The Relationship of Community Knowledge and Attitudes with the Handling of Tornado Natural Disasters in Sumbul District, Dairi Regency

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ARTICLEINFO	ABSTRACT
	Potential disasters in the territory of the unitary state of Indonesia can be grouped into 3 (three) types of disasters, namely natural disasters, non-natural disasters, and social disasters. Tornado is one of the extreme conditions that occur in the atmosphere characterized by very fast air movement and forming a vortex of air column. Based on the description, the data above and the incident above, so that researchers are interested in researching the relationship between the title of knowledge and attitudes of the community with the handling of the tornado natural disaster in Sumbul sub-district, Dairi district. The research design uses an analytical survey (explanatory research) which tries to explore how and why this phenomenon occurs. then analyze the dynamics of the correlation between phenomena, both between risk factors (independent) and effect factors (dependent). Population is the entire object of research or researched and meet the specified characteristics. The population in this study is the north, east, south and west by using the simple random sampling method (simple random sample) as many as 50 people. The cross tabulation of the results obtained between the community and the handling of the natural disaster of a tornado with a result of 0.010 and the attitude of the community with the handling of the natural disaster of a tornado in Sumbul sub-district, Dairi district, obtained a significant value with a p-value of 0.015.
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1. Introduction

Potential causes of disasters in the territory of the unitary state of Indonesia can be grouped into 3 (three) types of disasters, namely natural disasters, non-natural disasters, and social disasters. Natural disasters are disasters caused by events or a series of events caused by nature, including earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, and landslides. Tornado is one of the extreme conditions that occur in the atmosphere which is characterized by very fast air movement and forming a vortex of the air column. Tornadoes are said to be extreme because their speeds can reach 60 km / h and even more so that they are able to uproot large trees, tear down bridges, and fly roofs of buildings or anything in their path with ease.

The National Disaster Management Agency (BNPB) stated that extreme weather is related to extraordinary events that have the potential to cause disasters caused by wind, which include tornadoes, tropical cyclones and hurricanes. Especially for the territory of Indonesia, BNPB has determined that extreme weather caused by wind is only tornadoes because tornadoes and tropical cyclones do not occur in Indonesia (Bencana, 2018).

Developing resilience for local government and communities as a smaller group is critical. For

developing countries, the middle and lower economic class will greatly feel the impact of the disaster. The impact is not only experienced in the economic field, but also in social life. If they are affected by a disaster, the recovery phase will run very slowly so that the country's economy will also experience a decline. The general welfare and stability of the country will be disturbed and reduce the per-capita income of a country (Kirchberger, 2017).

This wind can damage and destroy anything in its path because objects that are passed will be lifted and stranded out of the vortex. The consequences of a hurricane are that it can damage and destroy an area of approximately 5 km and there are no aftershocks (Melas, 2014).

BNPB (2018) noted that in the period 2008-2018 the occurrence of hurricanes became a disaster with the second largest number after the flood disaster. This indicates that hurricane disasters are indeed prone to occur in Indonesia. For the frequency of tornado occurrences, the highest number was in Central Java Province with 236 events throughout 2018. Based on the distribution of disaster events, Central Java Province has the highest number compared to other provinces. The frequency of occurrence of hurricane disasters mostly occurs in the northern and southern parts of Central Java, which have a topography with a relatively smooth surface compared to the central part. In this case, one of the areas experiencing a tornado disaster is the Capital of Central Java Province, Semarang City (Suswanti, Murwanto, & Purwanta, 2021).

Tornadoes were the most dominant natural disaster in 2018. Most areas in Indonesia are prone to tornadoes. According to data from the National Disaster Prevention Agency in 2018, in the last ten years, the province of Central Java has the highest incidence of tornadoes when compared to other provinces in Indonesia, which is 1281 incidents and districts in Central Java which have wind incidence rates. The biggest tornado was in Cilacap with 202 occurrences (Febrianti, 2018).

Tornadoes damaged a number of houses in Nagan Kasiangan Village, Kab. Serdang Bedagai on Wednesday afternoon. The incident resulted in 4 residents' houses were severely damaged. There were no fatalities as a result of this incident. This hydrometeorological disaster resulted in fatalities and injuries as well as damage to residents' houses. The Regional Disaster Management Agency (BPBD) of Deli Serdang Regency informed that one resident died and another was injured. A total of 228 families were affected by this tornado phenomenon. In addition, as many as 10 residential housing units were seriously damaged, while 62 units were moderately damaged and 156 others were slightly damaged (Umar, 2013).

