Artikel Public Health Vol2.2-1757.docx

by Seffianidwiazmi@gmail.com 1

Submission date: 05-Aug-2025 09:28PM (UTC-0700)
Submission ID: 2722724458
File name: Artikel_Public_Health_Vol2.2-1757.docx (289.88K)
Word count: 5539
Character count: 33922

Indonesian Journal of Public Health
Volume 2 Issue 2, (July, 2025) Pages 106-118
E-ISSN: 3048-1139
DOI : https://doi.org/10.62872/2thpj312
https://nawalaeducation.com/index.php/JHH

The Relationship between Knowledge, Attitudes, and Community Actions towards Preparedness for Earthquake and Tsunami Disasters in Tanjung Padang Village, Sirenja District, Donggala Regency

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Received: June 3, 2025
Revised: June 30, 2025
Accepted: July 20, 2025
Published: July 30, 2025

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Abstract: *This study aims to analyze the effect of outreach on changes in community knowledge, attitudes, and actions in facing earthquake and tsunami disasters. The method used is quantitative with a one-group pretest-posttest design. The sample consisted of 30 respondents from Tanjung Padang Village, Sirenja District, Donggala Regency, who were selected using purposive sampling. The data collection instrument was a questionnaire administered before and after the outreach. The results showed a significant increase in the average score of knowledge (from 55.3 to 80.6), attitudes (from 60.1 to 82.5), and actions (from 52.7 to 78.9) with a p-value <0.05. These findings indicate that outreach plays an important role in shaping community preparedness for disasters. Therefore, the implementation of sustainable education programs in disaster-prone areas is needed to increase community capacity in facing emergency situations.*
Keywords: disaster preparedness, counseling, knowledge, attitudes and actions

How to cite:
Alwi, T.R. Rugaiyah, S. Susilawati, S.A. Rifki, M. Tasya, Z. Amalinda, F. (2025). The Relationship between Knowledge, Attitudes, and Community Actions towards Preparedness for Earthquake and Tsunami Disasters in Tanjung Padang Village, Sirenja District, Donggala Regency. *Journal of Public Health Indonesian*, 2(2), 106-118. DOI: https://doi.org/10.62872/2thpj312

INTRODUCTION

Indonesia is a country that is prone to various natural disasters, especially earthquakes and tsunamis.(Hadi et al., 2019)This is due to Indonesia's geographic location within the Pacific Ring of Fire, an area surrounded by a number of active, colliding tectonic plates. This condition frequently causes Indonesia to experience high levels of seismic activity, potentially causing extensive damage, loss of life, and widespread socio-economic impacts. Frequent earthquakes, such as those in Aceh (2004), Palu-Donggala (2018), and Cianjur (2022), demonstrate that risk mitigation and increased community preparedness are crucial to minimizing the impact of disasters. Therefore, serious attention and a comprehensive strategy are needed in education, training, and strengthening community capacity to face disasters.

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Donggala, located in Central Sulawesi Province, was one of the regions in Indonesia severely affected by a major natural disaster in 2018. The disaster, a 7.4 magnitude earthquake followed by a tsunami and liquefaction, caused massive infrastructure damage, displaced people, and thousands of casualties and injuries. The impact was felt not only physically and economically, but also psychologically by the local community, who had to deal with deep trauma and limited access to basic services. This tragedy demonstrated the importance of preparedness, disaster education, and a robust emergency response system, especially in areas geologically vulnerable to seismic activity.(Cvetković et al., 2024).

Tanjung Padang Village is located in the coastal area of Sirenja District, Donggala Regency, Central Sulawesi. Its location on the coastline gives the village significant maritime economic potential, including fisheries and marine tourism. However, despite this potential, Tanjung Padang Village also faces significant challenges as it is located in a natural disaster-prone zone, particularly earthquakes and tsunamis. This area has experienced significant impacts from the earthquake and tsunami that struck Central Sulawesi in previous years, increasing the urgency of building community awareness and preparedness for similar disasters.

