Disaster Preparedness Behavior Based on the Disaster Mitigation And Disaster Preparedness Attitudes Of Students Of Madrasah Aliyah (Ma) In The City Of Bogor

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Abstract

Indonesia is a country prone to natural disasters. Indeed, Indonesia has a geological position which is located at the confluence of three large tectonic plates, namely the Indo-Australian Plate, the Eurasian Plate, and the Pacific plate and is located in a series of rings of fire which s 'extend along the Pacific Plate, which is the most active tectonic plate in the world. This causes frequent earthquakes and can cause tidal waves if the plates move in the ocean. Disaster preparedness is something everyone must have, including students. This study aims to obtain information on the relationship between knowledge about disaster mitigation and preparedness attitudes with disaster alert behavior and the factors that influence disaster alert behavior. The population of this study was all students of class XI MIPA MA of the 2018/2019 school year of Bogor City, with a total sample of 357 respondents. The results showed that: 1). There is a positive relationship between knowledge about disaster mitigation and disaster alert behavior with a regression equation $\hat{Y} = 72.02 + 1.30$ X1, the value of the correlation coefficient (ry_1) = 0.482, and the coefficient of determination (r^2) = 23.6%. 2) There is a positive relationship between the attitude of disaster preparedness and the behavior of disaster preparedness with the regression equation $\hat{Y} = 35.58 + 0.59$ X2, the value of the correlation coefficient (ry_2) = 0.421 and the coefficient of determination (r^2) = 17.749%. 3) There is a positive relationship between knowledge about disaster mitigation and attitude towards disaster preparedness as well as disaster preparedness behavior. Regression equation $\hat{Y} = 39.46 + 1.01$ X1+ 0.39 X2 . The value of the correlation coefficient ($ry_{.12}$) = 0.548 and the coefficient of determination (r^2) = 29.7%.

Keywords:
Disaster preparedness behavior, Knowledge of disaster mitigation, Attitude towards disaster preparedness

1. Introduction

Indonesia is one of the countries prone to natural disasters, because, geographically, Indonesia is an archipelago flanked by two vast oceans of the world, namely the Indian Ocean and the Pacific Ocean. Indonesia also has a geological position which is located at the confluence of three large tectonic plates, namely the Indo-

Australian Plate, the Eurasian Plate, and the Pacific plate and is located in a series of rings of fire which extend along the Pacific Plate, which is the most active tectonic plate in the world. The tectonic activity that occurs causes volcanic arcs that are part of a series of volcanoes throughout the Asia-Pacific region, often called the Ring of Fire or Pacific Circum series (Amri, Bird, Ronan, Haynes, & Towers, 2017). This causes frequent earthquakes and can cause tidal waves if they occur in the ocean. Indonesia is also located on the equator, so its territory is tropical. During the rainy season, when rainfall is high, this condition triggers tornadoes, floods, and landslides. During the dry season and low rainfall, drought, forest, and land fires occur. During the transition season, the natural phenomenon of a tornado becomes a threat of disaster (Theophilus Yanuarto, Sridewanto Pinuji, Andri Cipto Utomo, Ignatius, 2018).

Environmental damage tends to worsen with increasing human activity, triggering an increasing number of events and the intensity of hydrometeorological disasters (floods, landslides, and drought), which occur alternately in many regions of the world. 'Indonesia. Based on National and Disaster data (2018) in the past ten years from 2009 to 2018, the most significant number of disasters in 2017 amounted to 2,853 events, while the second-largest number of disasters was in 2018, which is not very different from the previous year with the number of 2572 events with hydrometeorological disasters was around 95.45%. The rests were geological disasters or about 4.55% of events, and these events, West Java, became the third position for the most significant number of events in Indonesia after Central Java and East Java with 338 catastrophic event events. The disasters in West Java were dominated by hydrometeorological disasters, and in 2018, around 99.11% were hydrometeorological disasters while the rest were geological disasters that did not even reach 1%.

