



## PROVIDING LANDSLIDE DISASTER MITIGATION EDUCATION TOWARDS IMPROVING KNOWLEDGE AND ATTITUDES OF CITIZENS IN DISASTER RESPONSE SITUATIONS

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ABSTRACT	Keywords
Landslides are the movement of soil or rock masses from slopes, generally triggered by heavy rain, earthquakes, or human activity. This condition indicates the importance of serious attention to disaster risk reduction efforts to minimize impacts and increase community resilience. Lack of information from residents regarding disaster mitigation and disaster response attitudes that have not been fostered. Providing education to improve residents' knowledge and disaster response attitudes. This study aims to analyze the effect of Landslide Disaster Mitigation Education on the Level of Knowledge and Attitudes of Residents in Disaster Response Situations. The method used is quantitative with a quasi-experimental design. Using total sampling, with a population of Jenawi villagers with a sample of 55 respondents. Data analysis used the Wilcoxon Test. The results of the Wilcoxon Test showed a p-value of 0.001 or a p-value of < 0.05. This indicates that there is an effect of Landslide Disaster Mitigation Education on the Level of Knowledge and Attitudes of Residents in Disaster Response Situations. It can be concluded that providing education through the lecture method can increase knowledge about disaster mitigation and disaster response attitudes.	<b>Education, Knowledge, Attitude</b>

### INTRODUCTION

A disaster is an event that causes major disruption to the lives of people or the environment, which occurs over a clear and identifiable period of time, and results in significant human, material, economic, or environmental losses (Bricker & Pelupessy, 2025).

Landslides are the movement of masses of soil or rock down slopes, typically triggered by heavy rainfall, earthquakes, or human activity. These disasters can cause extensive damage and loss of life. This situation highlights the importance of serious attention to disaster risk reduction efforts to minimize impacts and increase

community resilience (Sassa & Alcántara-Ayala, 2023).

Based on the Indonesian Disaster Risk Index (2020), Karanganyar Regency is one of the areas vulnerable to landslides, with a landslide risk index of 24.00, which is categorized as high. Landslides have been the most frequent natural disaster in Indonesia in recent years. These incidents are spread across various regions, with a trend that continues to increase annually (BRIN, 2024). One of the areas significantly affected is Karanganyar Regency, indicating a high vulnerability to this disaster. The main factors causing landslides include high rainfall, mountainous terrain, and uncontrolled land conversion (Priyono, 2020).

Public knowledge regarding landslide disaster mitigation is still very limited. This is due to a lack of awareness among people living in disaster-prone areas, especially mountain slopes. This lack of public knowledge regarding landslide disaster preparedness is one of the factors causing the high number of casualties and losses, both in the form of material damage and infrastructure. To prevent casualties and various types of damage caused by landslides, efforts are needed to minimize the risk of landslides, according to Qurrotaini (2021). Therefore, mitigation is very important because it itself is an effort to prevent or reduce the impact of landslides. If the public is not well-informed about disaster mitigation, it can result in losses, both in the form of casualties and damage to buildings.

Mitigation, as an effort to reduce disaster risk, also refers to efforts to improve the community's ability to obtain information about landslides in disaster-prone areas to eliminate or reduce the consequences of disaster risk (Wardhani. P., et al. 2024). Information is the most important and key factor in disaster mitigation. The information you have can

influence attitudes and awareness about disaster preparedness. Information improves the ability of residents to prepare for future natural disasters (Margottini, 2021).

An in-person survey was conducted on July 14, 2025, in Jenawi Village. Education helps the community understand risks, recognize danger signs, and learn proper evacuation steps. Empowerment encourages community participation in preserving the environment and building an independent preparedness system. The purpose of this study is to determine the effect of providing landslide disaster mitigation education on increasing public knowledge and attitudes in disaster response situations.

## **METHOD**

This research is a type of Pre-Experimental research with a quantitative approach of one group pretest-posttest, the subject group was given treatment without a control group. The study was conducted in July-December 2025. The population in this study were residents of Jenawi village. Using a total sampling technique. With the inclusion criteria of all residents of Jenawi village. The sample consisted of 55 respondents. The instrument in this study used a questionnaire on the level of knowledge of disaster mitigation consisting of 13 items of validity test statements was  $r$  count  $0.3550 > 0.30$  and the results of the reliability test were  $0.752 > 0.60$  and the attitude of preparedness consisted of 10 items of validity test statements was  $r$  count  $0.3440 > 0.30$  and the results of the reliability test were  $0.747 > 0.60$ .

## **RESULTS**

### **Univariate Analysis**

The characteristics of respondents in this study include age and gender which can be seen in the following table.

