

Community Awareness Of Facing Flood Disaster in Candikuning Village, Baturiti District, Tabanan Regency

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Abstract

Flood disasters, as a natural phenomenon related to human activities, occur as a result of the accumulation of several factors, such as rain, wind conditions, and upstream conditions. Natural conditions are also influenced indirectly by the increase in population, which can trigger flooding. This study aims to determine the level of knowledge and awareness of the community towards flood disasters and to examine the relationship between knowledge and community vigilance in facing flood disasters in Candikuning Village. The study uses a quantitative descriptive method with a bivariate correlation design and an ecological approach. The population in this study consists of 167 heads of families, and a sample size of 127 respondents was determined using Isaac and Michael's table with a 5% error rate. Data on community knowledge and awareness were collected through a questionnaire distributed to heads of families in Candikuning Village. The results show that the public's knowledge about flood disasters in Candikuning Village is in the upper-middle category, while their awareness of flood disasters is in the moderate category. Based on the results of the correlation analysis using the Pearson product moment model, a significant relationship was found between knowledge and community awareness in dealing with flood disasters in Candikuning Village.

Keywords: vigilance, flood disaster, Candikuning Village

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I. Introduction

Flood disasters are events that pose a threat to people's lives and livelihoods, resulting in human casualties, property losses, environmental damage, and psychological impacts [1, 2]. Flooding, as a natural phenomenon related to human activities, occurs as a result of the accumulation of several factors, such as rain, wind conditions, and upstream conditions. Natural factors are also influenced indirectly by the increasing population, which triggers floods [3]. Uncontrolled logging, which is a human behavior that does not preserve forests, can cause a high increase in runoff water, resulting in environmental damage in river basin areas [4, 5; 6]. Flood disasters occur in almost every area, including Candikuning Village in the Baturiti District, Tabanan Regency.

Candikuning Village is an area that is prone to small to large-scale floods every year due to land clearing, heavy rainfall, and flat topography, which are the main factors for flooding in the area. Supporting factors for the occurrence of flooding in the area include community attitudes, development, settlements, and changes in land use [7, 8]

The flood disaster that occurred in Candikuning Village resulted in the loss of household equipment and livestock, as well as damage to residents' houses. This was evidenced by the impact of the flash floods that occurred in the area, which were strong enough to damage the bridge and close access to the main Denpasar-Singaraja road. As a result of this incident, people panicked and paid less attention to their own safety [5].

A heavy rain accompanied by strong winds hit the Baturiti District area for approximately one day, causing the volume of surface water to increase in the drainage canal. As a result, the water level rose and inundated the Denpasar-Singaraja road, precisely in Candikuning Village. This inundated road caused disruption to the proper functioning of the road [9]. Candikuning Village suffered the most severe material losses due to the impact of the flood disaster. Many residents lost their household equipment and livestock, while their houses were also severely damaged [5].

Generally, the knowledge of the community in Candikuning Village regarding flood disasters tends to be lacking. The problem of flood disasters requires people to be vigilant in dealing with future disasters, not only during post-disaster but also pre-disaster and during the disaster itself. Community involvement in dealing with flood disasters aims to minimize the risk of such disasters [6]. Vigilance involves a series of activities carried out to anticipate disasters through appropriate organization and steps to achieve preparedness in facing disasters that may occur [10].

Through vigilance, it is hoped that the community will be able to maintain disaster management plans, prepare for emergencies, and train the community itself [10,11,4]. Being alert against flooding will demonstrate attitudes and knowledge in dealing with disasters, which is becoming increasingly important, especially in Candikuning Village. According to a study by the Tabanan BPBD in 2019, the people in Candikuning Village are still unfamiliar with the flood disasters that occur almost every year in their village. This study aims to determine the awareness of the community in facing flood disasters in Candikuning Village, Baturiti District, and is expected to provide an initial picture of how vigilant the community is in dealing with these disasters.

II. Method

The study was conducted in the Lake Beratan area of Candikuning Village, Baturiti District, Tabanan Regency, Bali Province (Figure 1), during April 2019. The design of the study employed a "bivariate" correlation design, using a quantitative descriptive method. Correlation studies aim to determine the relationship and level of correlation between two or more variables without attempting to influence them, hence avoiding variable manipulation [12]. The ecological approach was used in this study. Two variables were analyzed: knowledge as the independent variable (X) and public awareness as the dependent variable (Y). The population for this study consisted of the affected community, and the area sampling technique was used to select participants. Data on community knowledge and awareness of flood disasters were collected using a questionnaire with answer categories of disagree, agree, and strongly agree. The relationship between the knowledge variable and public awareness of flooding was analyzed using the Product Moment correlation method and the SPSS program IMB version 24.0.0.0 in 2017 [13] was used for data analysis.

III. Results

Community Knowledge Analysis

Questionnaires on community knowledge were distributed to 127 respondents in Candikuning Village, Baturiti District. After conducting the validation test, the results of 10 statements (4, 5, 7, 8, 9, 10, 11, 12, 13, 14) were deemed valid, while 5 statements (1, 2, 3, 6, 15) were declared invalid. Further details can be found in Table 1 below.

