

Knowledge in Disaster Management and its influence on Perceived Risk and Perceived Preparedness among the College Students of Assumption College of Nabunturan

Illeyt R. Silva, PhD

Assumption College of Nabunturan

ABSTRACT: The study aimed to establish the relationship between knowledge in disaster management to perceived risk and perceived preparedness among the college students of Assumption College of Nabunturan. The study employed a non - experimental, quantitative design using descriptive - correlation technique. 307 respondents were the sample chosen through stratified random sampling. The study revealed that knowledge in disaster management among the respondents of the study was very high and the perceived risk and perceived preparedness were rated high. Furthermore, knowledge of disaster management was a clear predictor of perceived risk and perceived preparedness. The empirical evidence presented in the study is taken advantage of in crafting a risk reduction and management strategic map for the institution to come up with appropriate and accurate action to mitigate the negative impact of uncertain events such as earthquakes thus minimizing cost and saving property and life.

Keywords: *knowledge in disaster management, perceived risk, perceived preparedness, quantitative design, Assumption College of Nabunturan*

I. Rationale

A 6.2 magnitude earthquake hit the Province of Davao de Oro, Philippines last February 1, 2023. The strong tremor caused an alarming impact on both the emotional and psychological bearings of the people, more so among students and teachers in the Higher Educational Institutions which during that moment were handling classes. The experience pushed the need to come up with a study to acknowledge the level of knowledge in disaster management and its influence on the perception among the college students of Assumption College of Nabunturan towards risk and preparedness. The Philippine archipelago is positioned in the Ring of Fire thus it experiences periodic occurrences of earthquakes (Capistrano, 1999).

Dealing with uncertainties such as earthquakes should be taken as a priority by any institution especially higher educational institutions, the need to be prepared and perceived ability to know the potential risk of disasters catches the foundation of creating an environment where having enough understanding is crucial to disaster preparedness (Gumasing et al., 2022). Dikmenli, Yakar, & Konica, (2018) offered that taking disaster preparedness and risk analysis could lead to higher chances of protection and prevention of the impact of a disaster in the community.

Knowledge in disaster management is a blueprint that must be institutionalized and hence be utilized as a tool to provide measures and activities to be done in preparing the people in anticipation of a disaster to come (Dikmenli et al., 2018). Unfortunately, most if not all have the mindset of instead prepare for uncertainties before it occurs but the focus instead hinges on the post-disaster plan (Dikmenli et al., 2018). This mindset must be changed. The idea of strengthening the knowledge in disaster management is prevention and it allows all the stakeholders especially the college students to acquire the necessary repercussions to make them proactive in responding when in time the disaster may hit.

Knowledge of disaster management is a crucial area in disaster prevention that focuses on the pre-disaster planning of an institution. A draft provided by the Global Platform for Disaster Risk Reduction (2013) stated that knowledge in disaster management helps the institution to come up with a clear tool to help them formulate appropriate solutions to problems that may occur. Intensifying the program on knowledge of disaster management catapults preparedness. Tkachuk (2016) provided literature that preparedness is an important skill that must be adopted as this conforms to diminish the adverse impact of a disaster.

The study, therefore, aims to provide concrete evidence to showcase that knowledge in disaster management has a direct influence on perceived risk and perceived preparedness among college students of Assumption College of Nabunturan and come up with plans and programs to be utilized by the institution in framing a model structure to disaster preparedness.

II. Research Objectives

The study was conducted to determine the level of knowledge in disaster management, perceived risk, and perceived preparedness and to test the relationship of the knowledge in disaster management to perceived risk and perceived preparedness among the college students of Assumption College of Nabunturan.

Hypothesis

The following Null Hypotheses shall be tested at a 0.05 level of significance.

There is no significant relationship between

1. Knowledge of disaster management and perceived risk
2. Knowledge of disaster management and perceived preparedness

III. Literature Review

The need to assess disaster management is tantamount to recognizing its necessity as it catapults readiness thus promoting a culture of risk mitigation and adaptability. Hosseini and Izadkhah (2006) offered that the knowledge of prevention and pre-disaster preparedness allows an institution to direct its priority to justifiable growth. The knowledge of disaster management does not limit to post-disaster actions but should also consider the pre-disaster plans thus preparation and risk analysis (Dikmenli et al., 2018). Dikmenli et al. (2018) added that the foundation of knowledge on disaster management is preparation and analysis of the possible impact of earthquakes.

