

Impact of the “Mengabu (Facing Ash Storms) Disaster Preparedness” Program on Adolescents’ Knowledge About Disaster Preparedness in Kresik Tuo Village, Kayu Aro District, Kerinci Regency, Jambi

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Abstract. Natural disasters have become an integral part of people's lives in Indonesia, disrupting daily activities and causing significant impacts. Indonesia, located in the Ring of Fire, faces a high risk of volcanic eruptions, including the active Mount Kerinci which has the potential to cause disasters such as volcanic ashfall. Kresik Tuo Village, located near Mount Kerinci, faces a direct threat from this eruption. The community, especially the youth, need to improve their preparedness and knowledge to deal with potential disasters. The "MENGABU Siaga dalam Bencana" program is designed to improve the preparedness of the Kresik Tuo Village community in dealing with potential volcanic ashfall, with the hope of contributing to the development of community preparedness strategies in disaster-prone areas. To improve the knowledge of youth in Kresik Tuo Village related to disasters and disaster preparedness. The study used the Pre-Experimental research method with a Prepost Test Design. Sampling used a non-probability sampling technique with convenience sampling according to the inclusion and exclusion criteria of 40 respondents. Wilcoxon test shows that there is a significant increase in the knowledge of youth preparedness for the eruption of Mount Merapi after being given the "Mengabu Siaga dalam Bencana" program. All respondents experienced an increase in knowledge, as indicated by a positive ranks value of 40 and a p value = 0.000. Conclusion: The results of the study indicate that there is a significant effect of the "Mengabu (Mengabu Storm Ash) Siaga Dalam Bencana" Program on Youth Preparedness Knowledge for Disasters in Kresik Tuo Village, Kayu Aro District, Kerinci Regency, Jambi in increasing youth knowledge.

Keywords: Disaster; Preparedness; Knowledge

1. INTRODUCTION

Disasters have become an integral part of human life because they have disrupted human activities. A disaster is an event or series of events that threaten and disrupt people's lives and livelihoods caused by both natural and/or non-natural factors (Subandi et al. 2019).

Indonesia is one of the countries that has a high risk of volcanic eruptions. This is because Indonesia's geographical location is located in the Ring of Fire (Wahyuningtyas et al., 2020). This phenomenon will have an impact on the areas passed through so that the intensity of volcanic eruptions will increase. According to the National Disaster Management Agency (BNPB), during 2018, 1,999 disasters were recorded in Indonesia. The impact of the disaster was reported to be very large. It was recorded that 3,548 people died and 13,112 people were missing, 3.06 million people were displaced and affected by the disaster, 339,969 houses were severely damaged, 7,810 houses were moderately damaged, 20,608 houses were slightly damaged, and thousands of public facilities were damaged. It is estimated that the frequency of natural disasters such as volcanic eruptions in Indonesia will tend to increase in the future (Badan Nasional Penanggulangan Bencana (BNPB), 2018).

Mount Kerinci is the highest mountain in Sumatra, the highest volcano in Indonesia, and the highest peak in Indonesia outside Papua. Mount Kerinci is located right on the border between West Sumatra Province and Jambi Province, in the Bukit Barisan Mountains, near the west coast, and is located about 130 km and south of Padang, West Sumatra Province. Mount Kerinci has experienced several eruptions and is still active today, when it erupts it can cause lava floods that occur during heavy rain (BAPEDDA LITBANG KABUPATEN KERINCI, 2022). History records that Mount Kerinci erupted from 1838 to the end of 2022 causing disruption to community activities, such as school activities, work, and others and also disrupted flight activities.

Kresik Tuo Village is one of the villages in Kayu Aro District, Kerinci Regency, Jambi, Indonesia. This village is the closest village to Mount Kerinci (Wulandari DP, 2019). If mapped, Kayu Aro District is within a radius of + 3 km from Mount Kerinci. Kresik Tuo Village is a Disaster-Prone Area (KRB) of Mount Merapi which has the potential to be affected by the eruption of Mount Merapi which is estimated to still occur. The community in this area, especially the youth, needs to have adequate knowledge and preparedness in dealing with potential disasters, especially related to volcanic ash rain. Community preparedness in dealing with disasters is a crucial factor in reducing the risk and negative impacts of disasters (BAPEDDA LITBANG KABUPATEN KERINCI, 2022).