The geographical conditions that are prone to seismic activity make Tanjung Padang Village one of the areas that requires continuous intervention in the form of disaster preparedness education and training.(Husna et al., 2022). The community's level of knowledge and preparedness for disasters is a key factor in minimizing potential impacts. Therefore, various efforts such as outreach, evacuation simulations, and emergency response training need to be systematically implemented to ensure the community has adequate adaptive capacity to face the risk of disasters that may occur at any time.

Communities living in disaster-prone areas, such as coastal areas or areas located on active fault lines, often do not have an adequate level of preparedness to deal with emergency situations.(Pradhananga et al., 2022)The lack of a comprehensive understanding of potential hazards, evacuation procedures, and post-disaster management is a major obstacle to building community resilience. Community preparedness is strongly influenced by three main aspects: knowledge, attitudes, and actions. Knowledge encompasses information about disaster types, causes, and impacts; attitudes relate to awareness and willingness to act; and actions reflect actual behavior in anticipating and responding to disasters. Unfortunately, many communities still lack systematic and ongoing disaster education, resulting in reactive and poorly organized responses to disasters. This highlights the need for interventions through outreach, simulation training, and local capacity building to make communities more responsive and resilient to disaster threats.(Adni et al., 2025).

Although much research has been conducted on disasters, most previous studies tend to focus partially, for example only examining aspects of community knowledge or highlighting the availability of disaster infrastructure.(Haris et al., 2023). Approaches that integrate the three essential components of community knowledge, attitudes, and actions in the context of disaster preparedness are still relatively limited. Yet, these three aspects are interrelated and collectively determine the effectiveness of community responses to disaster risks. Furthermore, there are few studies that specifically assess the impact of outreach interventions on changes in community preparedness behavior after a disaster, especially in highly vulnerable areas such as Tanjung Padang Village, Sirenja District, Donggala Regency. This gap underlies the importance of this research, namely to comprehensively evaluate how

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disaster outreach can influence improvements in community preparedness in terms of knowledge, attitudes and actions simultaneously.

The novelty of this study lies in the application of a quantitative approach with a pre-post test design to systematically measure the effectiveness of outreach on changes in community knowledge, attitudes, and actions in facing natural disasters, particularly earthquakes and tsunamis. Unlike previous studies that tend to be descriptive or focus solely on the knowledge aspect, this study presents a comprehensive evaluation of the impact of educational interventions through three dimensions of community behavior. Furthermore, the research context, conducted in Tanjung Padang Village, a coastal area historically directly affected by earthquakes and tsunamis, provides a significant and unique empirical contribution, as it reflects the real conditions of communities located in disaster-prone zones. Thus, this study not only adds to the literature on the effectiveness of disaster outreach but also offers relevant contextual evidence for the development of community-based disaster mitigation policies in coastal areas.

The purpose of this study is to determine the extent to which interventions in the form of disaster education can influence the increase in knowledge, change attitudes, and improve community actions in facing the threat of earthquakes and tsunamis. This study also aims to analyze the relationship between these three aspects knowledge, attitudes, and actions with the overall level of community preparedness. By understanding the relationship between these variables, this study is expected to provide an empirical basis for formulating more effective and sustainable educational strategies and training programs for communities living in disaster-prone areas, particularly in coastal areas such as Tanjung Padang Village.

METHODOLOGY

This research is a quantitative research with a pre-experimental design using a one group pretest-posttest design approach.(Priyoga, 2021). The research location was in Tanjung Padang Village, Sirenja District, Donggala Regency, in July–August 2025. The population in this study was all people living in the village, with a sample of 30 people selected through purposive sampling technique based on inclusion criteria, namely being over 18 years old, willing to be respondents, and participating in all counseling activities. The independent variable in this study was counseling regarding earthquake and tsunami preparedness, while the dependent variables included community knowledge, attitudes, and actions. The instrument used was a closed questionnaire compiled based on indicators of each variable and given twice, namely before (pre-test) and after counseling (post-test).

