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The Relationship Between Flood Disaster Mitigation Knowledge with Community Preparedness

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ABSTRACT

Flooding occurs when the regular water level of a river exceeds the capacity of the riverbed, causing pools on low terrain. Flooding is a natural disaster that requires attention because it poses a threat to people's lives and economies. It is the world's third largest natural disaster, claiming many lives and causing significant property damage. This study was conducted from June 26 to June 2, 2021, with the aim to determine the association between flood disaster mitigation knowledge and community preparedness in the Bentiring area of Bengkulu City. This research method is an analytical survey, which is research that uses a correlational methodology to try to figure out how and why the event happened. The population in this study is the Bentiring RT 14 RW 03 community, which has 50 family cards. In this study, 50 family cards were sampled using a total sampling technique. Interviews and questionnaires were used to collect primary data for this study. The data was analyzed in two ways: univariate and bivariate, using the Spearman Rank Correlation Test (P) p=rho. The following are the findings: (1) There are 36 people (72%) have good knowledge of flooding, and 14 people (28%) have sufficient understanding of flooding. (2) There are 11 people with a good community preparedness (22%), 28 people with medium community preparedness (56%), and 11 people with poor community preparedness (22%). (3) In RT 14 RW 03 in the bentiring area of Bengkulu city, there is no relationship between flood disaster mitigation knowledge with community preparedness.

Keywords: *Flood, Knowledge, Preparedness*

I. INTRODUCTION

Flood is defined as an overflow of water that surpasses the normal water level and overflows from the riverbed, inundating low-lying areas. Floods are caused by excessive rainfall, which causes a water drainage system comprised of rivers and tributaries, as well as drainage systems and artificial flood storage canals, to become unable to accept the buildup of rainwater, causing it to overflow (Mandasari., 2019). Flooding is a natural disaster that requires attention because it poses a threat to people's lives and economies. It is the world's third largest natural disaster, claiming many lives and causing significant property damage. Similarly, as according data from the National Disaster Management Agency (BNPB), the majority of the disasters that happened in Indonesia in 2016 were hydrometeorological disasters, which were dominated by floods, landslides, and tornadoes (Akhirianto., 2018).

According to data from the National Disaster Management Agency, there were 679 cases of flood disasters in Indonesia in 2018, resulting in 119 dead and missing victims, 221 injured victims, and 1,547,822 displaced people. In addition to the number of fatalities, there were numerous material losses, including 875 badly damaged units, 330 moderately damaged units, and 3,015 houses that were slightly damaged. 35 health facilities, 335 worship facilities, and 368 educational facilities were also harmed (BNPB., 2018). Bengkulu ranks 7th in the country for flash floods, with 28 flash floods and 231 floods (Indonesian Central Statistics Agency, 2018), while floods and landslides have impacted 9 districts and cities in Bengkulu province. 30 people died in floods, 6 people went missing, 4 people were injured, 12,000 people were displaced, and 13,000 people were affected (BNPB Provinsi Bengkulu., 2019).

Bengkulu city is located between 0 and 16 meters above sea level, with 70 percent flat topography and 30 percent tiny hills and marshes, as according topography. The west is a narrow lowland that runs parallel to the Indian Ocean, while the east is a highland that borders the prone to erosion Bukit Barisan mountains (Profil Bengkulu., 2015). Because they immediately face the Indian Ocean, where breezes from the west or southwest are rich in water vapor, areas on mountain slopes facing west receive the most rain. Rainfall that exceeds the average rainfall causes floods in numerous regions near rivers and beaches in Bengkulu City, one of which being Muara Bangkahulu District owing to the overflow of the Bengkulu River (Suherianti et al., 2018). Flooding has a number of negative effects, including: (1) material losses, which can occur when many inhabitants' homes are flooded, causing not just residences