Indonesia, with its large number of volcanoes and dense population living on mountain slopes, requires efforts to increase community capacity in dealing with future eruptions. Volcanoes are monitored continuously, but the risks posed by volcanic hazards are very dynamic. This is influenced by the development of residential areas and facilities around active volcanoes that tend to grow near sources of danger (Andreastuti et al., 2023).

The level of community preparedness in disaster-prone areas in Indonesia is still relatively low. This is due to various factors, including a lack of knowledge and understanding of disaster risks and the actions that need to be taken when a disaster occurs. Preparedness is an effort to determine an efficient and fast method in dealing with emergency situations (Sasidharan & Dhillon, 2022). Disaster preparedness is the main step to reduce disaster risk. This means that without human awareness of the dangers of disasters, the risk of both physical and material losses is great. Sensitivity and concern are a must for humans regarding the possibility of disasters that can occur in their environment (Wahyuningtyas et al., 2020).

Youth have a crucial role in disaster management. The creativity, enthusiasm, and courage possessed by youth are valuable assets in dealing with emergency situations caused by natural disasters. One of the main roles of youth is as agents of change in disseminating

information and knowledge about disaster response to the wider community, especially other young generations. With their skills in using technology and social media, youth can become resource persons, messengers, and pioneers of awareness of the importance of preparation and preparedness in dealing with disasters. Youth can play a role as first volunteers to provide assistance to victims and assist in the evacuation process. Therefore, the "MENGABU (Facing Ash Storms) Prepared in Disasters" Program is more targeted at youth who are believed to be capable of being agents of change. (Jang & Kim, 2023). The "MENGABU (Facing Ash Storms) Prepared in Disasters" Program was designed as an effort to increase the knowledge and preparedness of the Kresik Tuo Village community in dealing with the potential for volcanic ash rain from Mount Kerinci. This program covers various aspects, including understanding the risks of volcanic ashfall, self-protection measures and family, and mitigation measures for the impact on the environment and livelihoods.

Disaster preparedness education and training programs have proven effective in increasing community knowledge and preparedness in various countries. In Indonesia, several similar programs have been implemented with positive results, especially those involving the active participation of youth. However, it emphasizes the importance of developing more specific programs that are tailored to the local context to increase their effectiveness (Wahyuningtyas et al., 2020).

The "MENGABU (Facing Ash Storms) Prepared in Disasters" program aims to evaluate the effect of this program on the level of community preparedness knowledge in Kresik Tuo Village. The results of this study are expected to contribute to the development of strategies to improve community preparedness in disaster-prone areas, especially those related to volcanic ashfall. In addition, this study is also expected to be a reference for the development of similar programs in other areas that have similar disaster risks.

2. MATERIALS AND METHODS

The study used the "Pre-Experimental" research method with the Prepost Test Design design starting with the Pre-test and after the treatment was given, a Re-measurement was carried out, namely the Post-test. This study was conducted in Kresik Tuo Village, Kayu Aro District, Kerinci Regency, Jambi. Sampling used a non-probability sampling technique with convenience sampling according to the inclusion and exclusion criteria of 40 respondents. Calculating the sample using the Slovin formula.

The inclusion criteria were young people aged 15-24 years. While the exclusion criteria were young people who were not willing to be respondents and who withdrew during the study.

The data collection technique in this study used a test. The knowledge instrument related to this preparedness used a questionnaire from Ferawaty Sulistyanningrum's thesis (Sulistyanningrum, 2017) entitled The Effect of Using Animated Video Media "Volcano Disaster Preparedness" on Student Preparedness in the form of a test that had been validated constructively by expert judgment. Research Results Using the Wilcoxon test.

Researchers provide interventions in the form of socialization using the Interactive Workshop method, participants will be given a comprehensive insight into the dangers of volcanic eruptions. Experts will present interesting and informative materials, describing the risks and potential impacts in an easy-to-understand manner. Participants will also be invited to explore the early signs of an eruption through interactive discussions and thought-provoking case studies, helping them to be better prepared to recognize and respond to early warning signals.

