ORIGINAL RESEARCH

READINESS OF FLOOD DISASTER PREPAREDNESS IN HIGH RISK AREA COMMUNITIES IN NORTH ACEH DISTRICT

Yuziani [1] , Cut Sidrah Nadira [2] , Harvina Sawitri [3], Ifanul Aulia[4]

[1] Phamacology Department, Faculty of Medicine, Malikussaleh . University

[2] Physiological Department , Faculty of Medicine, Malikussaleh . University

[3] Public Health Department, Faculty of Medicine, Malikussaleh University

[4] Faculty of Medicine, Malikussaleh University

Correspondence: Yuziani

Email: *yuziani @unimal.ac.id*

Abstract: Indonesia is a country prone to floods. Flood disasters can occur anytime and anywhere. Aceh Province has a very large disaster potential, this is influenced by geographical, geological, hydrological, and demographic conditions. One of the areas in North Aceh that is often hit by floods every year, therefore it is important for the community to have good preparedness in dealing with flood disasters.

Purpose: This research is to find out the description of flood disaster preparedness in the community.

Patients and methods: This study is a descriptive study with a *cross-sectional approach*. The sampling technique used is *stratified random sampling*, with a total

of 98 respondents residing in the North Aceh Regency. Data collection was done by distributing questionnaires.

Results: The results showed that most of the community had a level of preparedness in the good category (56.1 %), then the community in the sufficient category (25.5%), and the community with a low level of preparedness (18.4%).

Conclusion: this research is most of the community has a level of preparedness to face flood disasters in high-risk areas in North Aceh Regency in the good category.

Keywords: preparedness, disaster, flood , high risk

Introduction

Disaster is a series of events or events that threaten or even disrupt people's lives and livelihoods caused by natural or non-natural factors as well as human factors themselves, which disasters can result in fatalities, environmental damage, property losses, and psychological impacts. This is all caused by disasters that are uncertain when they occur, can be sudden or the result of human predictions (1) .

One of the disasters that often occurs is Flood. Floods are natural disaster events that occur when excessive water flows submerge land. Such as increased rainwater overflow, the slope of the land which is lower than sea level or caused by dams or river flows that are not effective in accommodating the capacity of rainwater (1) .

Floods consist of several types according to their occurrence, namely, flash

floods, water floods, mud floods, and Rob floods (floods due to high tides). The factor causing flooding is due to the very high intensity of rainfall followed by rain that does not stop, then it can also be caused by erosion and sedimentation in the river drainage area. Factors that cause flooding due to human activities such as the decline in the function of the watershed (watershed) in the upstream as a catchment area, littering, which eventually causes blockages, and improper planning of flood control systems (2) .

The frequent occurrence of flood disasters in Indonesia is due to the geological position of Indonesia which is at the confluence of the Eurasian, Indo-Australian and Pacific plates. Indonesia goes through a monsoon cycle every year, because Indonesia is located on the continent of Asia, the monsoon cycle lasts from December to February which is indicated as a sign of the rainy season. These conditions have the potential to cause disasters with different characteristics (3) .

Indonesia has experienced various disasters in the period 2013-2018. According to data from the National Disaster Management Agency (BNPB) It was recorded that there were 766 flood events in 2017 - 2020 with a total of 147 people died, 107 people were injured, 2.72 million people were displaced and suffered and 30,669 houses were damaged (4) .

Aceh Province has a very large disaster potential, this is influenced by geographical, geological, hydrological and demographic conditions. The impact of the flood disaster is very influential on development efforts, especially in Aceh Province. The flood disaster in Aceh was the highest type of natural disaster in 2018

- 2020, which was 174 events out of a total of 375 natural disasters. North Aceh Regency is one of the regencies that often experiences flood disasters in Aceh Province, there were 29 flood cases in North Aceh from 2019 to 2020 and caused the submergence of 1482 houses and caused property damage (5) .

North Aceh Regency itself has 4 sub-districts that are prone to flooding, namely Pirak Timu, Lhoksukon, Matangkuli and Geudong (5) . This is because the geographical location is in the lowlands, this condition allows the risk of flooding to be greater (5) .

What is very unfortunate is that most people still think that flood disasters are closely related to nature as an unavoidable destiny. This misunderstanding is certainly a very big challenge to change people's mindset about saving during a flood disaster. One way that can be done to provide actual knowledge to the community about flood disasters is to provide disaster education, in which disaster management education is very important (6) .

