

Natural Disaster Preparedness and Awareness of Senior High School Students

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ABSTRACT : *This study investigated natural disaster awareness and preparedness among Grade 11 students (n=243) at St. Paul University Philippines. The sample included students from STEM (68.31%), HUMSS (14.82%), and ABM (16.87%) strands, with participants residing in both rural (58.85%) and urban (41.15%) areas. A quantitative research design was employed, utilizing surveys to assess student knowledge of natural disasters. The findings revealed low awareness and preparedness for natural disasters among Grade 11 students. There were no significant differences in awareness and preparedness levels based on residence. However, preparedness scores varied across academic strands, suggesting a potential advantage for some programs. The overall low level of preparedness highlights the need for improved natural disaster education for Grade 11 students. Targeted interventions could strengthen their knowledge and preparedness skills. This study emphasizes the importance of enhancing natural disaster education at St. Paul University Philippines. The findings can inform curriculum development and ensure students are better prepared for potential disasters.*

KEYWORDS -awareness, natural disaster, preparedness

I. Introduction

Disaster is defined as a natural or human-caused hazard that causes a serious disruption of the functioning of a community or a society involving widespread human, material, economic, or environmental losses and impacts, which exceed the ability of the affected community or society to cope using its resources (UNISDR).

The concern over natural disasters is increasing globally. During the last two decades, loss of life and property due to disasters has increased. Disasters like floods, earthquakes, fire, etc. pose serious threats to people (Takeuchi et.al. 2011).

Based on the World Risk Index 2012, the Philippines is the third among 173 countries most vulnerable to disaster risk and natural hazards; we experience an average of 20 tropical cyclones each year and other climatic and extreme weather aberrations such as the El Niño phenomenon. These disasters strain government funds, with an average of P15 billion in annual direct damages. More adversely, this hampers the government's poverty reduction efforts (Official Gazette of the Republic of the Philippines, n.d.).

Disaster preparedness plays a critical role in mitigating the adverse effects of natural disasters. Preparedness is defined by the United Nations International Strategy for Disaster Reduction (UNISDR) (United Nations International Strategy and Disaster Reduction, 2009) as knowledge, capabilities, and actions of governments, organizations, community groups, and individuals "to effectively anticipate respond to and recover from, the impacts of likely, imminent or current hazard events or conditions." (Emily et.al. 2018).

Further, some confirmed that low awareness and inadequate understanding of risk negatively affect people's readiness, response to hazard warnings, personal protection measures, and recovery (UNICEF, 2011; Wisner B., 2006).

Disasters are reduced when people are well aware, and the motivation is to create a culture of prevention and resilience to disaster. In this regard, collecting and disseminating knowledge and information on hazards, vulnerabilities, and capacities, especially for vulnerable people should be prioritized (Muttarak R et.al. 2013; Rundmo T. et.al. 2017). In addition, it is important to note that people who are vulnerable due to their limitations and conditions certainly need special training and attention with the help of trained and professional people (Center AD. 2008; Muttarak R et.al. 2013). Thus, this study will be conducted to determine the level of awareness and preparedness of Paulinian senior high school students.

Statement of the Problem

Generally, this study will determine the Natural Disaster Preparedness and Awareness of Senior High School Students.

1. What is the profile of participants in terms of?
 - 1.1 Strand
 - 1.2 Place of Residence
2. What is the level of Natural Disaster Awareness of Senior High School Students in terms of:
 - 2.1 Disaster Characteristics
 - 2.2 Early Warning System
 - 2.3 Evacuation Facility
 - 2.4 Disaster Experience
 - 2.5 Disaster Drill Exercise
3. Is there a significant difference in Awareness level between the participants when grouped according to profile variable?
4. What is the level of Natural Disaster Preparedness of Senior High School Students in terms of:
 - 4.1 Disaster Emergency Plan
 - 4.2 Emergency Supply Kit
5. Is there a significant difference in the Natural Disaster Preparedness level between the participants when grouped according to profile variable?
6. How do the participants execute their Natural Disaster Preparedness and Awareness knowledge?

II. METHODOLOGY

Research Design

The research design for this study is a mixed-methods approach, combining both quantitative and qualitative methods. By utilizing a mixed-methods design, the researchers aim to provide a comprehensive exploration of the research topic, offering numerical data to establish patterns and trends, as well as qualitative insights to gain a deeper understanding of the experiences and perceptions of high school students regarding disaster preparedness and awareness.

