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Knowledge, Attitude, and Practices on Disaster Risk Reduction and Management Among MSU-BC Laboratory High School Students

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ABSTRACT

Disaster Risk Management (DRM) involves the systematic implementation of strategies, policies, and operational capacities to reduce the adverse impacts of hazards. This study assessed the knowledge, attitudes, and practices (KAP) of students at Mindanao State University–Buug Campus Laboratory High School regarding disaster preparedness. A total of 328 students participated in the survey. Results revealed that a majority demonstrated high knowledge (46.04%, weighted mean = 4.02), very high attitudes (57.62%, weighted mean = 4.24), and very high practices (46.34%, weighted mean = 4.08) toward disaster preparedness. Correlation analysis indicated significant positive relationships between knowledge and attitude (r = 0.586), knowledge and practices (r = 0.616), and attitude and practices (r = 0.686), suggesting that higher knowledge is associated with more positive attitudes and stronger preparedness behaviors. These findings imply that students are not only aware of disaster risks but also maintain proactive mindsets and practices that enhance resilience. The study recommends strengthening school-based DRRM education through regular drills, seminars, and curriculum integration, as well as fostering partnerships with the community and local authorities to further improve preparedness and response capacities.

Keywords: Disaster Risk Reduction, Disaster Preparedness, Emergency Readiness, Disaster Management, Students' Awareness

1 INTRODUCTION

Disaster risk management is the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies, and coping mechanisms in order to lessen the adverse impacts of hazards and their possibility of becoming disasters. It aims to avoid, reduce, or transfer the adverse effects of hazards through activities and measures for prevention, mitigation, and preparedness (United Nations International Strategy for Disaster Reduction [UNISDR], 2009). The interaction between disaster risk and disaster management is evident: disaster risk reduction focuses on the strategic level of management, whereas disaster risk management involves the tactical and operational implementation of those strategies (United States Agency for International Development [USAID], 2011).

Globally, disasters disrupt communities not only through physical destruction but also through an imbalance in medical care and resource allocation. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO, 2003) defines a disaster as an imbalance in the availability of medical care and the misdistribution of medical resources that results in casualties within a community. All individuals, especially young people, should have the knowledge and basic skills to respond to disasters—at the very least by offering first aid to victims. The

responsibility is even greater for those in health and science-related fields, as they are expected to be knowledgeable, prepared, and capable of responding effectively during emergencies.

In the Philippine context, the urgency of disaster preparedness cannot be overstated. The country is geographically located in the Pacific Ring of Fire and the typhoon belt, making it highly vulnerable to natural disasters such as typhoons, earthquakes, volcanic eruptions, and floods. The Department of Education (DepEd) has integrated Disaster Risk Reduction and Management (DRRM) into the K–12 curriculum, emphasizing the importance of preparing students to respond to emergencies. While several studies have assessed disaster preparedness among college students, teachers, and health professionals, there is limited research focusing on secondary-level students. Most existing literature highlights awareness at the tertiary level, yet high school students—who are equally exposed to disasters within schools and communities—are less frequently studied (Gajetela, Sapad, & Toledo, 2025; Haresco & San Jose, 2021; Olores & Umipig, 2023). This represents a gap in understanding how early disaster education translates into actual knowledge, attitudes, and practices at the high school level.

The Knowledge, Attitude, and Practices (KAP) framework offers a structured way to assess students' preparedness for disaster situations. Knowledge refers to the information students possess about hazards and risk-mitigation measures; attitude reflects their perceptions and beliefs regarding the importance of DRRM; while practices pertain to their actual behaviors in response to disasters. Examining these components can reveal both gaps and strengths, serving as a basis for targeted interventions.

This study focuses specifically on the students of Mindanao State University – Buug Campus (MSU-BC) Laboratory High School, who represent a unique population within the Zamboanga Peninsula. As part of a laboratory school attached to a state university, these students are regularly exposed to academic, community, and extension activities that may influence their readiness and resilience. However, no prior study has examined their DRRM preparedness, even though the region itself is prone to both natural and human-induced hazards. Understanding the KAP of this student population is therefore crucial.