In 2018, the number of disasters in West Java was 338, Bogor being the region that contributed the most to 78 events, or around 23% of disasters in West Java and all were hydrometeorological disasters (Nasional & Bencana, 2018) Bogor is more prone to hydrometeorological disasters such as floods, landslides, and tornadoes. This is evidenced by the series of natural disasters that occurred in Bogor, West Java, throughout 2018. Frequent rainfall combined with high intensity makes the land easy to move in order to cause landslides. Landslides generally occur in the peak area because their hills are steep, increasing the risk of landslides.

Disasters in any form will undoubtedly hurt humans. Disasters can happen anytime, anywhere, and can happen to anyone. Disasters can be minimized at risk. Disaster risk reduction can be achieved by improving disaster preparedness. The lack of community preparedness for disasters is a factor that makes disaster risks significant. So far, disaster management has only been done more often after a disaster. This can be seen from the weak disaster alert behavior as they do not know what to do in the event of a disaster. Lack of public knowledge and awareness of the importance of maintaining natural resources makes natural conditions increasingly prone to disasters. This condition illustrates the community's low level of preparedness, which considerably affects the number of victims of disasters.

Disaster preparedness is in everyone's interest because a disaster can happen to anyone, anytime, and can happen anywhere. The role of education is very influential in achieving disaster preparedness. In disaster mitigation education, individual preparation will be strengthened in learning. The knowledge, skills can demonstrate individual disaster preparedness and abilities acquired through learning and experience that are effectively applied during emergencies. According to Chou, Yang, & Ren (2015), when global climate change exacerbates the potential for damage from natural disasters, there is a need to maintain investment in disaster prevention education. Disaster education needs to be expanded. Based on the study results, there is a need to review practical implementation experience and the literature on learning theory associated with disaster problems.

Children are the most vulnerable age at risk of becoming a victim of a disaster. Therefore, educating students about disaster mitigation is a step to reduce disaster risk. Preparing students for disasters is necessary to reduce the risk of disasters at all times. According to Shoji, Takafuji, & Harada (2020), students tend to study on their own and have a deep understanding of disaster risk. There must be a particular disaster education program for students who are in disaster-prone areas.

Knowledge of disaster mitigation is a factor that influences preparedness. The knowledge possessed can generally influence people's attitudes and behaviors so that they are ready to anticipate disasters. Disaster preparedness can be improved by increasing disaster preparedness behavior. If disaster alert behavior can be improved, disaster risk can be minimized. According to Tsai, Chang, Shiau, & Wang (2019), disaster education is the most effective disaster management process. However, learning using traditional methods is not enough to transmit past experiences and arouse student interest; more interesting education is needed to motivate students to learn more about disaster issues. According to research by Kamil, Utaya, & Utomo (2019), improving knowledge of disasters can improve students' skills in disaster response. The results showed a 91.6% increase in students' knowledge and understanding through geographic literacy. It is therefore planned that teachers will be able to use teaching materials based on geographic perspectives to strengthen students' knowledge in the event of a disaster.

Preparedness is an effort to anticipate disaster to avoid loss, loss of property, and changes in people's lives. Husna et al. (2011), Preparing to cope with a disaster is an individual or group condition with physical and psychological capacities to cope with disasters. Based on research results, Liou, Liu, Tsai, Chu, & Cheng (2020) show that stress, when a disaster occurs, is negatively correlated with competence to manage a disaster and motivation to get involved in disaster management. This means that disaster preparedness is essential to avoid someone's stress during a disaster, which can have counterproductive results in disaster management.

Preparation must be done in various communities, not just at the community level. The school community must also be prepared to create school residents from school principals, teachers, staff, and students who are prepared and alert to disasters. The absence of particular subjects on environmental education in the event of an informal disaster education has contributed to the lack of sensitivity of the conscience of our young generation to take care of the preservation and preservation of the environment. Disaster-based environmental education to reduce the risk of disasters in childhood is essential (Kamil et al., 2019).

Preparedness is an action that enables governments, organizations, communities, communities, and individuals to respond quickly and effectively to a disaster situation. Disaster management plans include preparedness actions. The concept of preparedness used here is further emphasized when preparing for the ability to conduct emergency response activities quickly and accurately. Emergency response activities include action steps immediately before a disaster, during a catastrophic event, and actions taken immediately after a disaster has occurred (Jeannette Sutton and Kathleen Tierney, 2006).

