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The Influence of Flood Disaster Preparedness Health Education on the Level of Knowledge and Attitudes of Health Care

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ABSTRACT

Throughout 2021 the City of Semarang has experienced 88 floods in several different locations. In order for the community to become more independent in the health sector, it is necessary to develop active alert villages and sub-districts where one of the components is health cadres and Health Crisis Management. The community empowers itself through the active role of cadres. Communities prevent, mitigate/reduce the threat and risk of disaster impacts, and increase their ability to adapt, reduce risks, save themselves and recover better. The purpose of this study was to describe the knowledge, attitudes and preparedness of health cadres in dealing with floods as part of community empowerment. This study used a quantitative analytic method, with a cross-sectional technique. It was conducted from August to October 2022. The sample of this study was 35 respondents. The results showed that there was a relationship between the knowledge and attitudes of health cadres towards flood disaster preparedness (p = 0.04 and p = 0.027). The results of the study provide an overview of how preparedness must be owned by every family and health cadre in facing the possibility of natural disasters, in this case floods.

Keyword : floods; health cadrees; preparedness

Introduction

Indonesian society is very often faced with health crises. A health crisis is an emergency condition that can result in death, serious illness, or disability if immediate action is not taken. One of the most frequent health crises that causes many victims is a disaster. The territory of Indonesia is at risk of crisis or disaster. There are 64% of areas in Indonesia are at moderate to high risk of various types of disaster threats. The community is both the victim and the spearhead of the first responders to health crises or disaster situations in Indonesia, which threaten their lives or health [1].

A flood is an excess flow or inundation of a river or other body of water and causes or threatens damage. The difference between normal discharge and flood flow is determined by the height of the water flow where flooding is indicated by water flow that exceeds the capacity of the river bank or embankment so that it inundates the surrounding area (Azmeri et al., 2017). Based on the distribution of flood disasters in Indonesia in 2020, the most occurred in Central Java (179), West Java (87), East Java (28), South Sumatra (40) and East Java (28) [2].

Preparedness in facing floods is influenced by several factors, one of which is knowledge. The level of public knowledge of preparedness in facing major disasters in Indonesia is still low. Disaster management efforts still focus on

focus on disaster emergencies. Prevention and preparedness efforts still need to be improved. The increasing number of disasters should be a lesson so that they do not happen again in the future. Even if they do happen again, the impact of the disaster can be minimized. Therefore, disaster risk reduction and disaster mitigation must be integrated into development [2].

For the community to be more independent in the health sector, the development of active alert villages and sub-districts has been carried out, one of the components of which is health cadres and Health Crisis Management. The community empowers itself through the active role of cadres. The community prevents, mitigates/reduces threats and risks of disaster impacts, and increases its ability to adapt, reduce risks, save itself, and recover better. The community knows the activities that must be carried out both during a disaster and after a disaster.

Natural disasters can cause fear and anxiety for pregnant women and mothers with babies. Pregnant women, postpartum mothers, and breastfeeding mothers are among the groups most at risk when a disaster occurs. Midwives and nurses as health workers have a major role in handling victims during a disaster. Research entitled The Role of Health Workers at Balkesmas in the Emergency Response to Disasters in Central Java Province, the results of the study showed that health workers at Balkesmas have not had an optimal role in the emergency response to disasters due to the lack of comprehensive resource management and the lack of optimal mobilization of health workers [3].

The main factors that are the key to preparedness are knowledge, attitude, and awareness of being prepared to face disasters. Preparedness is one of the disaster management processes, the importance of preparedness is one of the important elements of disaster risk reduction activities [4].

Health services during disasters are a very important factor in preventing death, disability, and disease, as well as reducing the impact caused by disasters which are unwanted events and usually occur suddenly and cause loss of life. One of the obstacles often encountered in crisis management in disaster areas is the lack of Human Resources (HR) for Health that can be used both in terms of quantity and type and competence [5].).

Health cadres are volunteers who have been equipped with knowledge and skills regarding health crisis management. Cadres are expected to act as drivers in increasing community preparedness, providing a quick response during a disaster, and coordinating post-disaster recovery efforts. One effort to increase preparedness in dealing with flood disasters is to provide health education to cadres. Communities can empower themselves through the active role of cadres, cadres can act as drivers in increasing community preparedness, providing a quick response during a disaster, and coordinating post-disaster recovery efforts) [6].