There are several things that must be possessed in disaster knowledge, namely disaster preparedness including personal, community knowledge related to disaster mitigation and its provisions. Another thing that is needed is disaster education in the form of socialization, training, as well as through formal education, disaster response, disaster early warning systems. These are some of the basic knowledge related to disasters that need to be known by individuals and communities (7) .

Materials and Methods

This research is a descriptive research with *cross sectional* method in North Aceh Regency in 2021. The sample size in this study was all 98 people who met the inclusion and exclusion criteria . The instrument used is a questionnaire consisting of several checklist-type questions that are expected to be selected according to the respondent's condition. This questionnaire consists of 3 parts, namely demographic data, questions related to disaster knowledge, and the application of disaster preparedness with guided interviews. Using the Guttman Scale because this scale is because the answers produced are firm, both right and wrong answers. Univariate data analysis on one variable independently, each variable is analyzed without being associated with other variables

Results

Table 1 Description of Respondents Characteristics

Age	Frequency (n)	Percentage (%)

17-25	32	33.5%
26-35	66	66.5%
Total	**98**	**100%**
Gender	**Frequency (n)**	**Percentage (%)**
Man	74	75.5%
Woman	24	24.5%
Total	**98**	**100%**
Work	**Frequency (n)**	**Percentage (%)**
Employee	30	30.6%
Unemployment	68	69.4%
Total	**98**	**100%**

Source: Primary Data, 2021

Based on table 1 above, it can be seen that as many as 66 respondents (66.5%) aged 26-45 years, followed by the age of 17-25 years with a total of 32 respondents (33.5%), then it can be seen that as many as 74 respondents (75.5%) are male and 24 respondents (24.5%) are female and as many as 68 respondents (69.4%) work and 30 respondents (30.6%) do not work.

Table 2 Overview of Flood Disaster Preparedness in Communities in Pirak Timu District, North Aceh Regency

Preparedness	Frequency (n)	Percentage (%)
Well	55	56.1%
Enough	25	25.5%
Not enough	18	18.4%
Total	**98**	**100%**

Source: Primary Data, 2021

As 55 respondents (56.1 %). There are 25 respondents (25.5%) who have sufficient preparedness and 18 (18.4%) people who have less preparedness.

Table 3 Description of the Characteristics of the Level of Flood Disaster Preparedness

Age	Preparedness		
	Well	**Enough**	**Not enough**
	n %	**n %**	**n %**
17-25 Years	26 61.9%	12 28.6%	4 9.5%
26-45 Years	35 62.5%	11 19.6%	10 17.9%
Total	**38.5%**	**48.2%**	**27.4%**

Gender	Preparedness		
	Well	**Enough**	**Not enough**
	n %	**n %**	**n %**
Man	46 62.2%	18 24.3%	10 13.5%
Woman	15 62.5%	5 19.6%	4 17.9%
Total	**38.8%**	**43.9%**	**31.4%**

Work	Preparedness		
	Well	**Enough**	**Not enough**
	n %	**n %**	**n %**
Working	18 58.1%	7 22.6%	6 19.4%
Doesn't work	43 64.2%	16 23.9%	8 11.9%
Total	**37.3%**	**46.5%**	**31.4%**

Source: Primary Data, 2021

Based on table 3 above, it shows that the majority of community preparedness levels based on the age of 17-25 years have good preparedness (61.9%), sufficient (28.6%) and less (9.5%), while those aged 26-45 years have preparedness good (62.5%), sufficient (19.6%) and less (17.9%). Then the majority

of male respondents had a good level of preparedness (62.2 %) and the majority of respondents who did not work had a good level of preparedness (64.2%).

Discussion

1. Respondent Characteristic

Most respondents in this study were respondents aged 26-45 years with a good level of preparedness, but there are still people who have a level of preparedness that is less or sufficient, at that age there will be an increase in one's performance and physical skills. According to Lawrence Green age is a factor that can encourage the creation of a behavior (8) .

The majority of respondents in this study are male with a good level of preparedness, gender is an enabling factor or a predisposing factor that influences a person's level of preparedness.

Most respondents who do not work have a good level of preparedness, the work environment can provide knowledge or experience to someone either directly or indirectly which will also affect a person's process of receiving knowledge about preparedness.