The role of education is very influential in achieving disaster preparedness, and in reducing disaster risk, there are three stakeholders, namely individuals and households, government, and the school community. Individuals and households are subjects and objects of preparation because they directly affect disaster risks. The government has an important role to play in ensuring the availability of community needs before, during, and after a disaster. Schools are stakeholders who play a role as sources of knowledge and disseminate knowledge about disasters. Schools have a role as a practical guide in disaster management (Shoji et al., 2020).

Insufficient preparation can have an impact on the magnitude of disaster risks. The low value of the readiness index at the school community level has implications for the importance of the roles and responsibilities of government, the community, and the school community in various institutions. These facilities can take the form of political support to schools on the importance of implementing a disaster education program in each subject. This is inseparable from the role of the school community as an actor in central increasing disaster preparedness. According to Muñoz et al. (2019), Brazil encourages schools to become producers of knowledge in disaster education.

The education function is one of the best media for preparing communities for disasters. In disaster education, individual readiness levels will be discussed, which will then be improved in learning. The knowledge and skills also demonstrate individual disaster preparedness and abilities acquired through experiential learning, which are effectively applied during emergencies. According to Sonneborn, Miller, Head, & Cross (2018), nurses and all staff are in urgent need of disaster education and training methods when faced with training or face-to-face education models.

Disaster mitigation is a series of efforts aimed at reducing disaster risk through physical development and awareness and the ability to respond to disaster threats. Disaster mitigation is an activity that acts as an action to reduce the impact of disasters, or efforts to reduce the victims of disasters, both deaths, and property. The first step we need to take to carry out disaster mitigation actions is to carry out a disaster risk assessment of the area. Disaster (risk) is the potential loss incurred due to a disaster in an area and a specific period which can take the form of death, injury, illness, death threats, loss of security, displacement, damage or loss of property and disruption of community activities, which are the result of a combination of hazards, vulnerabilities and capacities in the area ((P2MB) & Indonesia, 2010).

Wu, Wang, Gao, Guo, & Xue (2019) stated that when global warming occurs, the frequency of natural disasters increases. One of the essential approaches in disaster management is to prevent disasters and reduce losses due to disasters through public finances. However, the optimal proportion of disaster prevention and mitigation spending is a complicated issue of public concern. According to Tanaka (2005), individual preparation is necessary to reduce the risks due to the impact of disasters. Based on the results of the study of American respondents, the availability of goods is relatively good, while in Fukui, the community is slightly more ready for housing, social activities, and educational resources. According to Teo, Goonetilleke, Deilami, Ahankoob, & Lawie (2019), the government, as decision-makers, needs to consider how different ethnic groups understand and prepare for disaster management and communication plans need to be designed to adapt to all ethnic groups in society.

In addition to knowledge of disasters and the attitude of preparedness towards disasters, it is suspected that there are other factors related to disaster preparedness behavior. Therefore, a study was conducted explanatory

sequentially to determine the relationship between knowledge of disaster mitigation and disaster preparedness attitudes with disaster preparedness behavior, as well as knowledge of other factors related to disaster alert behavior.

2. Research methods

This research was conducted in January-June 2019. The population of this study was all students of class XI MIPA MA MA in the city of Bogor during the 2018/2019 academic year with a total sample of 357 respondents. The research design uses a sequential explanatory mixing method (quantitative-qualitative)**,** which is a combination of quantitative and qualitative research methods in order to obtain complete, valid, reliable, and objective research data (Meissner, Creswell, Klassen, Plano, & Smith, n.d.). The research variables consist of two independent variables, such as knowledge of disaster mitigation as the first independent variable (X_1)and the attitude of disaster preparedness as the second independent variable (X_2)while the behavior of disaster preparedness as a dependent variable (Y).

