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The Relationship between Knowledge Level and Fire Disaster Preparedness

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ABSTRACT

Objective: The purpose of this study was to determine the relationship between the level of community knowledge and fire disaster preparedness in Gedongan Village.
Method: The method used is a quantitative method with a correlational research design. The population in the study was 3,961 residents. The sample in this study amounted to 97 residents who were selected based on the purposive sampling method with Spearman-Rho statistical analysis.
Result: The results of the univariate analysis of this study were that 89.7% of respondents had good knowledge, 10.3% had sufficient knowledge, 9.3% had sufficient preparedness, and 90.7% had good preparedness.
Conclusion: The results of the bivariate analysis in this study show that the p value is 0.000 with a coefficient of 0.771, which means that there is a very strong relationship between the variables of knowledge and preparedness in Gedongan Village.

Keywords: fire disaster, knowledge, preparedness

Introduction

Disaster is an event that cannot be expected by everyone; it cannot be known where and when a disaster will occur. Disaster will always lurk, regardless of whether it affects children, adults, or the elderly. Fire is one type of disaster that has a major impact on all living things (Nur, 2022). Fire is a situation where buildings, including factories, markets, buildings, houses, settlements, and others, are hit by fire, causing casualties and/or losses (BNPB, 2020). Throughout 2021, the Emergency Event Database (EM-DAT) recorded 432 natural disaster events worldwide. Overall, they caused 10,492 deaths, affected 101.8 million people, and caused an estimated 252.1 billion dollars in economic losses. The continent of Asia is the worst

affected, suffering as much as 40% of all disaster events, 49% of the total number of deaths, and 66% of the number of people affected. In general, the number of deaths and the number of people affected are aged 20 years. (Center for Research on the Epidemiology of Disasters, 2021). Based on data submitted by the National Disaster Management Agency (BNPB), from 2020 to 2021, disaster events that hit the territory of Indonesia reached 8,327 incidents, with 905 cases of fire disasters (BNPB, 2021). Fire disasters rank fourth out of eight major disasters that frequently occur in Indonesia (BNPB, 2022). Residential fires in Indonesia, according to data from the National Disaster Management Agency (BNPB), were 252 fire disasters throughout 2022. The fire resulted in material losses up to their potential. The Regional Disaster Management Agency (BPBD) of Central Java Province recorded that there had been 622 cases of disaster. Throughout 2021, the Central Java Regional Police recorded 107 incidents of fire disasters. Based on data obtained from the BPBD in 2022, there were 73 cases of fire in Karanganyar, most often due to electrical short circuits in 25 cases and burning garbage in 20 cases.

The most frequent fire cases in Karanganyar occurred in Colomadu District, with 16 cases, with details of 4 cases in Gedongan Village, 3 cases in Blulukan Village and Tohudan Village, 2 cases in Batur Village and Gajahan Village, and 1 case in Malangjiwan Village and Paulan Village. Most of the fires in Colomadu District occurred on vacant land, with 8 cases due to burning garbage and fires spreading, 4 cases of fires at houses, 3 cases at kiosks and cafes, and 1 case due to gas cylinder leaks (BPBD, 2022).

Fire incidents in a building are usually caused by various factors, including the placement of buildings that are too tight and inadequate air circulation, short-circuiting of electricity, hydrants and fire extinguishers that are not functioning properly, inadequate paths for firefighting vehicles, making access to extinguish the fire difficult to achieve, and the fire protection system, both the hydrant and APAR, not functioning properly. Awareness and knowledge from users about how to manage risk and how to deal with fire when a fire occurs are still very low. To provide protection or reduce the impact caused by a fire accident, buildings and the environment need to be equipped with a fire protection system (Manik, Kuniawan, and Wahyuni, 2020), so it is necessary to have preparedness related to fire to reduce the impact of a disaster (Ayu and Ratriwardhani, 2021).

Preparedness is a part of the disaster management process that is currently developing and is an important element of proactive disaster risk reduction and prevention activities before a disaster occurs. The lack of preparedness in dealing with fire disasters is caused by internal factors such as the lack of initiative by residents to save emergency telephone numbers, the lack of preparedness materials, the lack of special disaster savings, and a lack of knowledge (Suparmanto, Devi A., and Lidyana, 2022). A person's attitude and concern for being prepared to anticipate disasters can be influenced by the level of knowledge possessed (Yatnikasari et al., 2020).