Therefore, this study assessed the knowledge, attitudes, and practices of MSU-BC Laboratory High School students regarding disaster risk reduction and management. By exploring how they perceive and respond to various disasters such as earthquakes, typhoons, and floods, this research aims to identify both strengths and weaknesses in their disaster preparedness. The findings can guide the development of targeted interventions and training programs that foster a culture of safety and resilience—not only within the school but also in the broader community that these students are part of.

1.1 Statement of the Problem

To make a path of this study, the following questions were laid out to be answered as the research moved forward.

1. What is the level of knowledge among MSU-BC Laboratory High School students regarding disaster risk reduction and management?
2. What is the level of attitudes of MSU-BC Laboratory High School students towards the effectiveness of current disaster preparedness measures?
3. What is the level of practices of MSU-BC Laboratory High School students towards the effectiveness of current disaster preparedness measures?
4. Is there a significant correlation between knowledge and attitude, knowledge and practices and attitude and practices of MSU-BC Laboratory High School students towards the effectiveness of current disaster preparedness measures?

2 Research Methodology

This chapter explains the research design, respondents of the study, research locale, research instrument used to gather the data, data gathering procedures, and statistical tools used in this study.

2.1 Research Design

This study used a descriptive-correlational research method because it matched the quantitative goals of the study. The descriptive part was used to carefully measure and study the levels of knowledge, attitudes, and practices of MSU-BC Laboratory High School students about DRRM. It gave clear numbers that showed the current understanding and behaviors of the students. The correlational part looked at the relationship between the students' background information and their knowledge and attitudes about DRRM. This method was a good fit for the study because it helped measure and find connections between different factors, giving clear and useful results.

2.2 Research Locale

This study was conducted at the Laboratory High School Department of Mindanao State University-Buug Campus in Datu Panas, Buug, Zamboanga Sibugay. The researchers chose this location due to its accessibility and convenience. The school has 10 classrooms, an IT room, a cookery room, an electrical room, and a dressmaking 18 room, supporting both academic and technical learning. The department has 17 dedicated teachers who continuously improve their teaching skills through professional development, and a diverse student body, fostering inclusivity and offering various extracurricular activities to promote well-rounded development.

2.3 Research Respondents

This study involved students from MSU-BC, specifically the Laboratory High School, from Grade 7 to Grade 10, with a total

of 328 students for the academic year 19 2024-2025. The researchers chose these respondents because they believed that they could provide reliable knowledge and perceptions on the practices of Disaster Risk Reduction and Management, as well as their attitudes toward these practices. All 328 students of MSU-BC Laboratory High School were the respondents of the study, so no random selection was needed. All students from each grade level participated in the study on knowledge, attitude, and practices in disaster risk reduction and management.

2.4 Resarch Instrument

A survey questionnaire was adapted from Negradas - Varona, et. al., (2017) and used as the research tool to gather the essential data for this study. The questionnaire consisted 30 questions. The first part, which comprised ten (10) questions, was about the knowledge of the student in Disaster Risk Reduction and Management. The second part contained ten (10) questions about the attitude of tstudent towards Disaster Risk Reduction and Management. The final part of the questionnaire consisted of ten (10) questions about the practices of the student related to Disaster Risk Reduction and Management. The respondents answered the questions using a 4-point Likert scale: 1 - Strongly Disagree, 2 - Disagree, 3 - Agree, 4 - Strongly Agree

2.5 Data Gathering Procedure

In gathering the data for the study, the researchers formally wrote a letter to the office of the Principal requesting permission to conduct the study. Once the approval was granted, the researchers began collecting data. The respondents were given an informed consent and assent form to participate in the survey. Afterward, the researchers 20 collected all the completed questionnaires and inputted all the data to be analyzed and tabulated. All the data collected were treated with confidentiality and were used for research purposes only.

2.6 Data Analysis Procedure

The researchers applied inferential statistics to determine if there was a significant correlation between the level of knowledge and attitudes of MSU-BC Laboratory High School students and the effectiveness of current disaster preparedness measures.

