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Flood Disaster Management Training (FDMT) to Improve Family Preparedness: Knowledge, Perceptions, Attitudes and Abilities

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ABSTRACT

Currently, the main problem that occurs is the high number of flood disasters which have a very large impact on people's lives. This flood disaster has not been matched by community preparedness in flood-prone areas. Most of them still do not have preparedness in responding to disasters that threaten every year. Therefore, efforts are needed to increase the preparedness of at least the closest family to gain knowledge and ability to respond to existing disaster events. The purpose of this study was to find out how FDMT influences family preparedness. The research design used was a pre-experimental design with a one group pre post test design approach. The sample was selected by purposive sampling technique with a sample of 60 respondents. Furthermore, respondents were asked to fill out a questionnaire first (pre-test) then given an intervention. Then at the end of the activity the respondent will be given a questionnaire (post test) about family preparedness, These variables include: knowledge, perceptions, attitudes and abilities. The results showed that all sub-variables of family preparedness experienced a significant increase before and after the intervention, namely: knowledge increased (p = 0.000), perception (p = 0.021), attitude (p = 0.001) and ability (p = 0.000). From the results of this study it can be concluded that the FDMT intervention is effective in increasing family preparedness so that it can be used for disaster management training for the community.

Keyword: Disaster, Preparedness, Knowledge, Perceptions, Attitudes And Abilities

ABSTRAK

Pada saat ini permasalahan utama yang terjadi adalah tingginya angka kejadian bencana banjir yang mengakibatkan dampak yang sangat besar terhadap kehidupan bermasyarakat. Kejadian bencana banjir ini belum diimbangi oleh kesiapsiagaan masyarakat di daerah rawan bencana banjir. Sebagian besar dari mereka masih belum memiliki kesipsiagaan dalam merespon kejadian bencana yang mengancam setiap tahunnya. Oleh karena itu diperlukan upaya meningkatkan kesiapsiagaan minimal keluarga terdekat untuk mendapatkan pengetahuan dan kemampuan diri dalam merespon kejadian bencana yang ada. Tujuan dari penelitian ini adalah untuk mengetahui bagaimana pengaruh FDMT terhadap family preparedness. Desain penelitian yang digunakan adalah pra eksperintal desain dengan pendekatan one grup pre post test design. Sampel dipilih dengan teknik purposive sampling dengan sampel sejumlah 60 responden. Selanjutnya responden diminta untuk mengisi kuesioner terlebih dahulu (pre test) selanjutnya diberikan intervensi. Kemudian diakhir kegiatan responden akan diberikan kuesioner (post test) tentang family preparedness. Hasil penelitian menunjukkan seluruh sub variabel family preparedness mengalami peningkatan signifikan sebelum dan sesudah dilakukan intervensi yaitu: pengetahuan meningkat dengan (p = 0.000), persepsi (p = 0.021), sikap (p = 0.001) dan kemampuan (p = 0.000). Dari hasil penelitian tersebut dapat disimpulkan bahwa intervensi FDMT efektif untuk meningkatkan family preparedness sehingga dapat digunakan untuk training manajemen bencana untuk masyarakat.

Kata Kunci: *Bencana Banjir, Disaster Training, Family*

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Introduction:

Many disasters have occurred in Indonesia, one of which is flooding. The main factors that can cause the disaster to cause large casualties and losses are a lack of understanding of the characteristics of the hazard, attitudes or behavior that result in a decrease in natural resources, lack of early warning information which results in powerlessness or inability and unpreparedness in dealing with disasters both for individuals and families (Rahayu & Khoiriyati, 2019). Preparedness is a part of the disaster management process and in the current concept of disaster besides that, it is an important element of proactive disaster risk reduction prevention before a disaster occurs (Addiarto & Yunita, 2019a). Preparedness efforts are more emphasized on efforts to prepare the ability to carry out emergency response activities quickly and accurately in relation to disaster management efforts in Indonesia, the family is one of the smallest units that need to be prepared so that when a disaster occurs they have better resilience. One of the activities to improve this is by conducting flood disaster management training (Bohariand & Widana, 2021; Addiarto & Yunita, 2019b).