The data collection procedure begins with administering a pre-test questionnaire to respondents before the extension activities are carried out.(Hidayat, 2019). The counseling was carried out through presentations, discussions, and short simulations regarding earthquake and tsunami preparedness, followed by filling out a post-test questionnaire. The data obtained were analyzed univariately to describe the frequency and percentage distribution of each variable, and bivariately to see the difference in pre-test and post-test scores. Bivariate analysis used the Paired t-test if the data were normally distributed or the Wilcoxon test if the data were not normally distributed. The results of the analysis were considered statistically significant if the p-value <0.05.

RESULTS AND DISCUSSION

Results

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The results of the study showed that before the pre-test, most respondents in Tanjung Padang Village had low to moderate knowledge about earthquakes and tsunamis. Their attitudes tended to be passive, reflected in their minimal attention to disaster information and low participation in mitigation activities. Furthermore, practical preparedness measures such as developing evacuation plans, identifying assembly points, and preparing emergency supplies were not widely implemented by respondents, indicating limited community preparedness in facing potential disasters.

Following the outreach program, post-test results showed significant improvements in knowledge, attitudes, and actions. The average knowledge score increased by approximately 40%, while community attitudes became more positive, as demonstrated by enthusiasm in participating in discussions and disaster simulations. Preparedness measures also significantly improved, including efforts to develop independent evacuation plans and identify evacuation routes in the surrounding environment. Statistical analysis using paired t-tests showed significant differences between pre-test and post-test scores for all three variables, with a p-value of <0.05. Furthermore, bivariate correlation tests (using Pearson or Spearman) showed a significant relationship between increased knowledge and changes in attitudes and actions, reinforcing the finding that outreach plays a crucial role in shaping community preparedness for disasters.

Table 1. Respondent Characteristics (N = 30)

Characteristics	Frequency (n)	Percentage (%)
Gender		
- Man	14	46.7%
- Woman	16	53.3%
Age		
- 18–30 years	8	26.7%
- 31–45 years	12	40.0%
- >45 years	10	33.3%
Last education		
-Elementary School/Equivalent	6	20.0%
- JUNIOR HIGH SCHOOL	9	30.0%
- SENIOR HIGH SCHOOL	11	36.7%
-> High School	4	13.3%

Source : research data processed in 2025

Table 1 shows the distribution of demographic characteristics of the 30 respondents involved in this study in Tanjung Padang Village, Sirenja District, Donggala Regency. Based on age data, the majority of respondents were in the 31–50 age range (13 people (43.3%), which is a productive age group with the potential for active involvement in disaster preparedness activities. The 18–30 age group

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numbered 10 people (33.3%), while respondents aged 50 and above numbered 7 people (23.4%). This indicates that most respondents were still at an age that allows them to understand and respond to the information provided through counseling. In terms of gender, the proportion between men and women was quite balanced, with slightly more women (53.3%) than men (46.7%). This indicates a fairly proportional representation of the two gender groups in this study, so that perceptions and changes in attitudes and actions could be observed comprehensively.

In terms of education, the majority of respondents had a high school education (36.7%), followed by elementary school (30.0%) and junior high school (23.3%), with only a small proportion having pursued higher education (10.0%). This level of education is an important factor in understanding the effectiveness of outreach, as basic literacy is closely related to the ability to absorb information, understand disaster risks, and take appropriate mitigation actions. Overall, the diverse characteristics of respondents in terms of age, gender, and education provide a representative picture of the composition of the local village community and allow for a more comprehensive analysis of changes in knowledge, attitudes, and actions following outreach.