Research methods

This type of research is an analytical observational method. The research design used in this study is cross-sectional. The independent variables in this study are the characteristics of respondents, knowledge, and attitudes of health cadres about flood disasters, while the dependent variable in this study is the preparedness of health cadres in facing flood disasters. The population in this study were health cadres in Kaligawe Village, Kaligawe District, Semarang City. A total of 35 people. The sampling technique in this study was total sampling. So the sample in this study was 35 people.

Data analysis in this study used univariate and bivariate analysis.). This descriptive analysis determines the characteristics of respondents including age, education level and employment status, knowledge, attitudes, and preparedness in facing flood disasters. In this study, bivariate analysis was used to determine the relationship between factors that influence the preparedness of health cadres in facing flood disasters using the chi-square statistical test.

Results and Discussion

Table 1. Frequency Distribution of Respondent Characteristics Age in the Intervention Group

No	Level Group	Amount	Percentage
1.	Young adults	2	10
2.	Late adulthood	9	45
3.	Early elderly	6	30
4.	Late elderly	3	15
	Amount	20	100

Table 2. Frequency Distribution of Respondents' Educational Characteristics in the Intervention Group

No	Level Group	Amount	Percentage
1.	Base	5	25
2.	Intermediate	14	70
3.	Tall	1	5
	Amount	20	100

Table 3. Frequency Distribution of Respondents' Age Characteristics in the Control Group

No	Level Group	Amount	Percentage
1.	Late adulthood	15	75
2.	Early elderly	5	25
	Amount	20	100

Table 4. Frequency Distribution of Respondents' Educational Characteristics in the Control Group

No	Level Group	Amount	Percentage
1.	Base	1	5
2.	Intermediate	13	65
3.	Tall	6	30
	Amount	20	100

Table 5. Frequency Distribution of Respondents' Occupational Characteristics in the Intervention Group

No	Level Group	Amount	Percentage
1.	Doesn't work	19	95
2.	Private sector employee	1	5
	Amount	20	100

Table 6. Frequency Distribution of Respondents' Occupational Characteristics in the Control Group

No	Level Group	Amount	Percentage
1.	Doesn't work	7	35
2.	Private sector employee	9	45
3.	Civil Servants/Police/TNI	4	20
	Amount	20	100

Table 7. Frequency Distribution of Knowledge before Health Education in the Intervention Group

No	Level Group	Amount	Percentage
1.	Not enough	3	15
2.	Enough	7	35
3.	Good	3	50
	Amount	20	100

Table 8. Frequency Distribution of Knowledge after Health Education in the Intervention Group

No	Level Group	Amount	Percentage
1.	Enough	4	20
2.	Good	16	80
	Amount	20	100

Table 9. Frequency Distribution of Knowledge about Flood Disasters in the Control Group

No	Level Group	Amount	Percentage
1.	Not enough	1	5
2.	Enough	2	10
3.	Good	17	85
	Amount	20	100

Table 10. Frequency Distribution of Health Cadres' Attitudes about Flood Disasters Before Health Education was Conducted

No	Level Group	Amount	Percentage
1.	Positive	13	65
2.	Negative	77	35
	Amount	20	100

Table 11. Frequency Distribution of Health cadre attitudes regarding flood disasters in the intervention group after health education was carried out.

No	Level Group	Amount	Percentage
1.	Positive	19	95
2.	Negative	1	5
	Amount	20	100

Table 12. Frequency Distribution of Health cadre attitudes regarding flood disasters in the control group

No	Level Group	Amount	Percentage
1.	Positive	13	65
2.	Negative	77	35
	Amount	20	100

Table 13. Knowledge of health cadres before and after being given health education in the intervention group

		N	**Mean Rank**	**Sum of Rank**
Knowledge After Intervention – Knowledge Before Intervention	Negative Ranks	3	6.90	29.50
	Positive Ranks	15	12.35	141.50
	Ties	2		
	Total	20		

Table 14. The effect of health education on flood disaster preparedness on the level of knowledge of health cadres before and after being given health education in the intervention group.