However, in reality the level of family preparedness in dealing with disasters in Indonesia is currently still low. This shows that disaster training and socialization activities from the government and other authorized institutions are still not optimally carried out for disaster-prone communities in all disaster-prone areas (Mirzaei et al., 2019; Kusyairi & Addiarto, 2019). Data from the National Disaster Management Agency recorded disaster events in 2021 consisting of 1,238 floods, 931 extreme weather events, 562 landslides, 248 forest and land fires. Then, there were 22 tidal waves and abrasion, 22 earthquakes, volcanic eruptions and four droughts. As a result of this disaster, BNPB reported that 198 people died, 31 people were missing, 832 were injured and 3,903,947 people suffered and fled (BNPB, 2021). Meanwhile, in Probolinggo Regency, floods are also a disaster that often occurs every year when the intensity of rain increases. According to data from the Regional Disaster Management Agency (BPBD) of Probolinggo Regency, the floods that have hit in recent years have had a major impact on the lives of the people living around the disaster area. In 2021 there was a flood in the Dringu Village area while in 2022 there was another flood in the same village and the impact was that dozens of houses were flooded (BPBD, 2021).

From the results of the previous preliminary study in August 2022, researchers conducted interviews with 10 families in Dringu Village, Dringu District, Probolinggo. From the 10 people, only 30% of the families knew what actions to prepare before the flood disaster occurred, the others stated that they did not know and were ready if a disaster occurred at any time. Because of this, further research is needed on how flood disaster training interventions can have an impact on flood disaster preparedness (Juanita et al., 2018; Hakim & Widyawati, 2021). This study differs from previous research because previous studies tended to focus more on the community or individual level, while this study specifically examines family preparedness. This is a relevant approach considering that the family is the smallest unit in society, playing an important role in disaster preparedness. Additionally, this FDMT training is specifically targeted at families. Previously, many disaster management trainings were aimed at professionals or the general public, while training for families as the basic unit is less commonly found. From the description above, researchers will conduct a study of Flood Disaster Management Training (FDMT) to Improve Family Preparedness: knowledge, perceptions, attitudes and abilities in dealing with disasters in disaster prone areas.

Methods:

The population in this study were all people in Dringu Village, Dringu District, Probolinggo Regency. Dringu village is one of the areas in Probolinggo district which is prone to floods, so the people there are at high risk of being affected by the disaster. Most of the people work as fishermen and farmers. This study uses a pre-experimental research design with a one group pre-post test design approach which means identifying the effect of FDMT on Family Preparedness. There are two variables: the

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independent variable is FDMT, and the dependent variable is family preparedness: knowledge, perceptions, attitudes and abilities. This study used a questionnaire to measure research variables. the instrument used adopts the theory previously researched by Mirzaei et al., (2019), then the researcher develops related sub-variables where the questionnaire was developed using a Likert scale. The results of the validity and reliability tests for the research instrument showed a significant value with an r-table of 0.81 and a reliability p-value of 0.93.

This study used a purposive sampling technique in determining the research sample, previously giving informed consent to the respondents who would take part in the research, after the calculations were carried out, the number of research samples was 60 people. Meanwhile, the inclusion criteria for the subjects who became respondents were: a) residents with minimum age 15 who live in Dringu village, b) able to read and write, c) volunteered to be a respondent.

In this study the number of research samples was determined using the calculation formula from slovin [**n=N/1+Nx (e)^2**], from 70 populations so that the results obtained were 60 samples from the total existing population. The researchers then distributed questionnaires to each respondent. After the respondents filled out the questionnaire, the researcher conducted an FDMT intervention on all respondents. The implementation of the Flood Disaster Management Training (FDMT) consists of two sessions per day over the course of three days, with each session lasting 1 to 2 hours. On the first day, an introduction to disaster management will be provided. On the second day, the concept of preparedness will be discussed, and on the final day, role-playing exercises will be conducted with each participant. Then the researcher distributed the second questionnaire to be filled out by the respondents then all the questionnaires were collected to the researcher.