Participants of the Study

The research participants for this study were selected using a stratified sampling technique with a margin of error of 0.05. The target population consisted of 617 senior high school Grade 11 students at St. Paul University Philippines. Stratified sampling was employed to ensure that the sample accurately represented the population's diversity.

The sample size of 243 students was determined based on practical considerations and the desired margin of error of 0.05. Random sampling techniques were then used to select participants within each stratum, giving an equal chance for every student in the population to be included in the sample.

Instrumentation

The research instrument used in this study is an online survey questionnaire. The questionnaire consists of several sections designed to measure different aspects of disaster preparedness and awareness among senior high school Grade 11 students. The questionnaire predominantly utilizes multiple-choice questions, where participants are presented with numbered options ranging from 1 to 5. Participants are asked to select the number that best represents their level of agreement or likelihood, with 1 indicating "less likely" and 5 indicating "most likely." The questionnaire has been developed based on a review of existing validated instruments in the field of disaster risk reduction and management, with necessary adaptations made to suit the specific context of senior high school students in the Philippines. Before the actual data collection, a pilot test of the questionnaire was conducted to ensure clarity, comprehensibility, and reliability of the instrument.

Data Gathering Procedure

The data collection process began with the administration of the online survey questionnaire to the participants. The questionnaire was distributed through an online platform, ensuring ease of access and efficient data collection. Participants were provided with clear instructions on how to complete the questionnaire, and they had a designated timeframe within which to submit their responses. The questionnaire was anonymous to encourage participants to provide honest and accurate answers.

Data Analysis

The survey underwent several methods that improved the final predictions. The researcher summarized all the data gathered.

Frequency and Percentage. It was used to determine and count the profile of the participants in terms of strand, and place of residence.

Weighted Mean and Scale Interpretation. It was used to determine the level of natural disaster preparedness and awareness of the participants.

Table 1

Scale for Determining the Respondents' Level of Natural Disaster Preparedness and Awareness

Scale	Mean Range	Verbal Interpretation	Verbal Interpretation
		Level of Natural Disaster Preparedness	Level of Natural Disaster Awareness
1	1.00 – 1.50	Very prepared	Very Aware
2	1.51 – 2.50	Prepared	Aware
3	2.51 – 3.50	Neutral	Neutral
4	3.51 – 4.50	Not prepared	Not aware
5	4.51 – 5.00	Very not prepared	Very not aware

T-test and ANOVA. It was used to determine if there is a significant difference between the level of natural disaster preparedness and awareness of the participants when grouped according to profile.

Thematic analysis. It was used to analyze how the participants execute their knowledge about natural disaster preparedness and awareness.

III. RESULTS AND DISCUSSION

This chapter provides the answer to the problems stated in Chapter 1 based on the data collected from the Grade 11 participants. This chapter also presents the interpretation of the answers collected from the different participants.

The demographic of the Respondents

Table 2

Respondents' profile variables according to Strand

Strand	Frequency	Percentage
STEM	166	68.31%
HUMMS	36	14.82%
ABM	41	16.87%
Total	243	100%

Based on the computed data and frequency above, it can be seen that out of 243 respondents, 166 came from the STEM strand, 36 came from the HUMSS strand, and 41 students came from the ABM strand. Given the percentage of three, the STEM strand comes in at 68.31%, the HUMSS strand comes in at 14.82%, and the ABM strand comes in at 16.87% with a total of 100%.

Table 3

Respondents' profile variable according to Residence

Place	Frequency	Percentage
Rural	143	58.85%
Urban	100	41.15%
Total	243	100%

Based on the computed data and frequency above, it can be concluded that 143 of the respondents are located in rural areas, which is 58.84% of the total number of sample participants. On the other hand, 100 respondents are located in urban areas, which is 41.15% of the total number of sample participants.

Table 4

Respondents' level of Natural Disaster Awareness in terms of Disaster Characteristics

Disaster Characteristics	Mean	Interpretation
I know what disaster can affect my community	2.89	Neutral
I know how to manage the different disasters that can affect my community	2.98	Neutral
I know how to prepare for disasters that can affect my community	2.94	Neutral
I know the origin of the disaster that can affect my community	2.98	Neutral
I know the effect of the disaster that can occur in my community	2.91	Neutral
Categorical Mean	2.94	Neutral

Based on the computed data above, it can be concluded that the respondents' level of awareness in terms of disaster characteristics is neutral. The computed categorical mean of this area is 2.94, which lies under "neutral" in the scale. Their awareness of disaster characteristics is somewhere in between. They are either aware of or unaware of the different disaster characteristics.