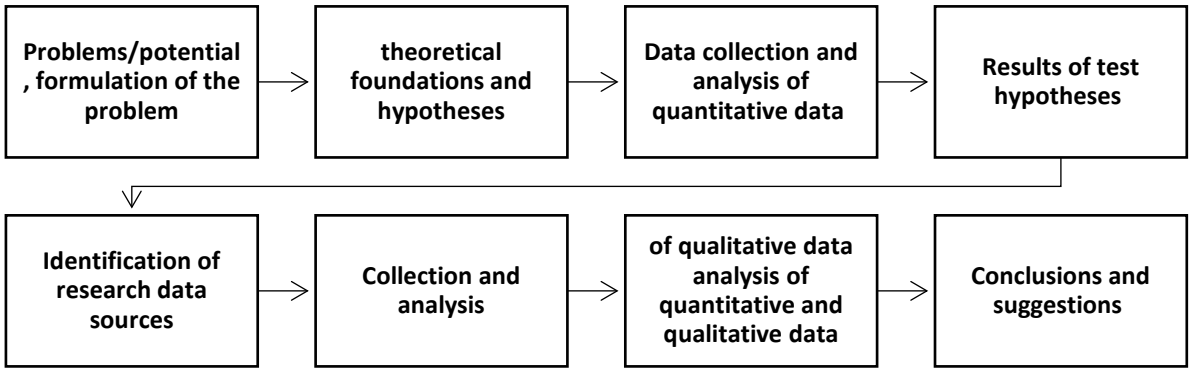

Figure 1. Research steps in the design sequential explanatory
Source : (John W. Creswell, Vicki L Plano Clark, 2007)

3. Results and Discussion

3.1 Analysis of the relationship between knowledge mitigation (X_1) to perform disaster (Y) a simple linear regression analysis of behavioral science disaster mitigation produces $\hat{Y}$= 72.02+ 1.30 X_1. Test the meaning and linearity of the equation The regression was performed using the F test.

The relationship was declared significant if the F_{value} calculated was higher than the du $F_{valuable}$, at significance level α = 0.05. At the same time, the regression equation was said to be linear if the F_{value} calculated was less than the du F value.table based on the test using analysis of variance (ANAVA), the results obtained in table 1.

Table 1. ANAVA for the significance and variables of the pure linear regression test Knowledge of disaster mitigation and disaster mitigation behavior with regression equations $\hat{Y}$ = 72.02 + 1.30 X1

Variant Resources	df	SS	ANS	F_{value}	F_{table}		Conclusion
					α= 0.01	α = 0.05	
Total (T)	207	1987047	9599.261				
Regression (R)	1	1942235	1942235				
Regression (b|a)	1	10423.90	10423.90	62.14**	6.76	3.89	Very significant
Remainder (R)	205	34388.31	167.75				
Tuna Match (TM)	22	5274.00	239.73	1.51^{ns}	1.93	1.60	Linear
Error (E)	183	29114.31	159.09				

** : Regression is very significant ($F_{value} > F_{table}$)

ns : non significant / regression is linear ($F_{hitung} < F_{table}$)
df : degree of freedom
SS : sum of squares
ANS : average number of squares

Based on the results of the significance test above, it was found that the F_{value} calculated was 62.14 while the Ftable with the numerator dof = 1 and the denominator dof = 205 at the significance level α = 0.01 is 6.76 and at significance level α = 0.05 is 3.89. Thus, the price $F_{value} > F_{table}$, this shows that the equation $\hat{Y} = 72.02 + 1.30\ X_1$ can be used as a reference to predict the mitigation behavior of disasters thanks to the knowledge of the mitigation of disasters. The regression linearity tests obtain the results $F_{value} = 1.51$, which is less than the $F_{table\ (0.05)\ (22.183)} = 1.70$. Thus, we can say that the regression equation $\hat{Y} = 72.02 + 1.30\ X_1$ is linear. The regression equation shows that each increase in a disaster mitigation knowledge score will result in a 1.30 increase in the disaster mitigation behavior score to a constant of 72.02, as in the following graph.