The collected questionnaire data will be coded, tabulated, scored and analyzed using the SPSS 23 program to determine differences in the scores of each of these variables pre and post test interventions then the researchers used the Wilcoxon test to assess whether the variable has a difference before and after the intervention. If the research results show a p-value less than 0.05, it indicates a significant difference in family preparedness before and after the intervention.

The researchers have obtained approval to pass ethical test from the Health Research Ethics Commission STIKes Hafshawaty with the number: KEPK/256/STIKes-HPZH/VII/2023 The ethical principle adopted by this research is to protect the privacy and confidentiality of respondents. Therefore researchers respect the right of respondents to agree or refused to participate in the research. Furthermore, researchers explain the benefits of research, research research objectives and procedures. This research is voluntarily and without coercion. Respondents were asked to signed a consent letter if they were willing to participate in the data collection process during the study.

Results:

Table 1. Description of Research Respondents Characteristics Based on Gender, Age, Educational Level, and Experience Following Disaster Activities

Variables	Frequency	Percentage (%)
Gender		
Male	22	37
Female	38	63
Age		
15 - 16 years	5	8
17 - 19 years	46	77
> 20 years	9	15
Educational Level		
Elementary School	2	3
Junior High School	23	38
Senior High School	32	53
College	3	5
Experience Following Disaster		
Never	24	40
times	21	35
2-3 times	13	22
> 3 times	2	3
Total	60	100

Based on table 1 above, it is known that the largest number of respondents in this study were women (38 people: 63%), the majority of

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respondents were teenagers 17-19 years (46 people: 77%), their last education was senior high school (32 people: 53%) and the majority had never participated in disaster activities (24 people: 40%).

Table 2. Bivariate Analysis of Family Preparedness: Respondent's Perceived Knowledge, Attitudes and Abilities in Facing Disasters Before and After Intervention

Variable		Criteria						*p value*
		Good		Enough		Poor		
		(f)	(%)	(f)	(%)	(f)	(%)	
Knowledge	*Pretest*	9	15	18	30	33	55	0.000
	Posttest	40	67	20	33	0	0	
Perception	*Pretest*	14	23	18	30	28	47	0.021
	Posttest	17	28	28	47	15	25	
Attitude	*Pretest*	22	37	24	40	14	23	0.001
	Posttest	33	55	26	43	1	2	
Ability	*Pretest*	6	10	27	45	27	45	0.000
	Posttest	38	63	21	35	1	2	

In table 2 above, the family preparedness sub-variable is presented which consists of knowledge, perceptions, attitudes and abilities of respondents in dealing with disasters before and after intervention. From the table, the results show that all sub-variables experienced an increase in category values from before the intervention compared to after the intervention, where the post-test scores showed a significant increase. In the good knowledge variable, respondents increased from 15% to 67%, then good perception increased from 23% to 28%, then good attitude increased from 37% to 55% and good ability increased from 10% to 63%. All sub-variables have a p value < 0.05, so it can be concluded that there are differences before and after being given the FDMT intervention.

Discussion :

Based on the research data in table 2, it shows that knowledge is one of the factors of family preparedness in facing disasters which has experienced a significant increase in the criteria, namely the good criteria have increased (52%), moderately increased (3%) and less decreased (55%) in the post test. Therefore, the p value is 0.000, which is believed to be a difference in respondents' knowledge scores before and after the intervention was carried out. The results of this research are in line with previous research conducted by Fitriana dan Husain (2022) which stated that knowledge is a learning process that involves a person's five senses to record everything that happens to create an understanding. It was further stated in his research that the knowledge possessed by the majority of respondents is currently very high because most respondents have easy access to information, a fairly high level of education, and experience that has provided lessons on how to carry out disaster management. However, it is different according to other research conducted by Ahmad et al., (2018) that the knowledge of the majority of the community is still lacking regarding preparedness for disasters that occur, this is due to their lack of participation or involvement in disaster management efforts in the form of attending training as well as several other outreach activities from the government or disaster-related agencies (Rahayu & Khoiriyati, 2019).

In the *sub-variable of* attitude, we can also see significant changes from the pre-test and post-test, namely the good criteria have increased (18%), moderately increased (3%) and less decreased (21%) in the post-test. Attitudes are closely related to knowledge, if someone knows and understands disaster preparedness then attitudes will also determine the next steps an individual in the family will take to prepare as best as possible in responding to disasters that can occur at any time (Ahmad et al., 2018).