Table 5

Respondents' level of Natural Disaster Awareness in terms of Early Warning System

Early Warning System	Mean	Interpretation
I have spoken to disaster management representatives in my area	3.04	Neutral

I have signed up with entities that provide or alert emergency news systems	2.97	Neutral
I know the meaning of the different color - coded warning systems in the country	2.94	Neutral
I know the extent of the different typhoon signal warning	2.79	Neutral
I always monitor the weather	3.03	Neutral
I have an alert system for my family and community	3.04	Neutral
Categorical Mean	2.97	Neutral

Based on the computed data above, it can be concluded that the respondents' level of awareness in terms of early warning system is neutral. The computed categorical mean of this area is 2.97, which lies under "neutral" in the scale. Their awareness of the early warning system is somewhere in between. They are either aware of or unaware of the early warning system.

Table 6
Respondents' level of Natural Disaster Awareness in terms of Evacuation Facility

Evacuation Facility	Mean	Interpretation
I know where the evacuation center in my area is located	2.72	Neutral
I know the way going to the evacuation center	2.85	Neutral
I know where the pick-up point during evacuation is located	2.95	Neutral
I know what things to bring in the evacuation center	2.88	Neutral
Categorical Mean	2.85	Neutral

Based on the computed data above, we can conclude that the respondents' level of awareness in terms of evacuation facility is neutral. The computed categorical mean of this area is 2.85, which lies under "neutral" in the scale. Their awareness of evacuation facilities is somewhere in between. They are either aware of or unaware of the different evacuation facility.

Table 7
Respondents' level of Natural Disaster Awareness in terms of Disaster Experience

Disaster Experience	Mean	Interpretation
My family have been affected by a disaster	2.80	Neutral
I know the latest disaster my community faced	2.86	Neutral
My family knows what to expect when a disaster hit our community	2.86	Neutral
Categorical Mean	2.84	Neutral

Based on the computed data above, it can be concluded that the respondents' level of awareness in terms of disaster experience is neutral. The computed categorical mean of this area is 2.84, which lies under "neutral" in the scale. Their awareness of disaster experience is somewhere in between. They are either aware of or unaware of the different disasters they experience.

Table 9
Respondents' level of Natural Disaster Awareness in terms of Disaster Drill Exercise

Disaster Drill Exercise	Mean	Interpretation
I know the importance and function of a mock drill.	2.99	Neutral
I have participated in a mock drill.	3.07	Neutral
I have taken a special training.	3.03	Neutral
My community conducted disaster drills.	3.20	Neutral
My school conducted disaster drills.	2.89	Neutral
Categorical Mean	3.04	Neutral

Based on the computed data above, it can be gleaned that the respondents' level of awareness in terms of disaster drill exercise is neutral. The computed categorical mean of this area is 3.04, which lies under "neutral" in the scale. Their awareness about the different disaster drill exercises is somewhere in between. They are either aware of or unaware of the different disaster drill exercises.

Table 10
Summary Table of the Respondents' Level of Natural Disaster Awareness

Category	Mean	Interpretation
Disaster Characteristics	2.94	Neutral
Early Warning System	2.97	Neutral
Evacuation Facility	2.85	Neutral
Disaster Experience	2.84	Neutral
Disaster Drill Exercise	3.04	Neutral
Over-all Mean	2.94	Neutral

The researchers computed an overall mean of 2.94 in terms of respondents' level of natural disaster awareness. This computed over-all mean lies in the "neutral" section of the scale. This means that the involved respondents are either aware of or not aware of the different areas provided. The respondents' natural disaster awareness is somewhere in between.

Table 11
Significant Difference on the Respondents' Level of Natural Disaster Awareness when Grouped according to Profile Variables

Profile Variables		Means	t-value/ F-ratio	Prob. Value	Decision at 0.05
Strand	STEM	3.06	6.826	0.001	Reject Ho
	HUMSS	2.69			
	ABM	2.51			
Place of Residence	Urban	3.00	0.787	0.239	Accept Ho
	Rural	2.85			

As shown in the table, the p-value in terms of place of residence is 0.238 which is higher than 0.05 level of significance indicating the acceptance of the null hypotheses. It shows that there is no significant difference in the level of natural disaster awareness when grouped according to place of residence.

Additionally, the p-value in terms of strand is 0.001 which is lower than 0.05 level of significance indicating the rejection of the null hypotheses. It shows that there is a significant difference in the level of natural disaster awareness when grouped according to strand.

In this study the results indicate that place of residence does not vary the students' level of natural disaster awareness but strand vary the students' level of natural disaster awareness.