The level of knowledge can affect preparedness efforts that can be formed from how often the person gets information (Marantika, Agusniati, and Yusna, 2021), so knowledge about fire preparedness is important to avoid risks due to fire. Knowledge also forms the basis for carrying out activities correctly in an effort to anticipate the coming disaster (Yatnikasari, Pranoto, and Agustina, 2020). Based on a preliminary study conducted at the Lurah in the

Gedongan area on February 16, 2023, it was found that fire incidents in the Gedongan area were usually caused by electrical short circuits and burning garbage on vacant land, so the fire spread to a large extent. Based on the results of observations in the Gedongan area, the housing conditions are quite dense; there is a lot of empty land with residual burning waste; there is a lack of availability of light fire extinguishers; and there is a lack of knowledge among residents regarding preparedness in the event of a fire.

Based on the results of interviews with 10 community representatives, they said they had never received socialization from the relevant agencies regarding disasters, and so far, if there was a fire, the community put out the fire using only water. Based on the results of questionnaire measurements related to knowledge of fire disaster preparedness from 10 residents, it was found that 4 residents had sufficient knowledge and 6 other residents had less knowledge. Based on the background of the problem, it is necessary to play a role in increasing knowledge to raise awareness of fire disaster preparedness in the community. So the researchers wanted to conduct a study entitled "The Relationship between Knowledge Level and Fire Disaster Preparedness in the Gedongan Village Community".

Objective

The purpose of this study was to determine the relationship between the level of community knowledge and fire disaster preparedness in Gedongan Village.

Method

The type of research used is quantitative research with a correlational design. Correlation research is used to find out whether there is a relationship between the two variables to be studied. This study used a cross-sectional approach. Cross-sectional is a type of research that emphasizes the time of measurement. This research does not require a lot of time because it only observes data once at a time. This research was conducted to determine the relationship between the level of knowledge and fire disaster preparedness in the community in Gedongan Village. Population in

In this study, all Gedongan residents consisted of 3,961 residents, and based on the calculation of the Slovin formula, a sample was obtained of 97 residents using the simple random sampling method.

Results

Level of knowledge

Table 1. Level of community knowledge about disaster preparedness

Categories	F	%
Good (29-44)	87	89.7
Enough (13-28)	10	10.3
Less (≤ 12)	0	0.0
Total	**97**	**100.0**

According to table 1, there are 87 respondents (89.7%) who have a good level of knowledge among the 97 respondents and 10 respondents (10.3%) who have a sufficient level of knowledge.

Preparedness

Table 2: Community preparedness in dealing with disasters

Kategori	F	%
Good (29-44)	88	90.7
Enough (15-28)	9	9.3
Less (≤ 14)	0	0.0
Total	**97**	**100.0**

Based on Table 2, it shows that out of 97 respondents, 88 (90.7%) had good preparedness and 9 (9.3%) had sufficient preparedness.

The relationship between knowledge about fire disasters and preparedness

Table 3: Cross-tabulation between knowledge and fire disaster preparedness

Knowledge	Preparedness		Total		P Value
	Good	Moderate			
	F	F	F	%	
Good	82	5	87	90.7	0,000
Moderate	6	4	10	9.3	
Less	0	0	0	0.0	
Total	**88**	**9**	**97**	**100**	

Based on Table 3, it shows that there were 12 respondents who had sufficient preparedness and 96 respondents who had good preparedness. The results of the analysis using the Spearman-Rho test showed that the independent variable (public knowledge) and the dependent variable (preparedness) were 0.000 with a coefficient of 0.771. There was a very strong relationship between knowledge and preparedness in Gedongan Village.

Discussion

Based on the results of the study, it was shown that of the 97 respondents who had a good level of knowledge, there were 87 respondents (89.7%), and there were as many as 10 respondents (10.3%) who had a sufficient level of knowledge. This shows that the knowledge of the majority of people is good. This research is supported by Marantika, Agusniati, and Yusna (2021), who explain that a person's level of knowledge can affect preparedness efforts in dealing with disasters. A person's level of preparedness can be formed by how often the person gets information, so someone with higher knowledge is expected to be more mature when facing the possibility of a disaster. Research by Rizki (2022) also states that knowledge of disasters is the main reason for someone to carry out existing protection activities or

preparedness efforts. There are several factors that influence knowledge, one of which is age and education (Harigustian, 2021).