The data was examined and interpreted to extract useful information to support conclusions. The data was examined to assess the current levels of knowledge, attitudes, and practices related to disaster risk reduction and management among MSU-BC Laboratory High School students. This examination identified strengths and gaps in their understanding and preparedness. The researchers transformed the collected data through statistical analysis using the Pearson Correlation tool, which included calculating averages, identifying correlations, and categorizing responses. This transformation allowed the researchers to create a clear understanding of students' awareness and practices regarding disaster preparedness. Finally, the researchers interpreted the transformed data to extract meaningful insights that informed targeted interventions and educational strategies. This interpretation helped the researchers draw conclusions about the effectiveness of current practices and identify areas needing improvement.

The researchers used descriptive statistics, such as frequency counts, mean, and percentage, to show the levels of knowledge and attitudes of the respondents. They also 21 used inferential statistics to find out if there was a significant relationship between the students' knowledge and attitudes and how effective the current disaster preparedness measures were. The Pearson correlation coefficient was used to test this relationship between the students' knowledge and attitudes and how effective the current disaster preparedness measures were. The Pearson correlation coefficient was used to test this relationship.

2.7 Research Ethics

The following guidelines were followed by the researchers throughout the investigation in order to ensure that ethical issues were adequately addressed when performing the research study. These principles were as follows: 1.) research respondents should not be subjected in a harm way; 20 respect for the dignity of research respondents should be prioritized, 3.) full consent should be obtained from the respondents prior to study; 4.) protection of research respondents privacy must be ensure; 5.) adequate level of confidentiality or research data must be ensured; 6.) anonymity of individuals and organizations participating must be ensured; 7.) any communication related to the study should be honest and transparent, 8.) any sort or misleading information, as well as biased depiction of primary data findings, should be avoided (Bryman & Bell, 2007). Moreover, the respondents were informed that participation in the study was voluntary and that they could withdraw from the study at any time without any consequences. All data were cooled to ensure anonymity.

2.8 Statistical Treatment of Data

The study utilized the following statistical tools to analyze and interpret the data collected from 328 student-respondents of MSU-BC Laboratory High School.

Frequency and Percentage. These were used to describe the distribution of responses and demographic characteristics of the respondents. They were applied to analyze the general trend of knowledge, attitude, and practices of the students in relation to disaster preparedness.

Weighted Mean. This was used to determine the level of knowledge, attitude, and practices (KAP) of the students on Disaster Risk Reducton and Management (DRRM). The responses were based on a 4-point Likert scale:

Scale	Range	Verbal Interpretation
4	3.50 – 4.00	Very High
3	2.70 – 3.49	High
2	1.90 – 2.69	Low
1	1.00 – 1.89	Very Low

The formula for computing the weighted mean is as follows:

$$WM = [(4 \times f_4) + (3 \times f_3) + (2 \times f_2) + (1 \times f_1)] / N$$

Where:
- WM = Weighted Mean
- f_4, f_3, f_2, f_1 = frequency of responses for each scale point
- N = Total number of respondents

Kolmogorov-Smirnov Test. This test was applied to assess the normality of the distribution of scores for each variable (knowledge, attitude, and practices). Since all variables showed a p-value of $< .05$, this indicated a violation of normality assumptions, justifying the use of non-parametric tests.

Spearman Rank Correlation (Spearman's rho). Since the data were not normally distributed, Spearman's rank correlation was employed to assess the strength and direction of relationships between:
- Knowledge and Attitude,
- Knowledge and Practices, and
- Attitude and Practices.

The interpretation of Spearman's correlation coefficients is as follows:

Coefficient Range	Strength of Relationship
0.70 – 0.99	Very Strong Positive Correlation
0.50 – 0.69	Strong Positive Correlation
0.30 – 0.49	Moderate Positive Correlation
0.10 – 0.29	Weak Positive Correlation
0.01 – 0.09	Very Weak Correlation
0	No Correlation

Interpretation of Results:
Based on the statistical findings, all three variable pairings (Knowledge-Attitude, Knowledge-Practices, and Attitude-Practices) yielded strong positive correlations and were found to be highly significant ($p < 0.05$), indicating that improvements in one variable are associated with improvements in the others.