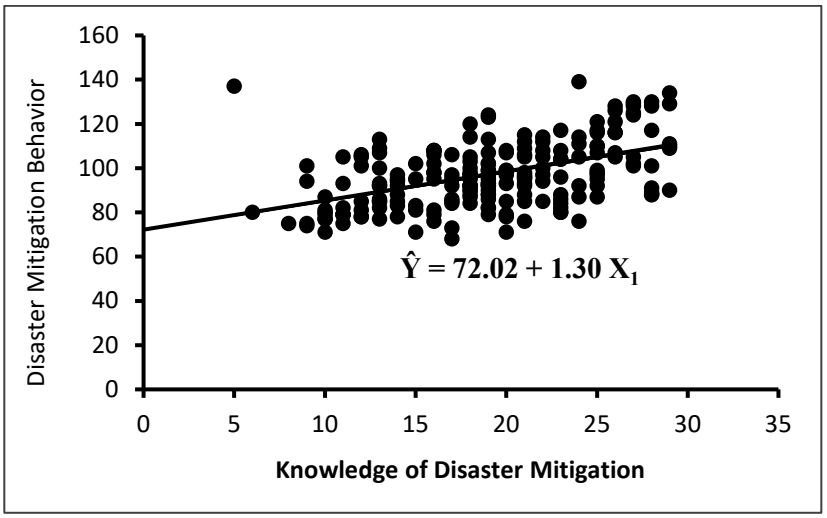

Figure 2. Regression graph between knowledge of disaster mitigation and disaster mitigation behavior

The strength of the relationship between the Knowledge Disaster Mitigation and Disaster Mitigation Behavior variable is illustrated by the correlation coefficient $r_{y.1} = 0.482$ with the coefficient of determination $r^2_{y.1} = 0.2326$. This means that knowledge of disaster mitigation contributes 23.26% to disaster mitigation behavior, while other factors influence 76.74% of disaster mitigation behavior. To test the significance of a positive relationship between disaster mitigation knowledge and disaster mitigation behavior, a test for the significance of the correlation coefficient, namely the t test. If $T_{value} > T_{table}$, then the correlation coefficient is declared significant.

Table 2. Results of the calculation of significance tests for the correlation between knowledge of disaster mitigation and disaster mitigation behavior

Correlation coefficient $r_{y.1}$	N	t_{value}	t_{table}		Conclusion
			α = 0,01	α = 0,05	
0.482	207	7.88	2.60	1.97	Very significant
Significance level test requirements: $t_{value} > t_{table}$					

This positive correlation indicates a positive relationship between knowledge about disaster mitigation and disaster preparedness behavior. This is consistent with Barreto, Mendonca, Rosa, & Rosa (2019), hate education can improve student readiness and reduce the risk of disaster. The positive correlation between the two variables with the interpretive value that is classified as low may be caused by knowledge about disaster mitigation related to disaster preparedness behavior. However, the response in the form of individual behavior may differ even if they have the same knowledge. This is consistent with the results of the study by Naja, Mohammad, Haghani, & Javadi (2019), which stated that knowledge of the intervention group increased significantly compared to the control group. Learning through virtual social networks shows an increase in knowledge, which leads to a positive attitude towards disaster preparedness. Factors influencing disaster warning behavior so that the correlation of disaster mitigation

knowledge with disaster warning behavior is not high can be identified by conducting qualitative research in the form of interviews.

The results of qualitative research show that several factors make the correlation between knowledge on disaster mitigation and disaster alert behavior relatively weak, namely internal and external factors. Internal factors include the knowledge of disaster mitigation that belongs to the students, as just possessed or known but has not been practiced in the form of disaster preparedness behavior, lack of concern or d 'attitude of students towards the environment and possible disasters and students have no desire to behave in the event of a disaster.

Knowledge is an element that influences behavior, but student desires also greatly influence disaster preparedness behavior. Because when the student wants to be alert to the disaster, it will motivate the students themselves to have an attitude of disaster alert. This is in line with research by Sakurai, Sato, & Murayama (2020), which indicates that students participating in disaster education programs feel the program positively so that they can become agents of change to create disaster-resistant communities.