In addition, this workshop will outline effective evacuation steps, equipped with visual guides and in-depth narratives to ensure that all participants understand the evacuation process well. Participants will learn the use of safety equipment through clear visual demonstrations, providing a concrete picture of how to protect themselves in an emergency situation. Material on first aid will also be presented with explanations from experts, who will share experiences and practical tips for dealing with emergency conditions due to volcanic eruptions. Through this interactive approach, participants not only get information, but are also motivated to apply it in real life.

3. RESULT

Tabel.1 Respondent Characteristics Overview

An overview of the characteristics of the respondents can be seen in table 1:

Respondent Characteristics	Frequency (f)	Presentation (%)	Average
Gender			
Man	25	62,5	
Woman	15	37,5	
Total	40	100	
Age			20
15-17	8	20	
18-20	12	30	
21-24	20	50	
Total	40	100	
Level of education			
Doesn't work	5	1,25	
Government employees	5	1,25	
	2	5	

Indonesian National Armed Forces/Indonesian National Police	20 8	50 20
Laborer Etc		
Total	40	100

The majority of respondents in this study were male (62.5%) with an average age of 20 years. The education level of the majority of respondents was high school/equivalent (50%), followed by college (25%) and junior high school/equivalent (25%). Most respondents worked as laborers (50%).

Overview of Youth Disaster Preparedness Knowledge Before and After Being Given the “Mengabu Program”

Tabel.2

An overview of Youth Disaster Preparedness Knowledge can be seen in Table 2:

Level of knowledge	Before intervention		After intervention	
	Frequency (f)	Presentation (%)	Frequency (f)	Presentation (%)
Very good	5	1,25	30	75
good	15	37,5	5	12,5
Pretty good	15	37,5	5	12,5
poorly	3	7,5	0	0
Not good	2	5	0	0

This comparison shows that the “Mengabu Siaga dalam Bencana” program has succeeded in significantly increasing the level of youth preparedness knowledge, shifting most respondents from the “Quite Good” and “Good” categories to the “Very Good” category.

The Influence of the "Mengabu (Facing Ash Storms) Disaster Preparedness" Program on Youth's Disaster Preparedness Knowledge in Kresik Tuo Village, Kayu Aro District, Kerinci Regency, Jambi

Tabel.3

The Influence of the "Mengabu (Facing Ash Storms) Siaga Dalam Bencana" Program on Youth's Knowledge of Disaster Preparedness Table 3:

Group	N	Median (min-max)	Average \pm s.b	Positive Ranks	P
<i>Pre-Intervensi</i>	40	65 (55-80)	66.98 ± 7.4	40	0,000
<i>Post-Intervensi</i>	40	95 (80-100)	93.75 ± 5.2		

The Wilcoxon test showed that there was a significant increase in the knowledge of youth preparedness for the Mount Merapi eruption disaster after being given the "Mengabu Siaga dalam Bencana" program. All respondents experienced an increase in knowledge, as indicated by a positive ranks value of 40 and a p value = 0.000.

4. DISCUSSION

Respondent Characteristics Overview

This study involved 40 respondents from Kresik Tuo Village, Kayu Aro District, Kerinci Regency, Jambi, with the majority of respondents being male (62.5%) and female (37.5%). This is in line with previous research conducted by Ahmad, Ahsan and Fathoni (Ahmad, 2018) quoted by Fitriana (Fitriana, 2022) which found that there were 107 male respondents (94.7%) and only 6 female respondents (5.3%). Regarding the relationship between gender and attitudes in disaster preparedness, it shows that men have better preparedness behavior due to their awareness of responsibility, self-confidence and ability to handle disasters, men also need less assistance in disaster management.

The average age of respondents was 20 years, with an age range between 15 and 24 years. The education level of respondents varied, with the majority of respondents having a high school education (50%), followed by junior high school education (25%) and college (25%). The occupation of most respondents was laborer (50%), followed by other categories (20%), civil servant (12.5%), unemployed (12.5%), and TNI/POLRI (5%).