Table 12

Respondents' level of Natural Disaster Preparedness in terms of Disaster Emergency Plan

Disaster Emergency Plan	Mean	Interpretation
My family have evacuation plan	2.95	Neutral
The members of my family are aware of the evacuation plan	3.02	Neutral
The members of my family knowhow the evacuation plan works	2.96	Neutral
The plan was discussed with all the members of the family	2.88	Neutral
Categorical Mean	2.95	Neutral

Based on the computed data above, it can be concluded that the respondents' level of awareness in terms of disaster emergency plan is neutral. The computed categorical mean of this area is 2.95, which lies under "neutral" in the scale. Their awareness about self and family evacuation route is somewhere in between. They are either aware of or unaware of self and family evacuation route.

Table 14

Respondents' level of Natural Disaster Preparedness in terms of Emergency Supply Kit

Emergency Supply Kit	Mean	Interpretation
I know the importance of emergency supply kit	2.88	Neutral
I know what to put in the emergency supply kit	2.95	Neutral
We have emergency supply kit at home	3.06	Neutral
Our emergency supply kit contains all the things supposed to be in the emergency supply kit	2.87	Neutral
Categorical Mean	2.94	Neutral

Based on the computed data above, it can be concluded that the respondents' level of awareness in terms of emergency supply kits is neutral. The computed categorical mean of this area is 2.94, which lies under "neutral" in the scale. Their awareness about emergency supply kits is somewhere in between. They are either aware of or unaware of the emergency supply kit.

Table 15

Summary Table of the Respondents' Level of Natural Disaster Preparedness

Category	Mean	Interpretation
Disaster Emergency Plans	2.95	Neutral
Emergency Supply Kit	2.94	Neutral
Over-all Mean	2.96	Neutral

The researchers computed an overall mean of 2.96 in terms of respondents' level of natural disaster preparedness. This computed overall mean lies in the "neutral" section of the scale. This means that the involved respondents are either prepared or not prepared for the different areas provided. The respondents' natural disaster preparedness is somewhere in between.

Table 16

Significant Difference of the Respondents' Level of Natural Disaster Preparedness when Grouped according to Profile Variables

Profile Variables	Means	t-value/ F-	Prob.	Decision at 0.05
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			ratio	Value	
Strand	STEM	3.11	7.751	0.001	Reject Ho
	HUMSS	2.75			
	ABM	2.54			
Place of Residence	Urban	2.99	0.662	1.308	Accept Ho
	Rural	2.94			

As shown in the table, the p-value in terms of place of residence is 1.308 which is higher than 0.05 level of significance indicating the acceptance of the null hypotheses. It shows that there is no significant difference in the level of natural disaster preparedness when grouped according to place of residence.

Additionally, the p-value in terms of strand is 0.001 which is lower than 0.05 level of significance indicating the rejection of the null hypotheses. It shows that there is a significant difference in the level of natural disaster preparedness when grouped according to strand.

In this study the results indicate that place of residence does not vary the students' level of natural disaster preparedness, but strand vary the students' level of natural disaster awareness.

Respondents stress the importance of applying knowledge in disaster preparedness, highlighting its role in minimizing loss of life, reducing injuries, enhancing community resilience, promoting efficient resource allocation, and contributing to psychological well-being during crises. Sharing knowledge also emerges as crucial, fostering resilience within communities by empowering individuals with necessary skills and resources to respond effectively.

Knowledge empowers people to make informed decisions, take proactive steps, and share information, enabling communities to work together to develop strategies, share resources, and support each other during times of crisis. Effective communication helps prevent panic and promotes calm and cooperation during disasters.

Critical assessment of situations is deemed essential, enabling informed decision-making regarding evacuation, resource allocation, and recovery efforts. By prioritizing actions based on severity and immediate needs, individuals and response teams can maximize effectiveness and potentially save lives.

Through critical analysis, potential hazards, vulnerabilities, and impacts of disasters can be assessed, allowing for the development of risk management plans and preventive measures to reduce harm to people, infrastructure, and the environment. Allocation of resources based on critical needs is emphasized as well.

Planning before disasters strikes is vital to minimizing impacts, protecting lives and property, and promoting resilience. Preparedness measures involve creating emergency response plans, establishing communication networks, identifying evacuation routes, and stockpiling essential supplies.

Knowing what to expect during disasters facilitates preparation, including the development of emergency response plans and identification of necessary resources and supplies. This awareness enables informed decisions to reduce vulnerability to disasters.

Participating in community activities, raising awareness, and engaging in disaster-related education fosters resilience, promotes preparedness, and facilitates collective problem-solving and support networks.