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According to Evie and Hasni (2022), attitude is an individual's willingness to act. Furthermore, there are several factors that influence an individual's attitude in improving disaster preparedness, one of which is past disaster experience which shapes beliefs and personality in determining attitudes to face the next disaster.

In *the sub-variable of* perception, the results experienced changes in the criteria of either increasing (5%), moderately increasing (27%) and less decreasing (22%). Perception is a person's way of looking at interpreting, interpreting and assessing something that happens. Perception of disaster preparedness is defined as how a person views the importance of preparing oneself for disaster preparedness (Susila et al., 2020). The higher a person's knowledge and understanding, the more influence his perception will have. According to research, it is stated that the perception of most people in preparing preparedness is still not good, this can be caused by various factors, both internal and external, such as: level of education, gender and occupation (Fitriana & Husain, 2022).

Meanwhile, *the sub-variable of ability* significantly increased to good criteria (53%), moderately decreased (10%) and less decreased (43%). Skills are one of the variables that very significantly influences respondents' preparation for disaster preparedness. Apart from the knowledge, perceptions and attitudes of respondents experiencing changes and improvements, the skill variable is one of the important things in disaster preparedness, especially for families (Hakim & Widyawati, 2021). Increasing skills will also influence preparedness in facing disasters, the better the skills a community or individual has, the higher the level of disaster preparedness (Juanita et al., 2018).

According to table 2, all family preparedness variables are explained: knowledge, perception, attitudes and abilities experienced a significant increase before and after being given the FDMT intervention. This can be seen from the difference in p value of each variable including: in the significance level knowledge variable (p = 0.000), perception (p = 0.021), attitude (p = 0.001) and skills (p = 0.000). This shows that the FDMT method is very effectively applied to increase family preparedness. FDMT or Flood Disaster Management Training is flood disaster management training carried out by researchers assisted by a team of disaster experts from BDPB. This training presents information through lecture and simulation methods which are packaged into one model so that the desired output is to increase family preparedness in respondents.

Previous research related to similar training conducted by Hakim dan Widyawati (2021) stated that training using the simulation method was very effective in increasing students' preparedness in responding to disasters. Other research conducted on several hospital staff also showed an increase in the level of knowledge, attitudes and implementation of practices in natural disaster preparedness (Mirzaei et al., 2019). According to Juanita et al., (2018) also explained the effectiveness of short disaster management training to increase respondents' knowledge significantly, so that disaster management can be applied to activities in the general community for disaster preparedness (Zuliani & Hariyanto, 2021). The results of this research are in accordance with research conducted by Hakim dan Widyawati (2021) who stated that the results of their research on disaster management training were very effective in increasing students' preparedness for facing flood disasters. Furthermore, disaster management training should not only be carried out at target students but can be used to conduct training for the general public in disaster areas, health workers and offices (Bohariand & Widana, 2021).

The variables knowledge, perception, attitudes and abilities will also certainly increase before and after the intervention because these variables are closely related to each other, so that they will automatically increase from before the intervention is carried out compared to after the intervention is carried out (Huriani et al., 2021). The more exposure to information during training, the more knowledge will be captured by the participants, in other words the more focused they are in participating in the training, the knowledge will be easily obtained by respondents, followed by increased perceptions, improved attitudes because they know how to

behave or respond if disasters occur and preparedness skills will also increase significantly for each respondent (Addiarto & Kusyairi, 2025).

Limitation:

The limitation of this research is that data collection is still limited to one disaster-prone area, so it does not yet describe the family preparedness of all community members and the various factors that influence it. This study only involved families living in flood-prone areas in a region, so the results cannot be generalized to non-flood-prone areas or communities outside the area.

Conclusions:

Family preparedness can be increased by using the FDMT method. This can be seen from the sub-variables of knowledge, perception, attitudes and abilities which significantly increased after being given the FDMT intervention. There is a need for further research on other factors that influence community preparedness in responding to disasters, so that we can find out the dominant factors that contribute to further shaping family preparedness.

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