Learning in schools on disaster mitigation is still very limited because, for the majors of MIPA, only a few obtain subjects of geography by cross-interest. In biology, learning is only studied within the framework necessary skills in analyzing data, causes, and their impact on environmental change. This positively affects disaster alerting behavior. This is consistent with research findings from Nurkartika, Murakami, & Chagan-yasutan (2017), which indicate that limited knowledge of health risks from disasters will lead to increased threats to health risks, especially diseases infectious, due to the limited supply, health services, and facilities. In the world of education, disaster education must be supported by learning. These facilities can take the form of political support to schools on the importance of implementing a disaster education program in the subjects. This is inseparable from the role of the school community as an actor in central increasing disaster preparedness. Thanks to the school community, knowledge and management of disasters can be dispensed from an early age. Also, in Indonesia, Nurkartika et al. (2017) state that disaster education can be integrated into community disaster risk reduction programs.

Another external factor is the social environment, which is also very influential because students rarely discuss disaster mitigation because it is not considered an exciting topic, so it will affect student behavior because it affects the attitudes of the benevolence of the students. Discussing disaster mitigation will increase students' knowledge and caring attitude towards disasters. To overcome these problems, it is necessary to find ways for students to address disaster mitigation issues. This is consistent with Lai & Tang (2018) research, which indicates that using social media and mobile devices can be a way for someone to have the desire to find ways to search, filter, interpret and share content related to disaster mitigation.

The final external factor, the natural environment factor or the level of vulnerability of the surrounding environment, also affects the correlation, as it is related to the student experience since students who have experience in 'a disaster will undoubtedly have more alert attitudes, and attitude is one of the factors that influence behavior, as discussed previously. This can be explained by the results of the research Ozkazanc & Duman (2015) which indicates that as Turkey is a region which often experiences various disasters due to geological, morphological and climatic factors, the community must be equipped with a series of disaster training programs to prepare for disasters and minimize risks. Due to a disaster.

3.2 Analysis of the relationship between preparedness (X_2) and disaster mitigation behavior (Y)

A simple linear regression analysis between disaster mitigation attitude and behavior mitigation behavior produces a linear equation $\hat{Y} = 35.58 + 0.59\ X_2$. The significance and linearity test of the regression equation is carried out using test F. based on the test using analysis of variance (ANAVA), the results obtained in table 3.

Table 3. ANAVA for the significance and simple linear regression test variables Preparedness attitude and disaster mitigation behavior with regression equations $\hat{Y} = 35.58 + 0.59\ X_2$

Variant Resources	df	SS	ANS	F_{value}	F_{table}		Conclusion
					α = 0.01	α = 0.05	
Total (T)	207	1987047	9599.261				
Regression (R)	1	1942235	1942235				
Regression (b|a)	1	7948.24	7948.24	44.20**	6.76	3.84	Very significant
Remainder (R)	205	36864.0	179.82				
Tuna Match (TM)	42	9533.1	226.98	1.35^{ns}	1.70	1.46	Linear
Error (E)	135	27330.83	96.41				

** : Regression is very significant ($F_{value} > F_{table}$)
ns : non significant / regression is linear ($F_{hitung} < F_{table}$)
df : degree of freedom
SS : sum of squares
ANS : average number of squares

The significance test found that the value Fcalculated was 44.20 while the Ftable with the numerator df = 1 and the denominator df = 205 at the level of importance α = 0.01 is 6.76 and at the level of significance α = 0.05 is 3.84. Thus, the price $F_{value} > F_{table}$, this shows that $\hat{Y} = 35.58 + 0.59\ X^2$ can be used as a reference to predict the mitigation behavior of disasters through attitudes of preparation.

The regression linearity tests obtain the results $F_{value} = 1.35$, which is smaller than the Farray (0.05) (42.135) = 1.46. Thus, we can say that the regression equation $\hat{Y} = 35.58 + 0.59\ X^2$ is linear. The regression equation shows that each increase in a readiness attitude score will lead to a 0.59 increase in the disaster mitigation behavior score to a constant of 35.58, as in the following graph.