In accordance with the results of this study, most people are in the age range of 36–45 years (53.6%), followed by ages 26–35 years (25.8%), ages 46–55 (16.5%), and 56–65 years (4.1%). Age is a factor that influences knowledge because the older you are, the more your mindset and ability to learn something increase, so the knowledge you get is even better and can influence your mindset and comprehension when studying an object (Khairunnisa z., Sofia, and Magfirah, 2021). Most of the respondents were aged 36–45 years; the more mature a person's age, the more experience and information they got, so they could make adjustments independently.

Another factor that influences knowledge is the level of education. The results of this study show that the majority of respondents had high school education, as many as 61 respondents (62.9%). The level of education affects one's knowledge; this is because the higher one's education, the better one understands and responds to something. This research is supported by Yari (2021), who states that level of education and work experience are factors that influence knowledge.

The impact caused by the fire disaster is that it not only causes damage to assets and materials but also hinders activities, so there is a need for vigilance against the threat of disaster hazards with preparedness measures (Setianingsih, 2021). Preparedness is part of disaster management at the pre-disaster stage, which is carried out when there is a potential for disaster and uses parameters consisting of knowledge about disaster policies, emergency planning, and early warning systems (Rohimat and Kusumadewi, 2022). The level of one's preparedness is formed from knowledge or information regarding prevention and preparedness (Fatihah and Setyawan, 2020).

Based on the results of the study, it was found that the frequency of preparedness in the good category was 88 respondents, and 9 respondents had sufficient preparedness, which was influenced by knowledge, age, and level of education, resulting in a good level of preparedness. According to the researchers, age, good knowledge, and level of education affect respondents ability to receive information, so community preparedness is in the good category.

The relationship between the level of knowledge and fire disaster preparedness for respondents based on the Spearman-Rho statistical test obtained a p-value of 0.000, which means that there is a relationship between variables because the p-value is 0.05 with a coefficient of 0.771, so there is a significant relationship between levels of knowledge of fire disaster preparedness in the Gedongan Village Community. This indicates that the community has good knowledge, so disaster preparedness is also in the good category.

Based on the cross-tabulation in Table 3, it was found that there were 87 respondents who had a good level of knowledge, 10 respondents who had a sufficient level of knowledge, 9 respondents who had sufficient preparedness, and 88 respondents who had good preparedness. The results of this study are in line with Supriandi's research (2020), which also explains that the respondent's knowledge is 90% and a p value of 0.049 is obtained, which means that there is a relationship between the respondent's knowledge and family preparedness in dealing with disasters. Other research by Sudjana (2021) also explained that

based on a significance value smaller than the p value of 0.05, which is 0.000, there is a relationship between the two variables and a correlation coefficient value of 0.733, which means that the level of strength of the relationship between the variables of fire knowledge and fire preparedness is stated to be positive. Based on facts and theory, researchers argue that age, level of education, and knowledge play an important role in society's dealing with disasters.

This can be proven from the findings of researchers who have found that respondents who have a high level of knowledge will be more prepared to carry out fire disaster preparedness. However, there were also respondents with sufficient preparedness because they still had low awareness regarding the environment, especially regarding the burning of waste, which was still carried out on vacant land, causing fires in the study area.

This research shows that the level of knowledge of residents in Gedongan Village is good, with as many as 87 respondents, and respondents who have a sufficient level of knowledge are as many as 10 respondents. For fire disaster preparedness, the good category has as many as 88 respondents, and nine respondents have sufficient preparedness. Even though the results regarding the knowledge and preparedness of the respondents were good, it turns out that there is still a risk of a fire disaster in the Gedongan area due to the low awareness of the respondents regarding the environment.

Conclusion

Based on the results of this study, the suggestions given by researchers for the community should increase knowledge and good attitudes for preparedness in dealing with fire disasters, and BPBDs should provide socialization and guidance related to knowledge in dealing with fire disasters as an effort that can be made to reduce risk. threat of a fire disaster.

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