**Table 1 Respondent Characteristics**

No.	Respondent	N	(%)
1	<b>Age</b>		
	> 50 years	36	65,5
	≤ 50 years	19	34,5
2	<b>Gender</b>		
	Male	26	47,3
	Female	29	52,7
<b>Total</b>		<b>55</b>	<b>100</b>

Based on table 1, the majority of respondents were aged > 50 years, as many as 36 people (65.5%). And the majority of respondents were female, as many as 29 people (52.7%).

**Table 2 Frequency Distribution Based on Pre-Test and Post-Test Knowledge Level of Landslide Disaster Mitigation**

No	Level of knowledge	Frequency	(%)
<b>Pretest</b>			
1	Poor	9	16,4
2	Enough	21	38,2
3	No Enough	25	45,4
<b>Posttest</b>			
1	Good	27	49,1
2	Enough	15	27,3
3	No Enough	13	23,6
<b>Total</b>		<b>55</b>	<b>100</b>

At the level of knowledge of pretest respondents, the majority were in the poor category, namely 25 (45.5%), while the level of knowledge of posttest respondents was mostly in the good category, namely 27 (49.1%).

**Table 3 Frequency Distribution of Disaster Response Attitudes Pre and Posttest**

No	attitude	Frequency	(%)
<b>Pretest</b>			
1	Good	5	9,1
2	Enough	17	30,9
3	No Enough	33	60,0

<b>Posttest</b>			
1	Good	21	38,2
2	Enough	23	41,8
3	No Enough	11	20,0
<b>Total</b>		<b>55</b>	<b>100</b>

Based on Table 3, Frequency Distribution Based on Pretest Disaster Response Attitude, the majority of respondents were in the less than ideal category (33%, 60%). Meanwhile, based on Posttest Disaster Response Attitude, the majority were in the sufficient category (23%, 41.8%).

### Bivariate Analysis

**Table 4. Uji Wilcoxon Sign Rank Test**

		N	Median Rank	Sum of Ranks	Z	p
<b>Pre Test knowledge - Post Test knowledge</b>	Negative Ranks	5 <sup>a</sup>	3.00	5.00		
	Positive Ranks	41 <sup>b</sup>	11.53	226.40	-3.17	.01
	Ties	9 <sup>c</sup>				
<b>Total</b>		55				
<b>Pre test Attitude - Post Test Attitude</b>	Negative Ranks	3 <sup>d</sup>	2.50	3.00		
	Positive Ranks	43 <sup>e</sup>	13.73	284.60	3.38	.00
	Ties	7 <sup>f</sup>				
<b>Total</b>		55				

Based on the results of this study based on the Wilcoxon Signed Rank Test, the knowledge data before and after education was obtained at -3.170 with an Asymp. Sig (p) value = 0.001, because the p value = 0.001 < 0.05 which means H0 is rejected and Ha is accepted, thus it can be concluded that there is an influence of disaster mitigation

education on disaster mitigation knowledge in Jenawi Village.

The results of this study based on the Wilcoxon Signed Rank Test obtained attitudes before education and after education of -3.387 with an Asymp. Sig (p) value = 0.000. Because the p value = 0.000 < 0.05 means H<sub>0</sub> is rejected and H<sub>a</sub> is accepted, thus it can be concluded that there is an influence of disaster mitigation education on disaster response attitudes in Jenawi Village.

## DISCUSSION

Based on the research results, the characteristics of respondents based on age are mostly aged > 50 as many as 36 people (65.5%). The level of maturity and strength of a person will be more mature in thinking and working. The age of the respondents is included in the early late adulthood age so that at that age the cognitive function is still good so that the ability to answer questions well is also good until the questions are answered correctly (Berutu, H., & Manik, H. E. Y. 2023). Increasing age will be directly proportional to the increase in knowledge or knowledge because of the increase in the mindset and comprehension of the individual (Arinata, F. S. et.al. 2024).

Research results: Respondent characteristics based on gender were predominantly female, with 29 (52.7%). Women often have better knowledge of hygiene, health, and reproduction, often driven by active participation in information seeking and direct experience. Several studies have found that women tend to have better knowledge of health, dental hygiene, and environmental preservation. This is often associated with women's habits of exchanging information and reading books more frequently than men, who may spend more time on activities such as gaming (Paul J. B. N. et al. 2021).

The research results showed that before the education (pretest), at most 25 people (45.4%) had insufficient knowledge. The pretest results showed that before the education, respondents' knowledge was still in the insufficient category. The 25 respondents had insufficient knowledge because many residents had not received information about disaster mitigation materials, and many residents had not been exposed to disaster mitigation information.