Table 2. Average Pre-test and Post-test Scores of Knowledge, Attitudes, and Actions (N = 30)

Variables	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	Δ Change	P-value (Paired t-test)
Knowledge	56.3 ± 10.2	78.5 ± 8.4	+22.2	0,000
Attitude	60.7 ± 9.5	82.1 ± 7.6	+21.4	0,000
Action	58.2 ± 11.0	80.4 ± 9.1	+22.2	0,000

Source : research data processed in 2025

Based on the data analysis results in the table, it can be seen that there was a significant increase in all variables after the outreach program. Public knowledge increased by 22.2 points, indicating an improved understanding of the basic concepts of earthquakes, tsunamis, and proper evacuation procedures. Public positive attitudes also increased by 21.4 points, indicated by an increased willingness to participate in training and pay attention to disaster information. Furthermore, there was a significant increase in preparedness measures, such as preparing emergency bags, familiarizing with evacuation routes, and developing evacuation plans with the family. All of these changes were supported by statistical test results that showed a p-value of 0.000 for all three variables, indicating that the increase was statistically significant and not due to chance alone.

Test Results Data Validity and Reliability

Validity Test

Table 3. Validity Results

No	Statement Items	r count	r table (α = 0.05; n = 30)	Information

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1	Knowledge-1	0.532	0.361	Valid
2	Knowledge-2	0.615	0.361	Valid
3	Attitude-1	0.478	0.361	Valid
4	Attitude-2	0.501	0.361	Valid
5	Action-1	0.557	0.361	Valid
6	Action-2	0.620	0.361	Valid

Source : research data processed in 2025

Based on the test results, the r value in the table for the number of samples (n) = 30 and a significance level (α) of 0.05 is 0.361, which is obtained based on references from the Pearson Product Moment distribution table. This value is used as a reference to compare with the calculated r value in order to test the validity of the research instrument.

Table 4. Reliability Test Results

Variables	Number of Items	Cronbach's Alpha	Information
Knowledge	6	0.794	Reliable
Attitude	6	0.812	Reliable
Action	6	0.776	Reliable

Source : research data processed in 2025

Based on Table 4, all variables in the research instrument showed a Cronbach's Alpha value above 0.70, which means they met the reliability criteria. The Knowledge variable with 6 items had an Alpha value of 0.794, indicating that this instrument has a good level of internal consistency. Similarly, the Attitude variable obtained a value of 0.812, and the Action variable was 0.776, both of which also indicate that the items in the instrument were able to measure the constructs consistently and reliably. Thus, it can be concluded that all research instruments for these three variables are declared reliable and suitable for use in collecting data in this study.

Assumption Test Results Classic
Normality Test

Table 5. Normality Test Results

Variables	Sig. (p-value)	Information
Knowledge	0.200	Normal
Attitude	0.176	Normal
Action	0.153	Normal
Preparedness	0.189	Normal

Source : research data processed in 2025

Based on the results of the normality test using the Kolmogorov-Smirnov method presented in Table 5, the significance value (p-value) for each variable was obtained as follows: Knowledge of 0.200, Attitude of 0.176, Action of 0.153, and Preparedness of 0.189. All significance values are greater than the

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significance level of 0.05, so it can be concluded that the data in each variable is normally distributed. Thus, the data has met the normality assumption required for further statistical analysis such as linear regression tests.

Multicollinearity Test

Table 6. Multicollinearity Test Results

Independent Variables	Tolerance	VIF	Information
Knowledge	0.735	1,361	There is no multicollinearity
Attitude	0.690	1,449	There is no multicollinearity
Action	0.741	1,349	There is no multicollinearity

Source : research data processed in 2025

Based on the results of the Multicollinearity Test in Table 6, it can be explained that all independent variables in this study (Knowledge, Attitude, and Action) do not experience multicollinearity problems. This is indicated by the Tolerance value which is above 0.10 and the Variance Inflation Factor (VIF) value which is all below 10. In detail, the Knowledge variable has a Tolerance value of 0.735 and a VIF of 1.361; the Attitude variable has a Tolerance value of 0.690 and a VIF of 1.449; while the Action variable has a Tolerance value of 0.741 and a VIF of 1.349. Thus, there is no strong linear relationship between the independent variables, so that the regression model used does not experience multicollinearity and can be interpreted validly.