Forums and post-disaster activities were deemed not satisfactory as post-disaster did not catch the supposed gap that should have been addressed before (Ulog, 2009), as the literature was supported by Caymaz, Akyon, & Erenel, 2013; Dikmenli et al., 2018) that people do lack the knowledge of adversities, mindfulness, and protective and preventive knowledge against disasters.

The consciousness of the negative impact of disaster is the state of building a culture of security, risk, and preparation (Dikmenli et al., 2018). Benadusi (2014) and Dikmenli (2018) promoted the idea of edification, the idea stemmed from the importance of educating people on the aspect of knowledge of disaster management, but this must be taken in the context of preparation and risk assessment. Preparation and risk assessment are crucial areas for informing the people and crafting strategic actions for them to be safe and secure (Hosseini & Izadkhah, 2006).

The LIPI - UNESCO / ISDR (2006) expounded disaster preparedness as an anecdote to disaster management and is regarded as a preliminary effort that constitutes the community's stakeholders for them to act swiftly and effectively (Akbar et al., 2023). Disaster management should lay the ground for providing the core knowledge to minimize the effect of an earthquake thus maintaining a sustainable and worry-free environment (Bradley, 2010). Akbar, et al., (2023) explored the role of preparedness to minimize or even avoid risk.

Perception of risk is as important as preparation. Research studies were explored that acknowledge its correlation. Somehow, perceived risk is based on the constructivist method, an approach that recognizes the belief that risk assessment can be socially structured and is independent (Crescimbeni, et al., 2013). Risk perception recognizes the need to understand the degree of control to cope with disasters such as earthquakes (Ronan & Johnson, 2001).

Assuring the presence of reliable information in disaster management could lead to a sustainable strategy (Pathirage et al., 2012). A group of authors, Mohanty et al., (2006) and Seneviratne et al., (2010) dissected a divided opinion on the emphasis of the gap in information and knowledge on disaster management. with this, Pathirage et al., (2012) added the ability of colleges and universities to provide the needed information, bridging the gap for effective knowledge in disaster management and creating a framework to mitigate its impact and identify practices that do not meet international standards and correct it.

Understanding the risk of a hazard could lead to objective decisions among people, this could give them knowledge on improving behavior and attitude to the effects of earthquakes (Crescimbeni et al., 2013). Akbar (2020) purported that knowledge of risk as felt by people will make them act accordingly hence resulting in positive action thus pushing them to be prepared all the time. Gumasing et al (2022) emphasize the shift in people's mindset regarding the risk involving earthquakes but must be proactive through the utilization of accurate information. This knowledge driven by empirical evidence must focus on developing alternative actions to educate people on understanding disaster management, risk management, and preparedness (Gumasing et al., 2022).

The study took importance on the theory of Ajzen (1991) adopted by Cameron et al., (2012) catapulting knowledge in disaster management could influence people's behavior in accepting the risk that an earthquake may bring pushing them to be prepared and be ready. This proactive behavior minimizes the negative impact.

With the literature, knowledge of disaster management is a coherent subject as this assures the presence and reliable information (Pathirage et al., 2012), hence will make the institution disaster ready and able to craft a sound policy towards risk assessment and preparedness thus resiliency, the intent why the study is conducted.

Research Design

The research is a non - experimental, quantitative research design using the descriptive correlational approach. Silva and Guhao (2022) defined descriptive correlational study as a technique that expounds on an event and objectively presents the relationship, environment, and characteristics of the subject under study.

More so, the study intends to correlate the variables under observation and prove the existence of a relationship between Knowledge in Disaster Management and its effect on the perceived risk and preparedness of the students, teachers, and staff of Assumption College of Nabunturan.

Research Respondents

The researcher chose as respondents of the study the college students of Assumption College of Nabunturan of which the sample was drawn through random stratified sampling. 307 respondents were the study sample, distributed proportionately among college students. Expounded by Silva and Guhao (2022) that a large sample size would mean lesser test error thus the study becomes more reliable. The respondents have the right to reject or not answer the questionnaire given to them to give due respect to their freedom to participate in the study.

