparedness is valuable information about the impact of disaster education campaigns. From the Kruskal-Wallis test, the finding shows that the number of SDRRM trainings has no significant impact on disaster preparedness perceptions of Safe Learning Facilities, School Disaster Management, Risk Reduction and Resilience Education, and Coastal School Risk Management. p-values for all four groups are larger than the 0.05 significance level, resulting in not being able to reject the null hypothesis, that there is no statistically significant difference between levels of training attendance.

Mean scores of Safe Learning Facilities rise gradually with higher training attendance, and there is a favorable impression among individuals who have undergone more training. The Kruskal-Wallis test (H = 5.2676, p = 0.5100) indicates no statistically significant difference.

The same trend appears when looking at School Disaster Management, where mean scores rise with training attendance, with a high at the "11 and above" category. Kruskal-Wallis test (H = 9.5435, p = 0.1452) also indicates no significant association.

Risk Reduction and Resilience Education results show a rising trend in mean scores with increased training, but statistical test (H = 4.9415, p = 0.5513) indicates no significant effect.

In the case of Coastal School Risk Management, mean scores vary and the Kruskal-Wallis test (H = 9.4773, p = 0.1485) once again implies no significant difference.

Table 13. Kruskal Wallis Test: Significant Difference on the Assessment of the Respondents in the extent of Implementation of School Disaster Risk Reduction Management

Indicators	Years of Involvement in SDRRM	Mean	Kruskal Wallis Test	p-value	Decision	Remarks
A. Safe Learning Facilities	0	2.76	9.9434	0.1271	Fail to Reject Ho	Not Significant
	1-2	2.97				
	3-4	2.91				
	5-6	3.01				
	7-8	3.17				
	9-10	3.07				
	11 and above	3.19				
B. School Disaster Management	0	2.93	3.6926	0.7182	Fail to Reject Ho	Not Significant
	1-2	3.08				
	3-4	3.05				
	5-6	3.09				
	7-8	3.16				
	9-10	3.05				
	11 and above	3.23				
C. Risk Reduction and Resilience Education	0	3.13	1.9025	0.9284	Fail to Reject Ho	Not Significant
	1-2	3.23				
	3-4	3.22				
	5-6	3.17				
	7-8	3.20				
	9-10	3.15				
	11 and above	3.23				
D. Coastal School Risk Management	0	2.75	4.4205	0.6200	Fail to Reject Ho	Not Significant
	1-2	3.02				
	3-4	3.02				
	5-6	2.90				
	7-8	3.04				
	9-10	2.96				
	11 and above	2.96				

Findings of this research show that years of engagement in School Disaster Risk Reduction and Management (SDRRM) have no impacts on perceived disaster preparedness across various sites, according to the result of Kruskal-Wallis tests. Research in four of the priority clusters—Safe Learning Facilities, School Disaster Management, Risk Reduction and Resilience Education, and Coastal School Risk Management—yields no statistical differences among the years of SDRRM initiatives.

These findings indicate that participation in disaster preparedness activities could be adding to individual and institutional knowledge but does not necessarily imply large differences in perceptions of disaster resilience by level of experience.

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Mean scores for Safe Learning Facilities also reveal a small increase in perception with years of involvement, from 2.76 for non-participants to 3.19 for the over 11-year participants. Nonetheless, the p-value from the Kruskal-Wallis test was 0.1271, indicating that variations are insignificant.

Similar to Safe Learning Facilities, the category of School Disaster Management likewise registers an increase in mean scores as experience with SDRRM rises, from 2.93 for no experience to 3.23 for over 11 years of experience.

The Kruskal-Wallis test, however, confirms ($p = 0.7182$) that such variations are not statistically significant. These results suggest that school disaster management activities are most likely regulated by collective institutional policy and not individual levels of experience.

The results in Risk Reduction and Resilience Education also support further the idea that extended participation does not necessarily mean significantly varied views of preparedness. The mean scores are comparatively consistent, moving around 3.20 on all levels of experience, with a p-value of 0.9284, establishing statistical insignificance.