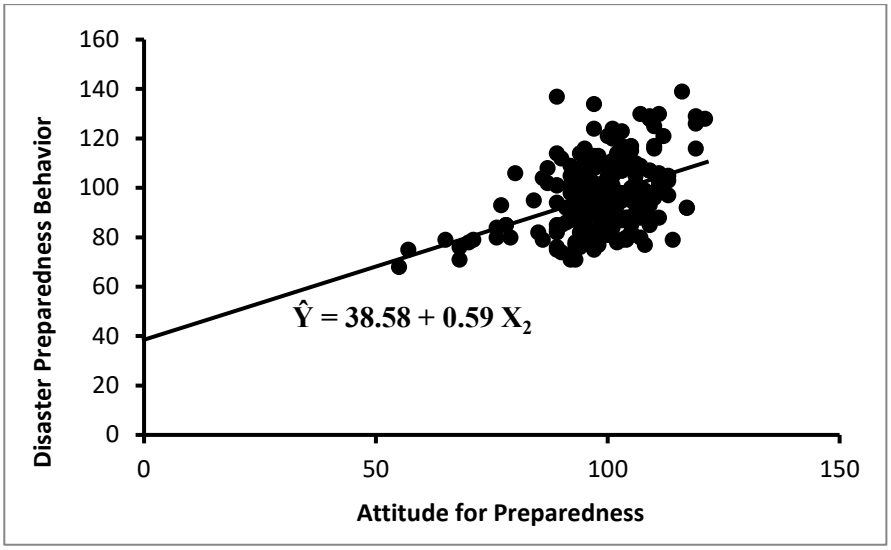

Figure 3. Regression graph between attitude preparation and disaster mitigation behavior

The strength of the relationship between the Attitude Preparedness variable and Disaster Mitigation Behavior is illustrated by the correlation coefficient $r_{y.2} = 0.421$ with determination $r^2_{y.2} = 0.1774$. This means that attitude preparation contributed 17.74% to disaster mitigation behavior, while other factors influenced 82.26% of disaster mitigation behavior.

Based on the results of the calculations obtained, $T_{Value} = 6.648$, while the table = 1.97 at the level α = 0.05. Because $t_{value} < t_{table}$, the correlation coefficient between attitude preparation and disaster mitigation behavior is very important. Thus, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted. Results of the Significance Correlation Test The results of disaster preparedness and mitigation can be found in Table 4. below.

Table 4. Results of calculating significance correlation test variables Preparing for disaster mitigation attitude and behavior

Correlation coefficient $r_{y.2}$	N	T_{Value}	t_{table}		Conclusion
			α = 0,01	α = 0,05	
0.421	207	6.648	2.60	1.97	Very significant
Significance level test requirements: $t_{value} > t_{table}$					

There is a positive correlation between preparedness and disaster preparedness behavior, which means that preparing a person for disasters can lead to disaster preparedness. The strength of the relationship of 0.421 indicates that the relationship between the two variables is relatively weak. Based on the results of qualitative research, several factors make the strength of the relationship relatively weak, because first of all many students already have

a right attitude of disaster preparedness, but due to environmental factors that are not supportive, like many people who throw garbage in the river, build houses on the banks of the river and more, resulting in the emergence of behavior that does not care about the threat of disaster. This is consistent with the results of research by Ozkazanc & Duman (2015), which indicate that many disasters caused by human factors, such as the mining accidents in Kozlu, Soma, and Ermenek in Turkey, are caused by the lack of concern of the community facing the threat of disaster. For this reason, a series of training programs are needed for teachers and students to foster disaster-alert behavior. Another factor is the lack of information available to students regarding the problem of disaster mitigation. This is also in line with research by Lai & Tang (2018), which states that disseminating disaster information via social media can be an excellent way to foster disaster preparedness behavior among students. Also, according to Sakurai et al. (2020), inviting students to walk in areas damaged by disasters can also foster profound experiences of disasters among students, which can, in turn, shape disaster mitigation behavior.

3.3 Analysis of the relationship between knowledge of disaster mitigation (X_1) and preparation for attitudes (X_2) with disaster mitigation behavior (Y)

A multiple linear regression analysis between knowledge of disaster mitigation and the attitude of preparation together for disaster mitigation behavior produces the equation $\hat{Y} = 39.46 + 1.01\ X_1 + 0.39\ X_2$ The significance of the attitude of preparation of the regression equation is carried out using the F test. Based on the test using the analysis of variance (ANAVA), the results obtained in Table 5.