Research Instrument

Primary data was utilized in the study where the researcher adopted an existing research questionnaire, and the researcher contextually modified the instrument to fit the very nature of the study undertaken. The researcher adopted and modified the questionnaire constructed by Gumasing et al (2018) on Knowledge of disaster management, perceived risk, and perceived preparedness.

Statistical tool

The researcher employed the following statistical tools for the interpretation of the data:

Mean is a measure of the central tendency to test the degree of Knowledge on Disaster management, perceived risk, and perceived preparedness.

Pearson product-moment correlation (Pearson R) determines the interrelationships between Knowledge of Disaster management, perceived risk, and preparedness.

Regression Analysis was utilized to test the hypotheses of the study.

IV. RESULTS

This chapter is offered the deconstruction of the data gathered which came from the responses of the respondents on the study knowledge in disaster management and its influence on perceived risk and perceived preparedness among the college students of Assumption College of Nabunturan. The presentation was arranged based on the following: firstly, on the levels of perceived risk, perceived preparedness, and knowledge in disaster management. Secondly, the discussion on the result of the significance of the study about the relationship between knowledge in disaster management and perceived risk, and knowledge in disaster management and perceived preparedness.

The level of perceived risk among the college students of Assumption College of Nabunturan

Presented in Table 1 is the result of the data gathered on the level of perceived risk among the college students of Assumption College of Nabunturan. The overall score of perceived risk is 4.09 with a standard deviation of 1.03 with a descriptive level of high which means oftentimes manifested. The study revealed that the respondents were fully aware of the risks of earthquakes with a mean score of 4.52 and a standard score of .79 and that it harms both life and property got a score of 4.44 and SD of .97. More so, the respondents are fully aware of the protocol as offered by the school's DRR office.

Crescimbene et al (2013) emphasize that knowing risk acquaints people to hazards of uncertain events such as earthquakes thus making them more ethical to follow and seriously take actions for them to be safe and capable decision makers hence improving insights and strategies on how to reduce its negative impact.

Table 1. Level of Perceived Risk.

ITEM	S. D.	MEAN	DESCRIPTIVE INTERPRETATION
I am fully aware of the risks of earthquake	0.79	4.52	VERY HIGH
I am alarmed when there is an earthquake	1.01	4.10	HIGH
I know that earthquakes happen	1.36	3.93	HIGH
I know who needs help among my classmates, teachers, and staff	1.01	3.79	HIGH

I know that strong earthquakes have a negative impact	0.97	4.44	VERY HIGH
I am afraid of earthquakes	1.10	4.10	HIGH
I feel anxious when there is shaking	1.11	3.93	HIGH
I am confused when there is a siren in the school	1.27	3.38	MODERATE
I am fully aware of the safety of my school when there is an earthquake.	0.88	4.18	HIGH
I take seriously the protocols and evacuation plan of my school.	0.84	4.48	VERY HIGH
OVERALL	1.03	4.09	HIGH

The level of Perceived Preparedness among the college students of Assumption College of Nabunturan

Offered in Table 2 is the result of the respondent's responses on perceived preparedness. The importance of knowledge for earthquake preparedness got a score of 4.48 and a standard deviation of .81, knowledge on the significance of preparation got a score of 4.34 with an SD of .87, and knowledge on where the clinic is in case worst case scenario happens as the item has a mean score of 4.49 and a standard score of .95. overall, the level of perceived preparedness is 3.97 with a descriptive interpretation of high and a standard deviation of .96.

The result of the study provides a thesis that given the magnitude of uncertain events the response interpretation was that the respondents' perceived preparedness is oftentimes manifested. Gumasing et al (2022) stress that the community with enough knowledge to understand the disaster and prepare for it is more likely to cope quickly and can easily recover from the possible impact of a disaster such as earthquakes.

Table 2. Level of Perceived Preparedness.