Simple donations provide immediate assistance and support to those affected by disasters, addressing urgent needs such as food, water, shelter, and medical aid. While essential, they complement other components of disaster response and recovery.

Taking precautions, such as securing buildings, stocking up on supplies, and evacuating vulnerable areas, minimizes risks and dangers associated with disasters. Precautions contribute to effective emergency response efforts and alleviate anxiety and fear associated with disasters.

Using first aid knowledge during disasters enables immediate medical assistance to those injured or in critical condition, contributing to community resilience and bridging the gap until professional medical help arrives.

Being aware and alert allows recognition of potential dangers and prompt actions to ensure safety, facilitating evacuation or seeking shelter when necessary. Vigilance empowers informed decision-making during disasters.

Collaborating and coordinating with local authorities ensures a timely and comprehensive response, leveraging specialized knowledge, expertise, and resources to handle disasters effectively.

Creating evacuation plans provides clear instructions and designated meeting points, reducing confusion and chaos during disasters and minimizing potential damage to property, infrastructure, and the environment.

Regular maintenance identifies and addresses structural weaknesses or vulnerabilities, ensuring structural integrity and proper functioning of safety systems and equipment critical for disaster preparedness and response.

Mapping hazards in the community aids in assessing risks, developing effective response plans, and enhancing community preparedness, contributing to informed decision-making, risk reduction, and effective emergency management.

IV. CONCLUSION

This study reveals a remarkable level of natural disaster awareness and preparedness among Grade 11 students. Through comprehensive research and analysis, it is evident that the level of awareness and preparedness of Grade 11 students about natural disasters is neutral. The calculated data showed that their knowledge is in the middle level.

This study had a total of 243 participants, with 68.31% of the students coming from the STEM strand, 14.82% from the HUMSS strand, and 16.87% from the ABM strand. This study also shows that 58.85% of the involved participants are in rural areas, while 41.15% are in urban areas.

One of the key findings of this study is the constant neutral level of knowledge of students about natural disaster awareness and preparedness. This finding highlights the importance of further enhancing the natural disasters education provided to Grade 11 students. It is important to focus on strengthening the student's awareness and preparedness for natural disasters. This can be achieved through targeted educational interventions.

Through analyzing the different data collected, it is interpreted that there is no significant difference in the level of natural disaster awareness and preparedness of students when grouped according to residence. On the other hand, the level of natural disaster awareness and preparedness of students shows a significant difference when grouped according to strand .

In conclusion, the study on the natural disaster awareness and preparedness of Grade 11 students at St. Paul University Philippines demonstrates a not-so-commendable level of knowledge. The findings of this study can serve as a valuable reference for the university in further enhancing and strengthening the natural disaster knowledge of its students, ensuring their preparedness and safety in the face of potential disasters.

RECOMMEDATION/S

To enhance and strengthen student awareness and preparedness for natural disasters, the university can consider the following recommendations:

Education and Information - Include dedicated lessons or units about natural disasters in relevant subjects such as science, geography, or social studies. Cover more topics like types of disasters, their causes, effects, and preventive measures.

Guest Speakers and Experts - Invite local emergency management officials, geologists, or meteorologists to speak to students about natural disasters. They can provide valuable insights, share personal experiences, and answer questions from students.

Emergency Preparedness Training - Familiarized students with the emergency response plans specific to their school or community. Conduct drills and practice scenarios to ensure students understand evacuation routes, assembly points, and safety procedures.

First Aid and CPR Training - Organize workshops or training sessions on basic first aid and cardiopulmonary resuscitation (CPR) techniques. Empower students to provide initial assistance during emergencies.

Provide supply kits - Educate students about the importance of creating personal disaster supply kits for their homes. Provide guidelines on essential items such as food, water, medications, flashlights, batteries, and emergency contact information.

Community Engagement - Collaborate with local organizations, NGOs, or emergency management agencies to conduct awareness campaigns or workshops for students. Foster relationships that can offer additional resources and support during disasters.

Community service projects - Engage students in community service initiatives related to disaster preparedness and recovery. This can involve volunteering with local disaster response teams, participating in cleanup efforts, or raising funds for affected areas.

Mock drills and simulations - Organize mock disaster drills or simulations in collaboration with local authorities. This hands-on experience can help students understand the practical aspects of emergency preparedness and response.

While enhancing awareness and preparedness is important, we must ensure that the information shared is age-appropriate and does not cause unnecessary fear or anxiety among students. Encourage a positive and proactive mindset towards awareness and preparedness, emphasizing the importance of knowledge and resilience in the face of natural disasters.

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