On February 3, 2021, a wind occurred in Joho Village, which is located in Prambanan District, Klaten Regency. Based on data from the Joho Village Disaster Report (2021), the consequences of this incident were 67 trees fell, 22 houses were damaged, 1 market basket collapsed, 1 market stall collapsed, 2 residents were injured due to falling trees and falling houses, and 1 resident evacuated. The wind incident in Joho Village, Prambanan District resulted in the impact of property loss and environmental damage for the affected area, so it can be classified as a disaster. Based on Law Number 24 of 2007 concerning Disaster Management, CHAPTER I article 1 paragraph 7 states that a disaster is an event or series of events that threatens and disrupts people's lives and livelihoods caused, both by natural factors and/or non-natural factors as well as human factors. resulting in human casualties, environmental damage, property losses, and psychological impacts (Afrian & Islami, 2018).

In addition, Afrian and Islami studied disaster preparedness using 3 preparedness indicators including: knowledge and attitudes, emergency response plans, and supporting resources (Iryanthony, 2015) Knowledge of wind disasters is important to improve wind disaster preparedness (Bencana, 2016).

Based on the description and from the data above and the incident above, so that researchers are interested in researching the relationship between the title of knowledge and attitudes of the community with the handling of the natural disaster of a tornado in Sumbul sub-district, Dairi district.

2. Methods

The research design is part of this research section, the researcher uses an analytical survey (explanatory research) which tries to explore how and why this phenomenon occurs. then analyze the dynamics of the correlation between phenomena, both between risk factors (independent) and effect factors (dependent). Population is the entire object of research or researched and meet the

specified characteristics (Notoatmodjo, 2012). The population in this study was the entire community in Sumbul sub-district. In the north, east, south and west by using the simple random sampling method (simple random sample) from the lottery with the number of KK as many as 50 people.

Information:

n : Number of participants

Z : Standard normal deviation (1.96)

N : Estimated population size p : Proportion if unknown 50% (0.5)

q : The proportion other than the events studied q = 1-p (0.5) Based on the above formula, it is known that the number of samples is 60 samples

3.   Results and Discussion

3.1 Result
a.   Characteristics of Respondents

Based on the results of the characteristics of the respondents that the respondents used to describe each of the independent variables and the dependent variable studied and make frequency data in making frequency data in the form of a percentage of the number of respondents

TABLES 1.

FREQUENCY DATA

No	Characteristics	Total f	Total %
1	Age		
	45 – 54 years old	19	38.0
	55 – 65 years	31	62.0
2	Gender		
	Man	35	70
	Woman	15	30
3.	Education		
	SD	12	24
	JUNIOR HIGH SCHOOL	10	20
	SENIOR HIGH SCHOOL	17	34
	PT	11	22
	Total	50	100

The results obtained in the age division that the age of 45-54 years were 19 people (38%) and 55-65 years were 31 people (62%) and according to gender, there were 35 men (70%) and 15 women. (30%) and 17 respondents (34%).

TABLE 2.

EDUCATION RESPONDENT RESULTS

No	Media Videos	f	%
1	Well	26	72.2
2	Enough	7	19.4
3	not enough	3	8.4
	Total	36	100

From the univariate research in knowledge, it is known that 19 people (38%), 19 people have less education and 19 people (38%) are good and 12 people are good (24%).

TABLE 3.
RESULTS OF RESPONDENTS' ATTITUDES

No	ATTITUDE	Amount	
		f	%
1	Positive	26	52
2	negative	24	48
	Total	50	100

From the results of research on attitudes obtained results that have a positive attitude as many as 26 people (52%) and negative as many as 24 people (48%).

TABLE 4.
DISASTER MANAGEMENT RESEARCH RESULTS

No	Disaster Management	Amount	
		f	%
1	Not enough	30	60
2	Enough	14	28
3	Well	6	12
	Total	50	100

The results of the research on disaster management showed that there were 30 people (60%), less than 14 people (28%) and 6 people (12%).

Bivariate analysis was carried out by examining two variables between the independent variable and the dependent variable, the relationship between the level of knowledge and attitudes of the community with the handling of the tornado natural disaster in Sumbul sub-district, Dairi district. To prove the existence of a relationship between the independent variable and the dependent variable, chi-square analysis was used.