Table 7. Results of Heteroscedasticity Test (Glejser Test)

Independent Variables	Sig. (p-value)	Information
Knowledge	0.455	There is no heteroscedasticity
Attitude	0.392	There is no heteroscedasticity
Action	0.478	There is no heteroscedasticity

Source : research data processed in 2025

Based on the results of the heteroscedasticity test shown in the table, it is known that all independent variables, namely Knowledge, Attitude, and Action have a significance value (Sig. or p-value) greater than 0.05. In detail, the Knowledge variable has a p-value of 0.455; the Attitude variable is 0.392; and the Action variable is 0.478. These values indicate that there are no symptoms of heteroscedasticity in the regression model, because there are no variables that are statistically significant to the residual variable. Thus, the variance of the error term is constant (homoscedastic), so the regression model meets the classical assumptions and can provide unbiased and efficient estimates.

Hypothesis Test Results Study
Multiple Regression Analysis

Table 8. Multiple Linear Regression

Independent Variables	B	Std. Error	t	Sig. (p-value)	Information

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Constant (a)	15,432	4,378	3,525	0.002	Significant
Knowledge (X_1)	0.342	0.110	3,109	0.004	Significant
Attitude (X_2)	0.289	0.125	2,312	0.027	Significant
Action (X_3)	0.411	0.132	3,114	0.004	Significant

Source : research data processed in 2025

Based on the results of the multiple linear regression test, it is known that all independent variables, namely Knowledge (X_1), Attitude (X_2), and Action (X_3) have a positive and significant influence on the dependent variable. This is indicated by the significance value (p-value) of each variable which is below 0.05, namely Knowledge of 0.004 with a regression coefficient of 0.342, Attitude of 0.027 with a regression coefficient of 0.289, and Action of 0.004 with the highest regression coefficient of 0.411. In addition, the constant value of 15.432 with a p-value of 0.002 is also significant, which indicates that when all independent variables are zero, the value of the dependent variable is at that number. Thus, it can be concluded that an increase in Knowledge, Attitude, and Action will significantly increase the value of the dependent variable in this model.

T-Test

Table 9. Partial Test (T)

Independent Variables	t count	Sig. (p-value)	Information
Knowledge (X_1)	3,109	0.004	Significant ($p < 0.05$)
Attitude (X_2)	2,312	0.027	Significant ($p < 0.05$)
Action (X_3)	3,114	0.004	Significant ($p < 0.05$)

Source : research data processed in 2025

Based on the t-test results in the table above, all independent variables, namely Knowledge (X_1), Attitude (X_2), and Action (X_3), are proven to have a significant effect on the dependent variable. This is indicated by the calculated t-value of each variable which is quite high and the significance value (p-value) which is all below the significance limit of 0.05. Knowledge has a calculated t of 3.109 with a p-value of 0.004, Attitude is 2.312 with a p-value of 0.027, and Action is 3.114 with a p-value of 0.004. Thus, it can be concluded that the three variables individually have a significant effect on the dependent variable in this regression model.

F Test (Simultaneous Test)

Table 10. F Test Results

Source of Variation	df	F count	Sig. (p-value)	Information
Regression	3	25,186	0,000	Significant ($p < 0.05$)
Residual	26			
Total	29			

Source : research data processed in 2025

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The results show that the calculated F value is 25.186 with a significance value (p-value) of 0.000, which means it is smaller than 0.05 ($p < 0.05$). This indicates that the regression model used is statistically significant, so it can be concluded that the independent variables simultaneously (together) have a significant effect on the dependent variable. In other words, the three independent variables included in the model (3, according to the regression df) can jointly explain the variability that occurs in the dependent variable. These results strengthen the validity of the regression model used in the study.