Table 5. ANAVA for testing the importance of knowledge of multiple regression on disaster mitigation and preparedness attitude as well as disaster mitigation behavior through the regression equations $\hat{Y} = 39.46 + 1.01\ X_1 + 0.39\ X_2$

Variant Resources	df	SS	ANS	F_{Value}	F_{table}		Conclusion
					α = 0,01	α = 0,05	
Total	207	44812.21					
Regression	2	13301.74	6650.87	43.06**	6.76	3.84	Very significant
Remainder	205	31510.47	154.46				

Based on the significance test above, it was found that theF value calculated of 43.06 while the Ftable with the numerator df = 2 and the denominator df = 205 at the significance level α = 0.01 was of 6.76 and the level of significance α = 0.05 was 3.89. Thus, the price $F_{Value} > F_{table}$, this shows that $\hat{Y} = 39.46 + 1.01\ X_1 + 0.39\ X_2$ can be used as a reference to predict the mitigation behavior of disasters thanks to mitigation knowledge disasters and preparedness attitudes.

The strength of the relationship between the knowledge variables Disaster mitigation and Preparedness attitude with the Disaster mitigation behavior variables illustrated by the correlation coefficient effects $r_{y.12} = 0.545$ with the coefficient of determination $r^2_{y.12} = 0.297$. This means that knowledge of disaster mitigation and preparedness together contributed 29.7% to disaster mitigation behavior, while 70.3% of disaster mitigation behavior was influenced by d 'other factors. To test the importance of a positive relationship between knowledge of disaster mitigation and preparedness attitude and disaster mitigation behavior, it is necessary to test the importance of several correlation coefficients, namely, test F. If $F_{Value} > F_{table}$, the multiple correlation coefficient is declared significant.

Based on the results of the calculations obtained, $F_{Value} = 43.06$, while the $F_{table(0.05)\ (2.205)} = 3.84$. Because $F_{Value} > F_{table}$, the correlation coefficient between knowledge in disaster mitigation and preparedness for attitudes with disaster mitigation behavior is very important. Thus, we can conclude that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Table 6. Results of the calculation of significance tests for the correlation of knowledge on disaster mitigation and preparedness attitude as well as disaster mitigation behavior.

Correlation coefficient $r_{y.12}$	df counters	dof denoinator	F_{Value}	F_{table}		Conclusion
				α = 0.01	α = 0.05	
0545	2	205	43.06	6.76	3.84	Very significant
Significance level test requirements: $F_{value} > F_{table}$						

There is a positive correlation between knowledge about disaster mitigation and attitude towards preparedness as well as disaster alert behavior. This shows that doubts about mitigating disasters and preparing a person for disasters can lead to disaster preparedness behavior. The strength of the relationship ($r_{y.12}$) is 0.545, which means it is quite strong. This is in line with research findings from Lin & Chang (2019), which states that local knowledge can be used to reduce disaster risk. For this reason, there is a need to set up a training program for the community on disaster mitigation in order to improve disaster alert behavior. Also, Nurkartika et al. (2017) highlight the need for education for the community, including schools created in the form of modules, short courses, training, or promotion in the print and visual media to reduce the threat of risk to health due to disasters. Hoffmann & Muttarak (2017) indicate that education can improve thinking and problem-solving skills in disaster risk reduction efforts.

4. Conclusion

From the above research, we can conclude: 1). There is a positive relationship between knowledge about disaster mitigation and disaster preparedness, the value of the correlation coefficient (r_{y1}) = 0.482, and the coefficient of determination (r^2) = 23.6%. 2) There is a positive relationship between the attitude of disaster preparedness and the behavior of disaster preparedness. Correlation coefficient (r_{y2}) = 0.421 and determination coefficient (r^2) = 17.749%. 3) There is a positive relationship between knowledge about disaster mitigation and attitude towards disaster preparedness as well as disaster preparedness behavior. The value of the correlation coefficient ($r_{y.12}$) = 0.548 and the coefficient of determination (r^2) = 29.7%.

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