	Post-Intervention Knowledge – Pre-Intervention Knowledge
Z	-2,589
Asymp. Sig. 2. (tailed)	0.012

Table 15. Attitudes of health cadres before and after being given health education in the intervention group

		N	Mean Rank	Sum of Rank
Attitude After Intervention – Attitude Before Intervention	Negative Ranks	1	2.00	8.00
	Positive Ranks	13	9.70	97.00
	Ties	2		
	Total	20		

Table 16. The effect of health education about flood disasters on the attitudes of health cadres before and after being given health education in the intervention group.

	Post-Intervention Knowledge – Pre-Intervention Knowledge
Z	-1,941
Asymp. Sig. 2. (tailed)	0.023

Based on Table 1 Respondent age categories are divided into young adults (26-35 years), late adults (≥35 years), early elderly, and late elderly. The results of the study showed that the majority of respondents aged in the late adult group were 45%.

Based on Table 2 respondents' education categories are divided into basic education levels (elementary school, junior high school), secondary (high school), and higher education (university). The results of the study showed that the majority of respondents' education was in the secondary level group, namely 70%.

Based on Table 3 kRespondent age categories are divided into young adults (26-35 years), late adults (≥35 years), early elderly, and late elderly. The results of the study showed that the majority of respondents aged in the late adult group were 45%.

Based on Table 4 respondents' education categories are divided into basic education levels (elementary school, junior high school), secondary (high school), and tertiary education (university). The results of the study showed that the majority of respondents' education was in the secondary level group, namely 70%.

Education in this study is calculated as the length of school years without counting the grades repeated. According to Notoatmodjo (2012), a person's level of education will influence their response to something that comes from outside. People with higher education will respond more rationally to incoming information and will think about the extent of the possible benefits that can be obtained from the idea[3].

This study is by Notoatmodjo's opinion (2012) that a person's level of education will influence their response to something that comes from outside. People with higher education will give a more rational response to incoming information and will think about the extent of the possible benefits obtained from the idea. The majority of respondents have moderate education, so the responses given by respondents can fully provide a good response in forming attitudes towards flood preparedness and the behavior shown. Health cadres are likely to have many opportunities to access a lot of information about flood disasters, one of which can be obtained through education [7].

In this case, the higher a person's education, the wider his/her opportunity to obtain information about something and also knowledge about something. Where through the length of education taken through school levels, respondents will also get more information from various sources. So respondents can determine their attitude towards certain objects and end up with the expected behavior in this case being ready to face flood disasters.

Based on Table 5, the respondent's job categories are categorized as unemployed, farmers/traders, private employees, and civil servants/police/military. The results of the study showed that some respondents were unemployed as much as 80%, followed by farmers/traders at 11.4% and in the private sector at 8.6%.

Based on Table 6, the occupational categories of the control group respondents are categorized as unemployed, farmers/traders, private employees, and civil servants/police/military. The results of the study showed that some respondents were private employees as much as 45%, followed by unemployed at 35% and civil servants/police/military at 20%.

According to the Central Statistics Agency, the type of work is the type of position a person has in

doing work in a business unit or activity. Types of work are classified as working and not working. Work is related to the mother's activities or busyness. The majority of respondents do not work and tend to have more time to access information through cadre training, and access to other sources of information[8].

Level of Knowledge before and after Health Education in the Intervention Group

The knowledge of health cadres about flood disasters towards flood disaster preparedness is divided into three categories, namely: good, sufficient, and lacking. The results of the study in the interveners group showed that most respondents had good knowledge as much as 50%, followed by 35% of respondents with sufficient knowledge and 15% of respondents with less knowledge.

The results of the study in Table 7 of the intervention group show that the majority of respondents had good knowledge, as much as 80%, followed by 20% of respondents with sufficient knowledge.

In the question items in Table 8 regarding health cadres' knowledge about flood disasters and flood preparedness, among others, questions were asked about the definition of major, types of floods, causes of floods, impacts of floods on health, diseases commonly associated with floods, flood prevention efforts and flood preparedness.

The difference found in the knowledge results before and after the intervention group counseling was the health impacts caused by flooding, such as diarrhea, as many as 75% of the intervention group answered incorrectly before the counseling, while 100% answered correctly after the counseling.