TABLE 5.
CROSS TABULATION OF COMMUNITY KNOWLEDGE WITH WIND NATURAL DISASTER MANAGEMENT
TORNADOES IN DAIRI REGENCY IN 2021

Knowledge	Disaster Management						Amount		P-Value
	Well		Enough		Not enough				
	F	%	F	%	F	%	F	%	
Not enough	9	18	6	12	4	8	19	38	
Enough	16	32	1	2	2	4	19	38	0.010
Well	5	10	7	14	0	0	12	24	
Total	30	60	14	28	6	12	50	100	

Based on table 4. shows that from 50 respondents and based on the results of the chi-square statistical test using the SPPS application, the p-value = 0.010, which means p-value <0.05, this indicates that Ha is accepted so that it can be concluded that there is a relationship between the level of knowledge and attitudes of the community with the handling of tornado natural disasters in Sumbul sub-district, Dairi district.

TABLE 6
CROSS TABULATION OF COMMUNITY ATTITUDES WITH PREPAREDNESS IN FACING LANDSLIDE DISASTERS IN KEC. LAND OF
PINEM DAIRI REGENCY IN 2021

ATTITUDE	Disaster Management						Amount		P-Value
	Well		Enough		Not enough				
	F	%	F	%	F	%	F	%	
Positive	14	28	8	16	4	8	26	52	0.015
Negative	16	32	6	12	2	4	24	48	
Total	30	60	14	28	6	12	50	100	

Based on table 5. shows that from 50 respondents and based on the results of the chi-square statistical test using the SPPS application, the p-value = 0.015, which means p-value <0.05, this

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indicates that Ha is accepted so that it can be concluded that there is a relationship between the level of knowledge and attitudes of the community with the handling of tornado natural disasters in Sumbul sub-district, Dairi district.

3.2 Discussion

From the results of the correspondent characteristics in table 1, the results obtained in the age division that the age of 45-54 years were 19 people (38%) and 55-65 years were 31 people (62%) and according to gender, there were 35 men (70%) and 15 women (30%) and 17 respondents (34%). From table 2. shows that from 50 respondents, it can be concluded that community knowledge with the handling of tornado natural disasters in Dairi district in 2021. In the less category as many as 19 respondents (38%), sufficient category as many as 19 respondents (38%), and good as many as 12 respondents (24%).

Table 3. Shows that from 50 respondents, it can be concluded that the knowledge of the community with the handling of natural disasters is a hurricane in Dairi district. There are 26 respondents in the positive category (52%), in the negative category as many as 24 respondents (48%). Table 4. shows that from 50 respondents, it can be concluded that community knowledge regarding the handling of tornadoes in the Dairi district in 2021. There are 30 respondents (60.0%) in the less category and 14 respondents (28.0%) in the good category. , and good category as many as 6 respondents (12%).

The results from table 4. show that from 50 respondents and based on the results of the chi-square statistical test using the SPPS application, the p-value = 0.010, which means p-value <0.05, this indicates that Ha is accepted so that it can be concluded that there is a relationship The level of knowledge and attitudes of the community with the handling of the tornado in Sumbul sub-district, Dairi district and table 5 shows the results show that from 50 respondents and based on the results of the chi-square statistical test using the SPPS application, the p-value = 0.015 which means p-value < 0.05, this indicates that Ha is accepted so that it can be concluded that there is a relationship between the level of knowledge and attitudes of the community with the handling of the tornado natural disaster in Sumbul sub-district, Dairi district.

4. Conclusion

After carrying out the research conducted by researchers on the relationship between the level of knowledge and attitudes of the community with the handling of the natural disaster of a tornado in Sumbul sub-district, Dairi district, the researchers concluded that:

Based on the results of research in the district. Sumbul was obtained from 50 respondents, the majority of whom had insufficient and insufficient knowledge as many as 19 (38%) respondents. While the minority is with good knowledge as many as 12 (24%) respondents.

Based on the results of research in the district. Sumbul was obtained from 50 respondents, the majority had a negative attitude as many as 24 (48%) respondents and a minority who had a positive attitude as many as 26 (52%) respondents.

Based on the results of research in the district. Sumbul was obtained from 50 respondents, the majority found that the correct handling in disaster was less than 30 (60%) and a good minority as many as 6 (12%) respondents.

Based on the cross tabulation of the results obtained between the community and the handling of the tornado in Sumbul sub-district, Dairi district, the result is 0.010, which means that Ha is accepted and Ho is rejected p = 0.05, meaning that there is a relationship betweenThere is a significant relationship between public knowledge and the handling of tornado natural disasters in Sumbul sub-district, Dairi district

Based on the cross tabulation of the results obtained between the attitude of the community and the handling of the natural disaster of a tornado in Sumbul sub-district, Dairi district, a significant value was obtained with a p-value of 0.015 and a value of (0.05), Ho was rejected and Ha was accepted, meaning that there was a significant relationship. There is a significant relationship between community attitudes and the handling of tornadoes in Sumbul sub-district, Dairi district.

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