3 RESULTS AND DISCUSSION

The results of the study are presented in the following tables and discussions.

Table 1. Level of Knowledge among MSU-BC Laboratory High School Students Regarding Disaster Risk Reduction and Management.

	Descriptive Interpretation	Frequency	% of Total
1.00 - 1.80	Very Low	6	1.83
1.90 - 2.60	Low	8	2.44
2.70 - 3.40	Average	34	10.37
3.50 - 4.20	High	151	46.04
4.30 - 5.00	Very High	129	39.33
Total		**328**	**100**
Weighted Mean		**4.02**	
Remark		**High**	

Table 1 shows that most students (46.04%) demonstrated a high level of knowledge on disaster risk reduction and management (DRRM), while only 1.83% had very low knowledge. This suggests that the majority of students are fairly well-informed about DRRM, although a small group remains at risk due to low awareness. The fact that 39.33% of students had very high knowledge indicates that DRRM concepts are being absorbed well in school contexts.
This aligns with Negradas-Varona et al. (2017), who found that barangay officials in Aurora demonstrated strong DRRM knowledge, suggesting that awareness is increasingly integrated into community and school levels. However, unlike Alkalash et al. (2023), who reported only a fair level of preparedness among Saudi high school students, the MSU-BC Laboratory High School students demonstrated higher knowledge, possibly due to more frequent exposure to natural hazards in the Philippines. However, the 12.81% with low or very low knowledge suggests that some students may not be adequately reached by current DRRM education. Schools may need to adopt differentiated teaching strategies or peer-led DRRM awareness campaigns to bridge this knowledge gap.

Table 2. Level of Attitudes of MSU-BC Laboratory High School Students towards the Effectiveness of Current Disaster Preparedness Measures.

Level of Attitudes	Descriptive Interpretation	Frequency	% of Total
1.00 - 1.80	Very Low	6	1.83
1.90 - 2.60	Low	7	2.13
2.70 - 3.40	Average	20	6.10
3.50 - 4.20	High	106	32.32
4.30 - 5.00	Very High	189	57.62
Total		**328**	**100**
Weighted Mean		**4.24**	
Remark		**High**	

Table 2 shows that six students (1.83%) exhibited very low attitudes toward DRRM, seven (2.13%) had low attitudes, twenty (6.10%) showed average attitudes, one hundred six (32.32%) expressed high attitudes, and one hundred eighty-nine (57.62%) demonstrated very high attitudes. In general, the students' attitude towards DRRM was also classified as high.

This result implies that most students are positively inclined to support and participate in preparedness measures. A favorable attitude often translates into willingness to engage in drills, awareness campaigns, and safety protocols, which are vital for effective disaster response.

The finding is consistent with Alkalash et al. (2023), who emphasized the importance of cultivating positive attitudes through disaster response training in schools. The implication for MSU-BC is that while students are already receptive, structured simulation drills and school-based DRRM committees would further translate their positive attitudes into sustained practices.

Table 3. Level of Practices of MSU-BC Laboratory High School Students towards the Effectiveness of Current Disaster Preparedness Measures.

Level of Practices	Descriptive Interpretation	Frequency	% of Total
1.00 - 1.80	Very Low	6	1.83
1.90 - 2.60	Low	6	1.83
2.70 - 3.40	Average	31	9.45
3.50 - 4.20	High	133	40.55
4.30 - 5.00	Very High	152	46.34
Total		**328**	**100**
Weighted Mean		**4.08**	
Remark		**High**	

Table 3 reveals that six students (1.83%) had very low practices, six (1.83%) had low practices, thirty-one (9.45%) demonstrated average practices, one hundred thirty-three (40.55%) reported high practices, and one hundred fifty-two (46.34%) showed very high practices. Collectively, the level of practice among the students was classified as high.