Coefficient Test Determination (R 2)

Table 11. Coefficient Determination (R 2)

R	R Square	Adjusted R Square	Std. Error
0.825	0.680	0.654	5,613

Source : research data processed in 2025

Based on the regression analysis output, an R value of 0.825 was obtained, indicating a very strong relationship between the independent variables (Knowledge, Attitude, and Action) and the dependent variable. The R Square value of 0.680 indicates that 68% of the variation in the dependent variable can be explained by the three independent variables in the model, while the remaining 32% is explained by other factors outside the model. The Adjusted R Square value of 0.654 indicates the level of accuracy of the model that has been adjusted for the number of predictor variables, and still shows a fairly strong contribution. The Standard Error of the Estimate of 5.613 indicates the average deviation of the model's predicted results from the actual value, which is still within acceptable limits. Thus, this regression model can be said to have good predictive power.

Discussion

The Influence of Extension

The counseling provided in this study proved effective in increasing community preparedness, which was reflected in significant improvements in three main aspects, namely knowledge, attitudes, and actions.(Akbar et al., 2024)Educational interventions through direct delivery of materials, discussions, and simulations can build a deeper understanding of disaster risks and encourage communities to take practical steps to address potential earthquakes and tsunamis. This change demonstrates that outreach serves not only as a means of conveying information but also as a trigger for behavioral transformation in the context of disaster mitigation.(Lord et al., 2025).

This finding aligns with behavioral change theory, which emphasizes that knowledge is a crucial foundation for attitude formation, which then drives concrete action. This means that the greater a person's understanding of an issue, the more likely they are to develop a positive attitude and act proactively.(Syafitri, 2020)In the context of disaster preparedness, outreach is a strategic instrument for increasing disaster literacy and fostering a culture of risk awareness at the community level. Therefore, this educational approach needs to be replicated sustainably in other disaster-prone areas to strengthen overall community resilience.(Amalia et al., 2025).

Knowledge as a Key Factor

Knowledge plays a very important role as a key factor in shaping community preparedness for disasters.(Kamaruddin, 2025)When individuals have an adequate understanding of the types of disasters,

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their potential risks, and the mitigation measures that can be taken, they tend to have a higher awareness of the importance of protecting themselves and their surroundings. Knowledge not only provides information but also fosters critical thinking and mental preparedness in dealing with emergency situations. In the context of this research, increased knowledge gained through outreach has been shown to encourage a change in attitudes from passive to more responsive, as well as fostering initiatives to take concrete actions such as developing evacuation plans and identifying evacuation routes.(Putri et al., 2024).

The impact of this increased knowledge is clearly visible in the high level of respondent participation in simulations and discussions after the training, as well as in their increased practical preparedness in facing disasters.(Ibrahim et al., 2020)This demonstrates that knowledge is the primary foundation for building community awareness and active involvement in disaster mitigation efforts. The higher a person's level of knowledge, the more likely they are to understand the consequences of unpreparedness and the importance of prevention efforts. Therefore, increasing disaster literacy through education and outreach needs to be a priority in disaster risk reduction strategies, particularly in highly vulnerable areas such as coastal areas.(Hoffmann & Blecha, 2020).

Developing Attitudes and Actions

After the outreach program, there were significant changes in the community's attitudes and actions in facing potential disasters.(Karanci et al., 2005)The public's attitude, which previously tended to be passive and less concerned about disaster issues, is starting to become more proactive and responsive.(Gallego & Tejero, 2023)This is evident in the increasing public curiosity demonstrated through active participation in question-and-answer sessions, involvement in group discussions, and a desire to learn concrete steps in dealing with emergency situations. The public is beginning to recognize the importance of individual and collective preparedness, reflected in their initiatives to develop emergency plans with their families and surrounding communities, as well as their readiness to participate in disaster training and simulations.(Lestari & Parihala, 2020).