According to Rizki et al. (2022), low levels of disaster preparedness knowledge significantly impact community preparedness in facing landslides, so that community ignorance of the causes of disasters and correct safety procedures can hinder their ability to adapt and reduce the impact of disasters. Furthermore, research by Firmansyah, D., & Saepuloh, D. (2022) also explains that inadequate or incorrect knowledge can result from a lack of information received or a low level of direct social learning within the community. The community's inability to access accurate and relevant information regarding the causes and ways to avoid landslides risks worsening preparedness and increasing their vulnerability to such disasters (Summers, A. 2024).

The results of the study obtained data after education (posttest) at most 27 people (49.1%) with good knowledge. Knowledge is the result of knowing that occurs after someone senses an object through the five human senses. Factors that influence knowledge are information is data obtained from an event and then converted into a form that can be useful and has meaning for the recipient of the information where the main function of information itself is to increase knowledge. Experience can expand a person's knowledge, which can increase a person's knowledge both positive and negative experiences (Rahmadani, S., & Syarif, E. (2020).

The results of this attitude analysis show that the data before education (pretest) showed that the most attitudes were lacking, with 33 people (60%) having a lacking attitude before being given landslide disaster mitigation education.

The results of the posttest analysis obtained the most data of 23 people (41.8%) after education with a sufficient attitude category. Attitude is a reaction or response of a person who is still closed to a stimulus or object. The manifestation of an attitude cannot be directly seen, but only interpreted first from closed behavior. In everyday life, the definition of attitude is an emotional reaction to social stimuli. From this definition, it can be underlined that as long as the behavior is still closed, it is called an attitude, while when it is open, that is the actual behavior that a person shows. Therefore, attitudes can be described through the choice of positive or negative attitudes. Negative attitudes can be identified with dislike or no desire, while positive attitudes are manifested by feelings of like or there is a desire.

The community must continue to work together and work together to improve their preparedness for flood disasters, such as cleaning gutters, not littering, storing important documents in a safe place from floods, and so on. This is in line with research from Berutu, H., & Manik, H. E. Y. (2023) that all mutual cooperation activities are carried out from, by, and for the community or community itself. Mutual cooperation is a positive energy among disaster victims, including vulnerable groups. The power to help each other in unfavorable circumstances is transmitted through mutual cooperation to recover together from the problem of natural disasters.

The results of this study based on the Wilcoxon Signed Rank Test obtained knowledge data before education and after education of -3.170 with an Asymp. Sig (p)

value = 0.001, because the p value = 0.001 < 0.05, thus it can be concluded that there is an influence of disaster mitigation education on disaster mitigation knowledge in Jenawi Village.

Another factor influencing knowledge levels is disaster experience, which can increase awareness and help prevent greater impacts from a disaster. The majority of respondents in this study had experience with disasters such as earthquakes, and some had experience with floods and fires (Rahmadani, S., & Syarif, E. (2020).

Based on research by Setyawati et al. (2020), low education levels are a significant factor influencing poor understanding of educational materials, particularly in the context of technical information such as disaster preparedness. Furthermore, research by Berutu, H., & Manik, H. E. Y. (2023) explains that age also has a significant relationship with knowledge level. Although maturity can improve the quality of thinking, in old age this is often limited by declining memory capacity, making it difficult for individuals to recall material that has been presented.

Increasing community preparedness knowledge can be based on public awareness, which requires stimulus through education. If the community receives positive stimulus, their attention, understanding, and acceptance will improve, leading to a response or change in preparedness, leading to actions that align with expectations, namely, increased community preparedness for disasters (Rahma & Yulianti, 2020).

The results of this study based on the Wilcoxon Signed Rank Test obtained attitudes before and after education of -3.387 with an Asymp. Sig (p) value = 0.000. Because the p value = 0.000 < 0.05, it can be concluded that there is an influence of

disaster mitigation education on disaster response attitudes in Jenawi Village.

It can be said that educational activities in the community using leaflet media have greatly influenced the community's attitude towards disasters, including the community in Jenawi. This activity is very useful and increases the knowledge of residents that has not been obtained so far.

This can lead to an improvement in attitudes between before and after education. The results of this study indicate that landslide mitigation education has an effect on residents' knowledge and disaster response attitudes. Therefore, it is hoped that community leaders and residents in Jenawi Village will be able to collaborate with health workers, community health centers, hospitals, or other authorities regarding disaster response to assist residents in improving their knowledge and attitudes. It is hoped that education will again improve knowledge and attitudes regarding disaster mitigation and disaster response.

## CONCLUSIONS

Lack of information from residents regarding disaster mitigation and disaster response attitudes that have not been fostered. Providing education to improve residents' knowledge and disaster response attitudes. The results show a p-value of 0.001 or a p-value of  $< 0.05$ . This indicates that there is an influence of Landslide Disaster Mitigation education on the Level of Knowledge and Attitudes of Residents in Disaster Response Situations. That providing education through the lecture method can increase knowledge about disaster mitigation and disaster response attitudes.

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