Table 1. Results of Community Knowledge Questionnaire Validity Test Declaration Number

	tcount	ttabel	Information
1	-0,94709	1,657037	Fall
2	1,279102	1,657037	Fall
3	1,589507	1,657037	Fall
4	3,049848	1,657037	Valid
5	5,741225	1,657037	Valid
6	1,633567	1,657037	Fall
7	4,390343	1,657037	Valid
8	2,952736	1,657037	Valid
9	5,016065	1,657037	Valid
10	2,815901	1,657037	Valid
11	4,331168	1,657037	Valid
12	8,123291	1,657037	Valid
13	5,58353	1,657037	Valid
14	2,085842	1,657037	Valid
15	1,387654	1,657037	Fall

Source: results of primary data analysis

Data on public knowledge problems were collected through interviews using a questionnaire guide. The scores ranged from 10 (lowest) to 30 (highest), with each questionnaire answer being assigned a score of 1 to 3. Since the instrument contained ten questions, the lowest possible total score was 10 and the highest was 30. Further distribution details can be found in Table 2 below.

Figure 1. Map of Research Location in The Lake Beratan Area

Table 2 Distribution of Public Knowledge Frequency

Number	Classification	Amount	Percentage
1	Low	-	
2	Lower middle	8	6,2 %
3	Upper middle	119	93,8 %
4	Tall		
	Amount	127	100%

Source: results of primary data analysis

Questionnaires on community knowledge were distributed to 127 respondents in the village of Penyabangan, Buleleng Regency. After conducting the validation test, the results of 13 statements (1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15) were deemed valid, while 2 statements (8, 9) were declared invalid. Further details can be found in Table 3 below.

Table 3. Results of the Community Awareness Questionnaire Validity Test

Declaration Number	tcount	ttabel	Information
1	5,624768	1,657037	Valid
2	2,404305	1,657037	Valid
3	9,160926	1,657037	Valid
4	6,534822	1,657037	Valid
5	7,78467	1,657037	Valid
6	8,888277	1,657037	Valid
7	6,65044	1,657037	Valid
8	0,831895	1,657037	Fall
9	1,274655	1,657037	Fall
10	3,143861	1,657037	Valid
11	3,180211	1,657037	Valid
12	3,585641	1,657037	Valid
13	2,441256	1,657037	Valid
14	3,292088	1,657037	Valid
15	1,959411	1,657037	Valid

Source: results of primary data analysis

Data on community awareness problems were collected through interviews using a questionnaire guide. The scores ranged from 13 (lowest) to 39 (highest), with each questionnaire answer being assigned a score of 1 to 3. Since the instrument contained ten questions, the lowest possible total score was 10 and the highest was 30. Further distribution details can be found in Table 4 below.

Table 4. Frequency Distribution of Public Alerts

Numbar	Classification	Amount	Percentage
1	Low	1	0,8%
2	Fair/moderate	101	79,7%
3	Tall	25	19,5%
	Amount	127	100%

Source: results of primary data analysis

Correlation Data Analysis

The correlation data analysis revealed that there is a moderate relationship between public knowledge and vigilance, with a correlation value of 0.270. Further details can be found in Table 5 below.

Table 5. Correlation of Community Knowledge with Awareness

Correlations			
	Knowledge	Vigilance	
Knowledge			
Pearson Correlation	1		,270**
Sig. (2-tailed)			,002
N	127	127	
Vigilance			

Pearson Correlation	,270**	1
Sig. (2-tailed)	,002	
N	127	127

** . Correlation is significant at the 0.01 level (2-tailed).

Source: results of primary data analysis

IV. Discussion

Based on the analysis of questionnaire data, the public's knowledge of flood disasters is categorized in the upper-middle range, based on the sample study of 127 family heads. The study encompassed three hamlets, where the level of knowledge in RT 2 was the highest, RT 1 was in the upper-middle category, while RT 3 was in the medium category. Therefore, the overall public knowledge about flood disasters in Candikuning Village is generally in the upper-middle category. These results are consistent with the findings of previous studies by [11] and [10], which suggest that knowledge about disasters is related to the level of preparedness in coping with disasters.

Based on the field results collected from the 3 hamlets, it was found that RT 2 had the highest level of alertness, while RT 1 and RT 3 were in the moderate category. Knowledge is the main factor and key to awareness, including knowledge about natural events and flood disasters, and the physical vulnerability of buildings. The knowledge possessed by individuals can usually influence their attitude and concern to be vigilant in anticipating disasters, especially for those living in disaster-prone areas.

Knowledge and mindfulness are closely related. Essentially, knowledge is the fundamental capital for the concept of disaster awareness [14]. The concept of vigilance emphasizes more on actions that are related to the formation of behavior based on attitude and learning theories. The formation of behavior is influenced by cognitive factors, of which knowledge is one. Knowledge plays a crucial role in shaping personality, which in turn interacts with the environment and influences behavior, resulting in action.

The study results indicate a significant relationship between knowledge and community awareness in dealing with flood disasters. This relationship falls into the moderate category, as consistent with the correlation data analysis results obtained through the Pearson Product Moment correlation.

The results of the current study are consistent with those of a previous study conducted by [15, 16], who stated that there is a positive relationship between knowledge and vigilant behavior ($r = 0.531$), indicating that higher knowledge is associated with increased alert behavior.

V. Conclusion

Based on the study conducted in Candikuning Village, it was found that the community's knowledge about understanding flood disasters is in the upper-middle category. Meanwhile, the results of the study on the awareness of the people of Candikuning Village in facing floods fall into the moderate category. The relationship between knowledge and public awareness, based on the results of this study, indicates a significant relationship which falls into the moderate category.

VI. Suggestion

This study can be a useful reference for the government in developing disaster management policies to minimize casualties and material losses. The community can also benefit from increasing their knowledge of flood disasters to improve their awareness and preparedness in dealing with such events

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