For Coastal School Risk Management, the average scores reflect minimal variation by experience level ranging from 2.75 (no experience) to the high of 3.04 (7–8 years). Again, though, the Kruskal-Wallis test ($p = 0.6200$) finds that such differences are not statistically significant. This indicates that disaster preparedness perception among coastal schools is quite uniform

Lastly, years of involvement in SDRRM activities were also shown to have no significant correlation with implementation effectiveness. The consistent implementation across diverse school profiles may reflect the success of top-down strategies in ensuring minimum standards are met, even in resource-variable environments.

Table 14. Kruskal-Wallis Test: Significant Difference in Respondents' Perceptions of Success in the Implementation of School Disaster Risk Reduction Management (SDRRM) According to Designation

Indicators	Designation of Respondent	Mean	Kruskal Wallis Test	p-value	Decision	Remarks
A. Safe Learning Facilities	School Head	3.18	0.0248	0.9877	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	3.14				
	Faculty Club President or Any Representative	3.17				
B. School Disaster Management	School Head	3.30	0.3280	0.8487	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	3.23				
	Faculty Club President or Any Representative	3.31				
C. Risk Reduction and Resilience Education	School Head	3.28	3.6205	0.1636	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	3.13				
	Faculty Club President or Any Representative	3.28				
D. Coastal School Risk Management	School Head	3.17	0.9368	0.6260	Fail to Reject Ho	Not Significant
	SDRRM Coordinator	3.06				
	Faculty Club President or Any Representative	3.11				

Comparison of effective school disaster risk reduction management (SDRRM) principal success indicators (KSIs) with different demographic parameters is fascinating in the context of the diverse roles undertaken by school personnel and involvement in disaster risk management activities. Data and mean scores of Kruskal-Wallis tests indicate different levels of involvement and perception of disaster preparedness by designations, although these are not statistically significant.

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For instance, in comparing disaster-safe learning buildings, the mean ratings of school heads (3.18), SDRRM coordinators (3.14), and the faculty club presidents or representatives (3.17) are very close to each other, indicating a shared consensus on the importance and effectiveness of disaster-safe environments. The Kruskal-Wallis test, though, shows a p-value of 0.9877, indicating no difference between the groups and thus cannot reject the null hypothesis.

Similarly, in school disaster management, the responses of school heads (3.30), SDRRM coordinators (3.23), and teachers (3.31) record very minimal difference. The p-value of 0.8487 is in support of the conclusion that there is no substantial difference between such groups in terms of their perception of the overall disaster management preparedness of the school.

In assessing risk reduction and resilience education, the average scores of school heads (3.28), SDRRM coordinators (3.13), and faculty representatives (3.28) would reflect a moderately consistent perception, but the p-value of 0.1636 indicates no statistically significant difference in their perceptions.

The analysis of coastal school risk management reveals that perceptions of effectiveness are consistent across different roles within the school system, with mean scores of 3.17 for school heads, 3.06 for SDRRM coordinators, and 3.11 for faculty representatives. The p-value of 0.6260 indicates no statistically significant difference in perceptions based on job designation, suggesting that the role of the respondent does not influence their view on the effectiveness of coastal risk management strategies.

In conclusion, while the data shows slight differences in mean scores, there is no statistically significant difference in the success factors among the different respondent groups. This suggests that the extent of disaster risk reduction management quality in schools could not be meaningfully affected by designation, school level, or training sessions attended, but by collective overall commitment towards disaster preparedness and operationalization of disaster risk reduction into school activities.

Table 15. Mann- Whitney U: Comparison in Respondents' Perceptions of Success in the Implementation of School Disaster Risk Reduction Management (SDRRM) According to School Level

Indicators	**School Level**	**Mean**	**Mann-Whitney U**	**p- value**	**Decision**	**Remarks**
Safe Learning Facilities	Elementary	3.16	3374.0000	0.9976	Fail to Reject Ho	Not Significant
	Secondary	3.17				
School Disaster Management	Elementary	3.25	2857.5000	0.1107	Fail to Reject Ho	Not Significant
	Secondary	3.39				
Risk Reduction and Resilience Education	Elementary	3.22	3136.5000	0.4633	Fail to Reject Ho	Not Significant
	Secondary	3.27				
Coastal School Risk Management	Elementary	3.11	3350.0000	0.9386	Fail to Reject Ho	Not Significant
	Secondary	3.11				