2. Description of respondent's age on flood disaster preparedness

Most respondents' ages with a level of flood preparedness in Pirak Timu District, North Aceh district, are in the good category. This is evidenced by the answers of respondents in the adult category (26-45 years) who have a good level of preparedness. A person's age affects the mindset and grasping power in studying

an object. The older you get, the more your mindset and ability to learn something will increase so that the knowledge you get is getting better (9) . When a person has good knowledge of disaster preparedness, he will be able to determine how he should act when a disaster occurs (10)

The results of this study are in line with research by Afrianti et al, which proves that age influences the level of community preparedness for flood disasters. This is because the level of preparedness for flood disasters is higher in the adult age category than adolescents (9) . The results of the study support the theory that the higher a person's age, the more life experience they have and the easier it is to improve preparedness, especially in the face of flood disasters. With age, the level of thinking is also more mature in acting.

3. Description of respondent's gender on flood disaster preparedness

The majority of respondents' gender in this study were male. Gender has an influence on a person's level of preparedness. When compared with men, people with the female gender tend to have better knowledge. This is because people with the female gender have more time to read or discuss with their environment (11) .This is evidenced by the results of research showing that both men and women both have a good level of preparedness for flood disasters with a percentage of 62.2 %: 62.5%. The results also show that the number of male and female respondents who have a low level of preparedness is also almost the same.

Gender is not the only factor that influences respondents to have a good level of preparedness. This is because respondents with male and female gender

have their respective roles in increasing preparedness in dealing with flood disasters (12) .

4. Job description on flood disaster preparedness

In this study, it can be seen that the majority of respondents are those who do not work for the community in Pirak Timu District, North Aceh Regency. Work does not prevent a person from increasing good preparedness for floods (13) . This is because respondents who work or do not work both continue to do or get good information on disaster preparedness. In addition, the type of work that is not in the health sector also causes respondents who work not necessarily to have experience or better preparedness than people who do not work. The results of this study are in line with Yatnikasari et al (2020) which showed that there was no relationship between employment status and flood disaster preparedness. Employment status is not related to flood disaster preparedness, possibly because respondents will still increase their preparedness even though they are not working (11) .

5. An overview of flood disaster preparedness for the community in Pirak Timu District, North Aceh Regency

The results of this study are in line with research conducted by Erika et al who conducted research on the description of flood disaster preparedness in the community in Pucang Sawit Village, Jebres District, Surakarta. Based on the results of the study, the majority had a good level of flood disaster preparedness with a percentage reaching (86.2%) (14) . This study is also in line with the research conducted by Herman et al, with research conducted on the community totaling 40

respondents, the results of this study indicate that the majority of respondents have a good level of preparedness (15) . The same thing was also found in the research conducted by Kamriana et al, regarding flood disaster preparedness in the community in the Tangguh Disaster Village, Takalar Regency, where it was found that the majority of flood disaster preparedness in the community were classified as good as many as 46 people from a total of 54 respondents (16) .

This research also shows that there are still people who have a sufficient level of preparedness to face flood disasters, this is in line with research conducted by Nindya Wulandari in Kebun Raja Village, Palembang. In this study, it was found that the majority of respondents had a sufficient level of preparedness, because the people in the village had very little knowledge about flood disaster preparedness and also lacked counseling from the local government for the village (10) . The same thing is also found in the research conducted by Ibnu Murbawan et al, in this study the results of the level of flood disaster preparedness were less, namely as much as (47.5%), because the government in the area was very less giving counseling about preparedness to face flood disasters (17) .

This study is also similar to the research conducted by Astutiningsih in which in this study there were still people who had a low level of flood disaster preparedness (50.3 %). This is because in the area studied there is still a lack of knowledge and also counseling related to preparedness to face flood disasters, this is what triggers the community in the area to have a low level of preparedness (8) . The same thing is also found in the research conducted by Oktayfal et al, in the research conducted by him the majority of the people who have a low level of

preparedness are as much as (52.4%), this is due to the lack of government attention to the Tomohon area to provide counseling related to flood disaster preparedness, so that people there do not understand what should be done during a flood disaster (18) .

Based on the results of this study indicate that most respondents have a good level of flood preparedness, this can happen because the area is an area prone to flood disasters, so that from the government, especially the North Aceh BPBD actively provides attention and counseling regarding knowledge of flood disaster preparedness, so that the community has a good level of preparedness in dealing with flood disasters. In addition, because the area is classified as an area that often experiences floods, so that people in the area have experience in dealing with flood disasters.

This research still found people who have preparedness that is still quite adequate and lacking, as for the factors that can cause this is the lack of awareness of the people in the area, of course this can be an evaluation for the government, especially BPBD North Aceh to continue to improve knowledge and preparedness of the community in the area in the face of flood disasters.