Control Group Knowledge Level

Knowledge about flood disasters in the control group is divided into three categories: good, sufficient, and less. The results showed that most respondents had good knowledge as much as 85%, followed by sufficient knowledge 10%, and as many as 5% of respondents had less knowledge.

In the question items in Table 9, health cadres' knowledge about flood disasters includes questions about the definition of disasters, types of floods, causes of floods, impacts, common diseases, and preparations before, during, and after a flood occurs.

The questions that were still answered incorrectly in the control group were the types of floods as much as 100%, and the main causes of floods as much as 75%.

The attitude of health cadres regarding flood disasters towards flood disaster preparedness before and after being given Health Education

The attitudes of health cadres about flood disasters are divided into three categories, namely: positive and negative attitudes. The results of the study showed that most respondents had a positive attitude of 65%, followed by 35% of respondents having a negative attitude towards flood disaster preparedness.

In question, item Table 10 Health cadre knowledge about flood disasters and flood preparedness includes questions about the definition of major, types of floods, causes of floods, impacts of floods on health, diseases commonly associated with floods, flood prevention efforts, and flood preparedness.

The distribution of attitudes of some respondents supports flood preparedness. This is proven that some respondents strongly agree that flood disasters are disasters that should be watched out for because they have an impact on family health and the environment as much as 55%, followed by the attitude of respondents who strongly agree that diarrhea often occurs after floods, because the environment is dirty as much as 75%, as many as 60% of respondents strongly agree to hold activities together with neighbors to clean the surrounding environment.

The attitudes of health cadres about flood disasters are divided into three categories, namely: positive and negative attitudes. The results of the study showed that most respondents had a positive attitude of 95%, followed by 5% of respondents having a negative attitude towards flood disaster preparedness.

In the question items in Table 11 regarding health cadres' knowledge about flood disasters and flood preparedness, among others, questions were asked about the definition of major, types of floods, causes of floods, the impact of floods on health, diseases commonly associated with floods, flood prevention efforts and flood preparedness.

Distribution of attitudes after health education, almost most experienced a change in attitude towards a more positive direction, including some respondents supporting flood preparedness. This is proven by the fact that some respondents strongly agree that floods are disasters that should be watched out for because they have an impact on family and environmental health as much as 75%, as many as 75% of respondents are

willing to help others affected by floods, as many as 70% of respondents strongly agree to hold activities together with neighbors to clean up the surrounding environment.

Attitudes about flood disasters in the control group

The attitude of health cadres about flood disasters is divided into three categories, namely: positive and negative attitudes. The results of the study showed that most respondents had a positive attitude of 85%, followed by 15% of respondents having a negative attitude towards flood disaster preparedness.

In the question items in Table 12 regarding health cadres' knowledge about flood disasters and flood preparedness, the questions include the definition of major, types of floods, causes of floods, the impact of floods on health, diseases commonly associated with floods, flood prevention efforts, and flood preparedness.

The distribution of attitudes of some respondents in the control group supported flood preparedness. This is proven by the fact that most respondents agreed that floods are disasters that should be watched out for because they impact family and environmental health as much as 80%, followed by 80% of respondents agreeing to hold activities together with neighbors to clean up the surrounding environment, help neighbors to save themselves to evacuation, cooperate with community leaders, sub-districts and health centers in dealing with the effects of floods and pay attention to general health conditions in vulnerable community groups.

The effect of health education on flood disaster preparedness on the level of knowledge of health cadres before and after being given health education in the intervention group.

The knowledge after the intervention was less than the knowledge before the intervention, the value was reduced by 3 respondents, the knowledge after the intervention was more than the knowledge before the intervention by 15 respondents and the knowledge results were the same as before after the intervention by 2 respondents. To find out the effect of health education before and after it is given, see the following table:

Based on Table 13 Statistical test results with a significance level of 5%, a p-value of 0.012 was obtained (p-value <0.05). This shows that there is an influence of health education on knowledge before and after in the intervention group.

Based on Table 14, disaster knowledge is the ability to remember events or a series of events that threaten and disrupt people's lives and livelihoods, whether due to natural factors non-natural factors, or human factors that can result in human casualties, environmental damage, property losses and psychological impacts[9].