The Mann-Whitney U test outcomes across four of the key areas of disaster risk reduction and school readiness for primary and secondary schools are helpful in the determination of relative readiness and the level of resilience of the two levels of schooling. Specifically, all domains, including Safe Learning Facilities, School Disaster Management, Risk Reduction and Resilience Education, and Coastal School Risk Management, all have non-significant differences between secondary and elementary school management and preparedness practices. The p-values in all cases (e.g., Safe Learning Facilities with 0.9976, School Disaster Management with 0.1107, Risk Reduction and Resilience Education with 0.4633, and Coastal School Risk Management with 0.9386) are all

above the 0.05 level and indicate that the null hypothesis (Ho) is not rejected and that there is no significant difference between the two levels of schools.

This is an observation that disaster risk reduction (DRR) activities, specifically on safety structures, risk management, and education interventions, are conducted equally in both elementary and secondary schools within the area.

The consistent score of 3.11 for Coastal School Risk Management across both primary and secondary schools suggests a shared strength in disaster preparedness, likely due to national or regional efforts addressing coastal hazards like flooding. While this points to effective standardized programs, further research is needed to confirm if DRR implementation is truly uniform, as factors like community involvement and local risks may still influence outcomes.

Table 16. Kruskal-Wallis Test: Significant Difference in Respondents' Perceptions of Success in the Implementation of School Disaster Risk Reduction Management (SDRRM) According to School Size

Indicators	**School Size**	**Mean**	**Kruskal Wallis Test**	**p-value**	**Decision**	**Remarks**
A. Safe Learning Facilities	Small	3.20	0.8565	0.8359	Fail to Reject Ho	Not Significant
	Medium	3.13				
	Large	3.14				
	Mega	3.25				
B. School Disaster Management	Small	3.31	1.5760	0.6649	Fail to Reject Ho	Not Significant
	Medium	3.24				
	Large	3.28				
	Mega	3.35				
	Total	3.28				
C. Risk Reduction and Resilience Education	Small	3.28	1.1214	0.7719	Fail to Reject Ho	Not Significant
	Medium	3.19				
	Large	3.19				
	Mega	3.25				
	Total	3.23				
D. Coastal School Risk Management	Small	3.16	1.6726	0.6430	Fail to Reject Ho	Not Significant
	Medium	3.09				
	Large	3.07				
	Mega	2.70				
	Total	3.11				

The examination of the disaster risk reduction and safety measures in schools by their size provides significant information on the effectiveness and perceptions of disaster preparedness in schools. The results of the Kruskal-Wallis test for the four dimensions, Safe Learning Facilities, School Disaster Management, Risk Reduction and

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Resilience Education, and Coastal School Risk Management; show no significant differences among schools with different sizes (small, medium, large, mega). This implies that the size of the school does not significantly impact the perceived efficiency or practice of disaster risk reduction (DRR) measures.

For Safe Learning Facilities, the p-value of 0.8359, far greater than the traditional cut-off value of 0.05, indicates that the variation in the safety rating between small, medium, large, and mega schools is statistically insignificant. This result would be taken to mean that all school sizes, irrespective of their physical structures or student numbers, are seen to be alike concerning the security of learning environments.

Similarly, the same lack of significance prevails in School Disaster Management (B) as well, having a p-value of 0.6649. This signifies that the preparedness against disaster, i.e., response mechanisms and resource management, is found to be comparatively homogeneous across schools of different sizes.

Risk Reduction and Resilience Education (C) does not differ significantly, as noted by a p-value of 0.7719. This indicates that the size of the school does not significantly influence the application of education for risk reduction and resilience building in the context of natural disasters. It may indicate that the subject matter and the manner of risk reduction education are significantly controlled by policy guidelines as opposed to school size.

In the domain of Coastal School Risk Management (D), the p-value of 0.6430 indicates no statistically significant difference in preparedness based on school size. However, the notably lower mean score of 2.70 for mega schools situated along the coast suggests that these larger institutions may be facing distinct and more complex challenges. These challenges could stem from the difficulty of managing large student populations during emergencies, uneven distribution of resources, or the inadequacy of coastal infrastructure to support large-scale disaster responses. Larger schools may also struggle with maintaining or upgrading facilities to meet the specific demands of coastal risk management, such as elevated structures, seawalls, or early warning systems.