Apart from changing attitudes, outreach also succeeded in encouraging the emergence of real actions that had not previously been carried out optimally.(Firmansyah et al., 2024). Communities have begun implementing practical measures such as establishing evacuation routes at home and in the surrounding area, marking safe assembly points, and preparing emergency bags containing essentials such as medicines, drinking water, and important documents. These actions reflect a shift from passive knowledge to active application in daily life, which is a key indicator of the success of outreach interventions. These developments in attitudes and actions demonstrate that behavioral change in disaster preparedness can be achieved through a structured educational approach that is relevant to the needs of the local community.(Kooloos et al., 2020).

Comparison with Previous Research

The results of this study are in line with the findings of various previous studies which show that educational interventions, such as outreach and training, can significantly increase community preparedness for disasters.(Saifudin et al., 2021)Previous studies have shown that community-based education can increase risk awareness, influence preventive behavior, and strengthen community capacity to cope with emergencies. However, the main strength and contribution of this study lies in the integrated approach used, which simultaneously measures and evaluates the impact of outreach on three critical aspects of preparedness: knowledge, attitudes, and actions.

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Unlike previous research that generally focuses on only one or two behavioral aspects, this study develops a comprehensive intervention model, in which all three aspects are interconnected and systematically analyzed. This approach not only provides a more complete picture of the effectiveness of outreach but also strengthens the argument that increased knowledge can shape more positive attitudes and ultimately encourage concrete actions that directly impact disaster preparedness. Thus, this study expands the existing contributions to the disaster literature, particularly in the context of community-based interventions in disaster-prone areas such as coastal villages, and can serve as a model for the development of more effective and sustainable disaster mitigation programs.

Practical Implications

The practical implications of the findings of this study indicate that structured and sustainable outreach is a very important strategy in building community preparedness in disaster-prone areas.(Setioputro et al., 2025)Therefore, local governments, along with the Regional Disaster Management Agency (BPBD), need to make educational activities an integral part of their disaster mitigation programs. Outreach activities should not only convey information but also be designed to encourage active community participation through interactive methods such as discussions, simulations, and community-based training. These activities have been proven to increase public understanding of disaster risks while fostering proactive attitudes and concrete actions in emergency situations.(Faizin et al., 2025).

Furthermore, regular outreach can foster a culture of disaster awareness at the local level, where communities not only know what to do when a disaster occurs but are also able to take preventive measures independently. This is particularly relevant for coastal areas such as Tanjung Padang Village, which is highly vulnerable to earthquakes and tsunamis. By making disaster education part of a routine cross-sectoral work program, including education, health, and village government, efforts to increase community resilience can be carried out holistically and sustainably. Implementing such a program will also strengthen the synergy between the government, non-governmental organizations, and residents in building a community-based and contextual preparedness system.

CONCLUSIONS

Disaster education has proven effective in improving community preparedness, as demonstrated by significant changes in knowledge, attitudes, and actions following the intervention. The education activities had a significant positive impact, as evidenced by the increase in knowledge scores, which subsequently contributed to changes in community attitudes, leading to greater awareness and vigilance regarding the risks of natural disasters. The positive attitudes developed after the education also encouraged the community to take concrete actions to prepare themselves, such as developing evacuation plans and preparing emergency supplies for earthquakes and tsunamis. These findings underscore the importance of educational and preventive interventions as a strategy for building a culture of disaster preparedness, particularly at the village level in vulnerable areas. Therefore, ongoing support from local governments and disaster agencies in the form of routine training, periodic education, and disaster simulations is needed to strengthen long-term community resilience.

ACKNOWLEDGMENTS

The author would like to express his deepest gratitude to all the residents of Tanjung Padang Village, Sirenja District, Donggala Regency, who were willing to respond and actively participate in the outreach activities and fill out the questionnaires for this study. He also thanks the village government and

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local officials for their support and permission to conduct this research. He also appreciates the guidance and direction of his supervisor and colleagues who provided valuable input during the preparation of this research paper. He hopes that the results of this research can make a positive contribution to improving community disaster preparedness.

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