Overview of Youth Disaster Preparedness Knowledge before and after being given the "Mengabu Siaga dalam Bencana" program

Before being given the "Mengabu Siaga dalam Bencana" program, the level of youth preparedness knowledge for the Mount Merapi eruption disaster showed quite significant variations. Based on the results of data collection, as many as 12.5% of respondents had a very good level of knowledge, indicating a deep and comprehensive understanding of preparedness steps. As many as 37.5% of respondents were in the good category, indicating fairly strong knowledge but may require improvement in some specific areas. Respondents in the fairly good category also numbered 37.5%, indicating that even though they had a basic understanding, they still needed additional information and understanding to achieve optimal preparedness. As many as 7.5% of respondents were in the less than good category, indicating that their knowledge was still inadequate and required significant additional education. Finally, 5% of respondents were in the not good category, meaning that their knowledge of preparedness was very low and almost inadequate to deal with a disaster.

The median level of knowledge before the intervention was 65, with a range of values between 55 and 80, indicating that most respondents were at an intermediate level of knowledge. The overall mean knowledge of 66.98 ± 7.4 indicates that there is quite a large variation in knowledge between respondents, with some having a good understanding and others still needing significant improvement. The standard deviation of 7.4 indicates that knowledge between respondents varies quite significantly, emphasizing the need for intervention programs that can equalize and improve preparedness knowledge evenly among youth.

Knowledge is a major factor and is the key to preparedness. The knowledge that individuals and households must have about natural events and disasters includes the type, source, magnitude, and location of the disaster. In addition, the physical vulnerability of residential buildings including their shape and foundations must also be understood. The knowledge possessed can usually influence the attitude and concern of the community to be ready and alert in anticipating disasters, especially for those who live in disaster-prone areas (Tyas & Pujianto, 2020).

The Effect of the "Mengabu (Facing Ash Storms) Siaga Dalam Bencana" Program on Youth Preparedness Knowledge for Disasters in Kresik Tuo Village, Kayu Aro District, Kerinci Regency, Jambi

After being given an intervention through the "Mengabu Siaga dalam Bencana" program, there was a significant increase in the level of youth preparedness knowledge for the Mount Merapi eruption disaster in Kresik Tuo Village. The results showed that 75% of respondents achieved a very good level of knowledge, indicating a deep and comprehensive understanding in dealing with disasters. 12.5% of respondents were in the good category, indicating a strong understanding but may still need improvement in certain aspects. Meanwhile, the other 12.5% of respondents were in the fairly good category, indicating an increase in understanding from before but still needing additional information to reach a more optimal level. There were no respondents in the poor or bad category after this intervention, indicating that the "Mengabu Siaga dalam Bencana" program was effective in increasing overall knowledge among the youth of Kresik Tuo Village.

The median level of knowledge after the intervention increased significantly to 95, with a range of values between 80 and 100. This indicates that most respondents had very good knowledge after participating in the intervention program, compared to the lower range before the intervention. The overall average knowledge after the intervention was 93.57 ± 5.2 , indicating a consistent and quite significant increase from the previous average. These results reflect the

effectiveness of the program in increasing youth understanding and preparedness for the potential disaster of the eruption of Mount Merapi.

The results of this study are in line with the results of research by (Idrus et al., 2019) which stated that there was a significant difference in increasing knowledge related to preparedness knowledge in grades V and VI of elementary school students after receiving disaster preparedness education.

5. CONCLUSION

The "Mengabu (Mengadai Badai Ash) Siaga dalam Bencana" program significantly improved the knowledge of the youth of Kresik Tuo Village in facing the threat of disasters from Mount Kerinci. With the average knowledge of respondents increasing from the categories of "Quite Good" and "Good" to "Very Good," these results indicate the importance of interventions that target increasing community understanding of natural disasters.

The results of this study emphasize the urgency of preparedness education targeted at young people as effective agents of change. Their active participation through this program shows the potential to disseminate disaster response knowledge more widely, utilizing technology and social media as supporting tools.

In addition, this study paves the way for the development of similar programs that can be adapted to other areas with similar disaster risks. With increased knowledge, community preparedness can be strengthened, reducing the risk and impact of future disasters. This study underscores the importance of integrating local approaches in the design of disaster management programs to increase effectiveness and relevance in different community contexts.

The "Mengabu Siaga dalam Bencana" program successfully demonstrated that increased knowledge and preparedness can be achieved through well-designed interventions, and made a real contribution to the development of disaster management strategies in Indonesia.

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