Although practices are generally strong, the presence of students in the average to low categories suggests that not all are consistently applying their knowledge and attitudes in real-life or simulated scenarios. This gap highlights the need for more frequent drills, experiential learning, and community engagement to ensure that knowledge and attitudes are effectively translated into preparedness behaviors.

The result supports Calamba Jr. (2024), who found that while some students are moderately prepared, actual participation in simulation drills significantly enhances their practical readiness. Thus, the implication is clear: integrating routine disaster preparedness activities in the school setting is essential to bridge the gap between awareness and action.

The correlation analysis revealed strong positive relationships between the three variables:

Knowledge and Attitude ($\rho = 0.586$, $p < 0.01$): This indicates that students with higher knowledge of DRRM are more likely to hold positive attitudes toward disaster preparedness. Practically, this means that educational interventions not only improve understanding but also foster a culture of preparedness. This supports Alshakka et al. (2022), who emphasized that enhancing disaster knowledge directly shapes students' attitudes.

Knowledge and Practices ($\rho = 0.616$, $p < 0.01$): A strong positive relationship suggests that as students' knowledge increases, their actual practices also improve. This finding aligns with Hargono et al. (2023), who emphasized that awareness and knowledge drive community preparedness. The implication for schools is that investing in DRRM education yields direct behavioral outcomes in terms of safety practices.

Attitude and Practices ($\rho = 0.686$, $p < 0.01$): This very strong correlation highlights that positive attitudes strongly influence actual preparedness practices. In other words, students who value DRRM highly are more likely to actively engage in drills and apply safety measures. This resonates with Suryaratri et al. (2020) and Tada et al. (2021), who found that disaster awareness and attitudes significantly shape household and community readiness.

Overall, the findings underscore that knowledge, attitudes, and practices are interdependent. High levels of knowledge reinforce positive attitudes, which in turn strengthen actual preparedness practices. The implication for MSU-BC is that DRRM education should not only focus on knowledge transfer but also on shaping attitudes and providing practical opportunities for students to apply what they learn.

4 CONCLUSION

The study assessed the knowledge, attitudes, and practices (KAP) on Disaster Risk Reduction and Management (DRRM) among MSU-Buug Campus Laboratory High School students. Results revealed that the students generally possess high levels of knowledge, positive attitudes, and strong preparedness practices toward disasters. Moreover, the significant positive correlations among knowledge, attitudes, and practices indicate that these elements are interdependent, with knowledge reinforcing attitudes and practices, and attitudes strongly influencing preparedness behaviors.

These findings suggest that while students demonstrate commendable disaster preparedness, there are still gaps in consistency of practice and in raising knowledge from "high" to "very high" levels. Strengthening experiential learning through simulation drills, school-based DRRM programs, and community engagement will help bridge these gaps.

The conclusion emphasizes that MSU-BC Laboratory High School students are not only aware of disaster preparedness but are also receptive to developing resilience practices. Thus, enhancing DRRM education in the school curriculum can further cultivate a culture of safety and readiness, ultimately contributing to the resilience of the wider community.

5 RECOMMENDATIONS

Based on the findings and conclusion of the study, the following recommendations are made:

1. For the School Administration and Teachers: Integrate more simulation drills and practical exercises into the school program to

translate students' high knowledge and attitudes into consistent preparedness practices.

2. For the Students:

Actively participate in DRRM activities and drills to strengthen preparedness skills, and engage in peer-to-peer education to promote a culture of safety and readiness within the student body.

3. For the Curriculum Developers and Policy Makers: Enhance the curriculum content on DRRM by including localized disaster scenarios and community-based strategies, and stregthen partnership with government agencies such as the NDRRMC and LGUs to provide updated, context-specific DRRM training materials and programs.

4. For Future Researchers: Conduct further studies to identify specific areas of knowledge where gaps remain, particularly in practical disaster response skills, and explore other variables such as socio-economic background, access to resources, and family preparedness that may influence students' disaster preparedness.

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