ITEM	S. D.	MEAN	DESCRIPTIVE INTERPRETATION
I know the importance of knowledge for earthquake preparedness	0.81	4.48	VERY HIGH
I know the significance of preparation for earthquakes	0.87	4.34	VERY HIGH
I have first aid kits in my bag (medical supplies, flashlight, whistle, non - perishable foods, etc.)	1.24	2.81	MODERATE
I make sure that my cellphone is in full battery mode	1.02	3.88	HIGH
I am confident that our school building can withstand a strong earthquake	0.99	3.71	HIGH
I know where the clinic is in times of injury that may happen during an earthquake	0.95	4.29	VERY HIGH
I regularly educate myself through billboards and TV on what to do during earthquakes	0.99	3.87	HIGH
I am confident that my school is ready and prepared	0.90	4.07	HIGH

I know that my school and the LGU have strong links for assistance	0.85	4.17	HIGH
Overall, I am prepared when there is an earthquake	0.93	4.10	HIGH
OVERALL	.96	3.97	HIGH

The level of knowledge on disaster management as perceived among the college students of Assumption College of Nabunturan

Shown in Table 3 is the result of the level of knowledge in disaster management as perceived by the college students of Assumption College of Nabunturan. Further, the result of the study had a descriptive interpretation of high with a mean score of 4.13 and a standard score of .97 which means that the knowledge in disaster management as perceived by the college students of Assumption College of Nabunturan is oftentimes manifested.

More so, the respondents' responses offered enthusiasm among them in participating in forums about earthquake drills as this generated a mean score of 4.20 with a description of very high and a standard deviation of .91. Knowledge on the performance of the duck, cover, and hold with a mean score of 4.57 and SD of .83. knowledge of moving out quickly as the earthquake subsides, the buddy system (by pair movement), knowledge of the evacuation plan and site, and knowledge of where the emergency button for the siren is located. All the items got a descriptive level of very high which means always manifested.

Knowledge of disaster management lessens the negative impact of the disaster and can prepare and thus take precautionary measures to mitigate the hazard (Dikmenli et al, 2018). Further, the authors added that knowledge and consciousness increase the determination to craft preventive and protective measures to decrease the degree of possible losses and preserve life.

Table 3. Level of Knowledge in Disaster Management

ITEM	S. D.	MEAN	DESCRIPTIVE INTERPRETATION
I enthusiastically participate in forums about earthquake drill	0.91	4.20	VERY HIGH
I know how to perform the duck, cover, and hold during an earthquake	0.83	4.57	VERY HIGH
I know that until the earthquake subsides, then that is the time to go out of the building as quickly as possible	0.90	4.36	VERY HIGH
I know the buddy-buddy protocol during the evacuation	0.96	4.34	VERY HIGH
I am fully aware of the evacuation plan for my school	0.85	4.34	VERY HIGH
I know where the evacuation site of the school	0.89	4.33	VERY HIGH
I know where the emergency buttons for siren of the school are	0.93	4.21	VERY HIGH
I know how to perform basic life support and CPR when needed	1.34	3.11	MODERATE
I know the emergency hotline numbers of the government agency to ask for assistance	1.15	3.72	HIGH

I regularly see posters and information bulletins on what to do during earthquakes.	0.98	4.10	HIGH
OVERALL	.97	4.13	HIGH

On the significant relationship between knowledge in disaster management and perceived risk

Table 4 offers the model summary showing the correlation coefficient between knowledge in disaster management and perceived risk is .736 manifesting a moderately high correlation. With enough understanding to risk people's behavior change manifested by their willingness to learn and thus willingly participate in efforts to mitigate the effect of earthquakes (Gumasing et al, 2022).

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. An error in the Estimate
1	.739 ^a	.546	.545	.44808

a. Predictors: (Constant), KDM

Presented in Table 5 the Analysis of Variance, the result shows that F = 366.949 and p-value = 0.000 (p-value < .05), it is revealed that knowledge in disaster management is a predictor of perceived risk. Furthermore, the relationship between knowledge in disaster management and perceived risk is highly significant therefore, the hypothesis is rejected.