The lack of significant differences across school sizes suggests standardized DRR strategies are effective, but coastal schools, especially larger ones, may need more tailored approaches. Further research could help refine these measures.

Table 17. Kruskal-Wallis Test: Significant Difference in Respondents' Perceptions of Success in the Implementation of School Disaster Risk Reduction Management (SDRRM) According to Number of SDRRM Training Attended

Indicators	Number of SDRRM Trainings Attended	Mean	Kruskal Wallis Test	p-value	Decision	Remarks
A. Safe Learning Facilities	0	3.14	2.3248	0.8875	Fail to Reject Ho	Not Significant
	1-2	3.12				
	3-4	3.20				
	5-6	3.31				
	7-8	3.20				
	9-10	3.20				
	11 and above	3.13				
B. School Disaster Management	0	3.28	2.4363	0.8755	Fail to Reject Ho	Not Significant
	1-2	3.21				
	3-4	3.36				
	5-6	3.40				
	7-8	3.30				
	9-10	3.25				
	11 and above	3.13				

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Table 17 (Continued). Kruskal-Wallis Test: Significant Difference in Respondents' Perceptions of Success in the Implementation of School Disaster Risk Reduction Management (SDRRM) According to Number of SDRRM Training Attended

C. Risk Reduction and Resilience Education	0	3.16	8.2932	0.2174	Fail to Reject Ho	Not Significant
	1-2	3.15				
	3-4	3.37				
	5-6	3.36				
	7-8	3.20				
	9-10	3.20				
	11 and above	3.27				
D. Coastal School Risk Management	0	3.03	7.1786	0.3046	Fail to Reject Ho	Not Significant
	1-2	3.02				
	3-4	3.24				
	5-6	3.27				
	7-8	3.23				
	9-10	3.20				
	11 and above	3.13				

The Kruskal-Wallis test result of various categories of School Disaster Risk Reduction and Management (SDRRM) training indicates no statistically significant difference in disaster preparedness attitudes of teachers who received various numbers of training sessions. For all four themes: Safe Learning Facilities, School Disaster Management, Risk Reduction and Resilience Education, and Coastal School Risk Management, the p-values are higher than the conventional significance level of 0.05. This suggests that the number of SDRRM trainings attended never influences the teachers' perception of their schools' disaster preparedness and management.

The mean scores for Safe Learning Facilities range from 3.12 to 3.31 with an overall mean of 3.16. The Kruskal-Wallis test output ($H = 2.3248$, $p = 0.8875$) indicates that the perception varies minimally according to the number of trainings attended. This suggests that while SDRRM trainings can be beneficial, they do not fundamentally alter the perspective of teachers toward the physical security of their school environments.

The mean scores for this dimension are between 3.13 and 3.40, and the grand mean is 3.28. The Kruskal-Wallis test statistic ($H = 2.4363$, $p = 0.8755$) indicates no significant impact of SDRRM training on perception of school disaster management.

Under this classification, the mean scores range from 3.15 to 3.37, with a grand mean of 3.23. The Kruskal-Wallis test ($H = 8.2932$, $p = 0.2174$) further shows no significant effect. The mean scores ranged from 3.02 to 3.27 with a total mean of 3.11. The Kruskal-Wallis test ($H = 7.1786$, $p = 0.3046$) once more does not indicate any significant effect of SDRRM training on risk perception regarding risk management among coastal schools.

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Table 18. Kruskal Wallis Test: Significant Difference on the Assessment of the Respondents in the extent of Implementation of School Disaster Risk Reduction Management According to Number of Years of Involvement in SDRRM

Indicators	Years of Involvement in SDRRM	Mean	Kruskal Wallis Test	p-value	Decision	Remarks
A. Safe Learning Facilities	0	3.12	3.2230	0.7804	Fail to Reject Ho	Not Significant
	1-2	3.20				
	3-4	3.08				
	5-6	3.16				
	7-8	3.19				
	9-10	3.16				
	11 and above	3.28				
B. School Disaster Management	0	3.21	2.1239	0.9080	Fail to Reject Ho	Not Significant
	1-2	3.34				
	3-4	3.28				
	5-6	3.27				
	7-8	3.25				
	9-10	3.22				
	11 and above	3.31				
C. Risk Reduction and Resilience Education	0	3.13	4.0975	0.6635	Fail to Reject Ho	Not Significant
	1-2	3.24				
	3-4	3.28				
	5-6	3.25				
	7-8	3.15				
	9-10	3.20				
	11 and above	3.35				
D. Coastal School Risk Management	0	2.94	5.6033	0.4691	Fail to Reject Ho	Not Significant
	1-2	3.13				
	3-4	3.08				
	5-6	3.14				
	7-8	3.17				
	9-10	3.16				
	11 and above	3.25				