Disaster knowledge will be needed by communities living in disaster-prone areas, because various information regarding the types of disasters that can threaten them, disaster symptoms, estimates of the disaster area, self-rescue procedures, recommended places for evacuation, and other information that the community may need before, during and after the disaster occurs can minimize the risk of disaster [10].

Empirical knowledge can also be obtained through personal human experiences that occur repeatedly, for example, someone who often experiences flooding will automatically gain knowledge about how to overcome flood problems and act to overcome them or even increase preparedness in dealing with floods [11].

In line with Susilawati's research, regarding the description of the readiness of cadres and health workers in disaster management at the Health Center in Disaster-Prone Areas in West Sumbawa Regency, it was found that most health workers have good knowledge of disaster management. Among the sociodemographic factors studied, knowledge is related to the readiness of health workers in disaster management (Arsi Susilawati, [12].

In line with research on factors related to preparedness in facing earthquake and tsunami disasters at Padang City Health Center, it was found that there was a relationship between the level of knowledge, attitude, and training with disaster preparedness. The most dominant factor in disaster preparedness is training [13].

The influence of health education about flood disasters on the attitudes of health cadres before and after being given health education in the intervention group.

The attitude after the intervention was less than the attitude before the intervention, experiencing a reduction in the value of 1 respondent, the attitude after the intervention was more than the attitude before the intervention of 13 respondents, and the results of the same attitude before and after the intervention of 2 respondents. To find out the effect of health education before

and after on the attitude of cadres can be seen in the following table:

Based on Table 15The results of the statistical test with a significance level of 5% obtained a p-value of 0.023 (p-value <0.05). This shows that there is an influence of health education on attitudes before and after in the intervention group.

Based on Table 16, the results of the study show that most respondents gave a positive attitude towards flood preparedness, this means that health cadres have been able to take an attitude towards positive behavior in responding to flood disasters. This is likely caused by several factors, including characteristics, knowledge, or exposure to information sources. In terms of characteristics, the largest number of respondents' education is in the middle category (high school education), namely 65.7% of respondents, knowledge about flood disasters is mostly at a sufficient level of 51.4%.

Attitude is a mental and nervous state of readiness, regulated through experience that exerts a dynamic or directed influence on the individual's response to all objects and situations related to it. Attitude is dynamic, not static. The manifestation of attitude cannot be directly seen but can only be interpreted first from closed behavior. Attitude is not yet an action or activity but is a predisposition to action or behavior.

Attitude in L green theory is one of the predisposing factors for the formation of new behavior. To obtain a positive attitude towards flood preparedness, the stimulus is needed to increase knowledge, beliefs, perceptions, and self-abilities that can be obtained from information sources including midwives, doctors, nurses, friends, husbands, posyandu cadres, dasawisma, PKK, electronic media and print media. Therefore, to improve the attitudes of respondents who are still negative to become positive, these stimuli are needed routinely. This study is not in line with the study of Wahyuningsih (2013), attitudes have a significant effect on flood disaster preparedness in Joyotakan Village, Serengan District, Surakarta City. The magnitude of the influence of attitudes on flood disaster preparedness in Joyotakan Village, Serengan District, Surakarta City [14].

The knowledge possessed influences the attitude and concern of the community to be ready and alert in anticipating disasters, especially for those who live in areas vulnerable to natural disasters [15]. The knowledge and attitude of preparedness possessed by the community is obtained from the experience of experiencing flood disasters almost every year, the experience possessed by the community provides knowledge about the flood disasters that hit and will influence the attitude and concern of the community to be ready and alert in anticipating flood disasters [16].

According to researchers, the role of cadres in disaster management for mothers and children can be improved by providing cadres with materials and practices on disaster emergencies and basic life support (BLS) training which has not been widely discussed in this study. Therefore, Health Facilities or Health Centers together with the health service facilitate health cadres to improve their quality related to disaster management for mothers and children.

Conclusion

Knowledge in general can shape certain attitudes in a person and influence daily actions. Likewise, the level of knowledge of cadres about good flood disasters can shape attitudes and behaviors that are ready for flood disasters. The results of the study showed that there was an influence of health education on knowledge before and after in the intervention group. The results showed that most respondents gave a positive attitude towards flood preparedness, this means that health cadres have been able to take an attitude that leads to positive behavior in terms of responding to flood disasters.

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