Table 5. ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73.675	1	73.675	366.949	.000 ^b
	Residual	61.237	305	.201		
	Total	134.912	306			

a. Dependent Variable: PR

b. Predictors: (Constant), KD

On the significant relationship between knowledge in disaster management and perceived preparedness

Table 6 is presented the model summary analyzing the significant relationship between knowledge in disaster management and perceived preparedness. It was revealed that the correlation coefficient is .631 showing a moderate correlation between the two variables measured. Dikmenli et al (2013) explained that hazards are unavoidable but knowledge of it and the ability to prepare would decrease the damage disasters may bring and at the same time, the ability to cope with the disastrous event increases and respond objectively.

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. An error in the Estimate
1	.631 ^a	.398	.396	.53105

a. Predictors: (Constant), KDM

Shown in Table 7 the analysis of variance tests the significance of the study. It was revealed that the F value is 201.341 and the p-value of 0.000 (less than .05) demonstrating a strong relationship thus the study is significant, and the hypothesis is rejected. Therefore, there is a strong relationship between knowledge of disaster management and perceived preparedness.

Table 7. ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.781	1	56.781	201.341	.000 ^b
	Residual	86.014	305	.282		
	Total	142.795	306			

a. Dependent Variable: PP

b. Predictors: (Constant), KDM

V. Discussion

The result of the study revealed that knowledge in disaster management is an integral component of the disaster risk reduction management policy of any institution specifically when it comes to the knowledge as perceived by the students of Assumption College of Nabunturan as the variable understudy predicts the behavior of student towards the perceived risk and perceived preparedness.

Furthermore, the study strengthens the academic discussion of Pathiragi et al (2012) that knowledge has a crucial function in ensuring the availability of data and appropriate hazard-based knowledge as a requirement for effective understanding. Gumasing et al (2013) acknowledge the role of preparedness as being resourceful leading and hence responsive when disasters occur and react quickly.

Hosseini and Izadkhah (2006) emphasize that prevention and pre-disaster mitigation are important indicators of successful programs and that higher educational institutions must conform to improving risk analysis and preparedness such that a safe environment is established and making sure that people are fully aware of the hazards and how knowledge will protect themselves.

Conclusion

The study offered the correlation between knowledge of disaster management and perceived risk and perceived preparedness among the students of Assumption College of Nabunturan. Moreover, the independent variable, the level of knowledge in disaster management was rated very high and the two dependent variables' perceived risk and perceived preparedness were rated high.

Additionally, the study revealed that knowledge of disaster management is a predictor of perceived risk and perceived preparedness among the respondents of the study. The study exemplifies that knowledge of disaster management is a significant indicator that influences the students' perceived risk and perceived preparedness.

The hypotheses of the study stating that knowledge in disaster management has no significant relationship to perceived risk and perceived preparedness were rejected hence the study is significant. Moderately high correlations were also established between the independent variable and the dependent variables.

Recommendation

The study aimed to gauge the correlations between knowledge in disaster management and its influence on perceived risk and perceived preparedness. Moreover, to utilize the outcome of the study as it provides empirical evidence that details the level of knowledge in disaster management, perceived risk, and perceived preparedness among the students of Assumption College of Nabunturan thus strengthens the school's effort to develop a risk reduction and management strategic map and action.

The risk reduction strategy and strategic map shall embody the institution's direction toward a safe academic environment ready to act on disaster preparedness. The strategic map shall focus on continuous education among the students as well as the stakeholders of the school by providing forums and drills. Create a committee of experts and foster partnerships with government organizations (National and Local) and Non - Government Organizations whose field is on risk reduction management.

Disaster risk reduction initiatives as part of the strategic map must provide access to information on the risk of a disaster such as earthquakes through television viewing and it must be placed in strategic areas where the students can easily see it. Develop a risk reduction management module (brochure) showcasing proactive actions to be taken in time there is a disaster, and the module shall be distributed to the students.

The school's academic committee must also consider including risk reduction management in the curriculum specifically on elective subjects. The students must be allowed to be trained in basic life support and CPR.

The school risk reduction committee must establish a system where an accurate and responsive program on post-disaster management such as providing the students a venue to cope with the emotional impact of the disaster such as stress debriefing to be conducted by experts.

Lastly, it is also imperative for the risk reduction and management committee to develop a risk assessment tool that shall offer a list of possible risks and offer an action plan for mitigation and the school administration must seriously consider appropriating funds for disaster risk reduction and management.

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