The Kruskal-Wallis test results analysis by domain of School Disaster Risk Reduction and Management (SDRRM) yields a noteworthy finding: years of SDRRM activity do not significantly influence disaster preparedness perception, risk reduction education, or school safety.

The secure learning buildings imply scores range from 3.08 to 3.28, and the Kruskal-Wallis test p-value is 0.7804. Mean values of disaster management in school levels are from 3.21 to 3.34, and p-value 0.9080 further supports that there is no significant difference based on experiences. The reading of comparable scores at all levels of participation indicates that the school values disaster readiness programs such as drills and emergency response planning irrespective of SDRRM experience.

Risk reduction and resilience education of children had a range of mean scores from 3.13 to 3.35 with a p-value of 0.6635. This means that the success of DRR education is not significantly established by the number of years practiced. Coastal school risk management with mean 2.94-3.25 and p-value 0.4691 also wasn't significantly different with respect to years of SDRRM operation. The overall outcome is that experience with SDRRM is beneficial, institutional environments, policy implementation, and formal training programs are much more important in ensuring disaster preparedness in schools.

Further, the study found no significant difference between the number of SDRRM trainings attended or the years of involvement in SDRRM activities and the respondents' assessments of implementation. This indicates that neither experience nor training frequency substantially influenced perceptions of SDRRM effectiveness. The uniformity in responses across these variables reinforces the idea that centralized policy frameworks and institutional guidelines may play a more decisive role in shaping SDRRM outcomes than individual or contextual differences.

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CONCLUSION

The demographic profile of the respondents revealed a balanced representation across school heads, SDRRM coordinators, and faculty club representatives, each comprising 33.3% of the sample. Most respondents were from elementary schools, with small to medium-sized institutions being the most represented. However, the data also showed limited exposure to SDRRM among respondents, as evidenced by the few trainings attended and short durations of involvement. This suggests that while roles are distributed across various school contexts, capacity-building remains an area for development.

The respondents' assessment of the implementation of School Disaster Risk Reduction and Management (SDRRM) in coastal schools was generally interpreted as "Implemented," with an overall mean of 3.195. Among the four dimensions, Disaster Risk Reduction and Resilience Education received the highest rating, followed by School Disaster Management and Safe Learning Facilities. Coastal School Risk Management, despite being contextually critical, received the lowest rating. Specific gaps were identified, such as the partial provision of life jackets for boat travel and inadequate water potability measures post-flooding—highlighting urgent safety needs in coastal settings.

Respondents' perception of success in SDRRM implementation yielded a consistent interpretation of "Agree" across all four dimensions. School Disaster Management was perceived as the strongest area, reflecting institutional commitment through updated plans and regular drills. In contrast, Coastal School Risk Management remained underdeveloped, particularly in addressing coastal-specific hazards. While systems are functional, they lack depth in hazard-specific planning and resource allocation.

Statistical analyses using the Kruskal-Wallis and Mann-Whitney U Tests revealed no significant differences in SDRRM implementation across designation, school level, school size, number of trainings attended, or years of involvement. This uniformity suggests a shared perception of SDRRM practices across various roles and institutional contexts. However, it may also reflect a plateau in the depth and effectiveness of implementation, indicating the need for differentiated strategies tailored to specific school profiles and risk exposures.

In conclusion, coastal schools in Pampanga have made meaningful progress in implementing SDRRM, particularly in educational preparedness and contingency planning. However, persistent gaps in infrastructure, resource support, and coastal-specific interventions remain. These findings underscore the need for an Enhanced Implementation Plan that incorporates localized strategies, strengthens stakeholder engagement, and ensures inclusive and hazard-responsive disaster preparedness across all coastal school communities.

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