Conclusion

Based on the research and discussion that has been described previously, it can be concluded that the majority of the flood disaster preparedness levels owned by respondents in North Aceh Regency is in the good category. Then the

majority of respondents aged 26-45 years with a good level of preparedness (62.2%), then male respondents with a good level of preparedness (62.5%) and the majority of respondents who do not work with a good level of preparedness (64, 2%).

References

1. Mas'Ula N, Siartha IP, Citra IPA. Community Preparedness for Flood Disasters in Pancasari Village, Sukasada District, Buleleng Regency. J Educator Geogr Undiksha [Internet]. 2019;7(3):103–12. Available from: https://ejournal.undiksha.ac.id/index.php/JJPG

2. Muhammad Akmal R. Factors Affecting Disaster Preparedness at the Banda Aceh Hospital. Idea Nurs J. 2012;3(2).

3. Ministry of Health of the Republic of Indonesia. Factors Affecting Preparedness in Facing Flood Disasters and their types in Gumukmas District, Jember Regency. J Health Library. 2016;4(3):568–74.

4. Huriah T, Farida LN. Overview of Community Health Center Nurse Preparedness in Disaster Management at Kasihan I Health Center Bantul Yogyakarta. J Mutiara Med [Internet]. 2010;10(2):128–34. Available from: https://journal.umy.ac.id/index.php/mm/article/view/1574

5. Fikri F, Setyawati I, Syahputra H, Munadi K. Development of a Web-Based

Disaster Information System in Aceh (Example: Aceh Disaster Data and Information). Semin Nas Inform 2011. 2011;1(UPN "Veteran" Yogyakarta): 108–14.

6. Hidayati D. Community Preparedness: A New Paradigm in Natural Disaster Management (Community Preparedness: New Paradigm in Natural Disaster Management). J Kependud Indonesia [Internet]. 2008;3(1):69–84. Available from: http://ejurnal.kepenresidenan.lipi.go.id/index.php/jki/article/view/164

7. Daud R, Sari SA, Milfayetty S, Dirhamsyah M. Application of Disaster Preparedness Training in Improving Knowledge, Attitudes, and Actions of Sma Negeri 5 Banda Aceh Community. Disaster Science. 2014;1(1):26–34.

8. Astutiningsih et al. Analysis of the level of community preparedness in dealing with flood disasters in Pekanbaru City. Global Heal Science. 2018;3(4):339–45.

9. Afrianti H. The Relationship of Social Support with Adolescent Preparedness in Facing Floods in Samarinda. 2021;2(2):921–7.

10. Nindya W. Analysis of the Level of Preparedness for Flood Disasters in the people of Kebun Raja Village, Palembang. 2018;1–26.

11. Yatnikasari S, Pranoto SH, Agustina F. The Effect of Knowledge and Attitudes on the Preparedness of Family Heads in Facing Flood Disasters. J Tech. 2020;18(2): 135–49.

12. Bai MKS, Budiana I, Selung SN, Dhoke MFS. Overview of Flood Disaster

Preparedness in SMA Negeri 1 Palu students. 2021;2(2):440–7.

13. The Relationship of Knowledge with Adolescent Preparedness in Facing Floods in Samarinda. Journal of Social Science Educators. 2021;2(2):2011–6.

14. Dewi E. Knowledge and Attitude of the Pucang Sawit Community Regarding Flood Disaster Preparedness in Pucang Sawit. J Health Science and Technology. 2021;12(1):21–6.

15 . Bakri H, Arif SK, Amin H. Preparedness of Health Center Health Workers in Flood Disaster Management in Manggala District, Makassar City in 2019. Health Media Health Polytechnic Makassar. 2020;15(1):59.

16. Kamriana P. Journal of Nursing Media: Makassar Health Polytechnic Journal of Nursing Media: Makassar Health Polytechnic. Overview of the Application of Nursing Care in Typhoid Patients in Fulfilling Nutr Needs at Tk II Hospital Pelamonia. 2017;08(02):39–45.

17. Murbawan I, Ma'ruf A, Manan A. Household Preparedness in Anticipating Flood Disasters in the Wanggu Watershed (Flood Disaster Study in Lepo-Lepo Village, Kendari City). 2017;3(2):59–69.

18. Oktayfal JH. The relationship between knowledge and community attitudes with preparedness for flood disasters. J Chem Inf Model. 2013;53(9):1689–99.

Figure 1 : Filling out the questionnaire