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but also household furniture to be flooded. (2) Building damage: Buildings that have been flooded for an extended period of time will suffer damage, whether significant or little. Floors or ceramics, door frames, and lower walls are examples of buildings that could be harmed. (3) The overflowing water not only passes through but also inundates the environment, making it unclean and muddy. As a result, the water-filled environment will become muddy and unpleasant, and it will become dirty. (4) The spread of disease seeds, which appears to have become a package, and we all know that floods will bring a variety of diseases. Diarrhea, ARI, itching, and dengue fever are some of the diseases that can be spread by flooding. (5) Disturbing traffic, because floodwaters inundate not just residential areas such as dwellings, but also roads. As a result, traffic on the flooded road will be disrupted. Flooding can not only cause traffic disruption, but it can also cause vehicle engines to die or be damaged. (6) A scarcity of clean water, as the flood not only flooded people's homes, but also the community's clean water supplies. As a result, flood water can mingle with pure water that should be utilized for daily consumption. (7) Economic sector loss; this disturbance has a direct influence on economic activity in coastal areas during floods, causing lower intensity and even paralysis (Salim & Siswanto., 2021). As a result, one of the non-military dangers that must be examined and dealt with effectively is the tight relationship between disasters that occurred in Indonesia. Community preparedness is a key factor in disaster management (Adiwijaya., 2017).

The community must cooperate in order to be prepared to handle the threat of flooding with early planning and adequate understanding of how to deal with flood disasters. A person's or a community's knowledge will have an indirect impact on attitudes and conduct, particularly in the event of a crisis (Yatnikasari et al., 2020). Preparation is an action made prior to a calamity (before a disaster occurs). The goal of disaster preparedness is to lessen the risk (and thus the impact) of a disaster (Widjanarko & Minnafiah., 2018). The definition of preparation in society varies depending on the society. Preparedness refers to the steps that will be taken in the event of a calamity. In the face of crises, disasters, or other calamities, preparedness can also be characterized as a state of readiness (Adiwijaya., 2017). Formulation of an acceptable disaster plan, resource upkeep, and people training are all phases in the preparation process (Waruwu., 2018).

The National Disaster Management Agency states that the disaster management cycle must be completed in its totality. Efforts to prevent the emergence of impacts are the main treatment. To avoid flooding, community initiatives to develop infiltration wells must be encouraged, and vice versa to avoid logging. It is vital to establish a saving process and maintain treatment compliance in order to avoid the embankment from collapsing. Even if prevention has been carried out, while the possibility of an event still exists, mitigation efforts, namely efforts to reduce the disaster's impact, must be done (BNBP., 2018).

II. OBJECTIVES

The purpose of this study is to see if there is a relationship between flood disaster mitigatio knowledge with community preparedness in Bentiring area of Bengkulu City.

III. METHODOLOGY

This research method is an analytical survey, which is research that uses a correlational methodology to try to figure out how and why the event happened. The population in this study is the Bentiring RT 14 RW 03 community, which has 50 family cards. In this study, 50 family cards were sampled using a total sampling technique. Interviews and questionnaires were used to collect primary data for this investigation. The data was analyzed in two ways: univariate and bivariate, using the Spearman Rank Correlation Test (P) p=rho. This study took place in Bentiring areaof Bengkulu City's from June 26 to June 2, 2021.

IV. DISCUSSION

4.1 Knowledge

4.1.1 Definition

According to Notoatmodjo's theory, knowledge is the results of "knowing" human sense of a certain thing. The human senses of sight, hearing, smell, taste, and touch, as well as the skin, are used in the sensing process. The realm of knowledge, or cognitive, is critical for the formulation of one's activities (oven behavior). Knowledge, including science, is essentially everything we know about a certain object. Knowledge is a mental treasure trove that immediately enriches our lives (Ajmain & Sanusi., 2019).

4.1.2 Factors that Influence

According to Mubarak (2011), a person's knowledge is influenced by seven factors: education, occupation, age, interests, experience, environment, and information.

4.1.3 Level of Knowledge

According to Notoatmodjo (2012), the intensity or level of knowledge of a person in an object varies. It is separated into six levels of knowledge in general, with (1) Know, know being the lowest level. The ability to mention, describe, identify, state, and so on are all verbs used to assess people's knowledge of what they're learning. (2) Understanding, understanding an object is more than just knowing about it and mentioning it; it also entails people. is capable of appropriately interpreting a known object, (3) Application, or the ability to use or apply the known concept to other situations or conditions, is characterized as a person who has grasped the object in question, (4) Analysis, analysis is a person's capacity to define or separate components of a given object or situation, then look for a relationship between them. (5) Synthesis: The ability to create new formulations from existing formulations is referred to as synthesis. (6) Evaluation, also known as justification or assessment, is the ability to justify or appraise a specific object.

4.2 Flood Disasters

4.2.1 Definition of Disasters

Disaster is an event or series of events that threaten and disrupt people's lives and livelihoods caused by natural factors and non-natural factors as well as human factors, resulting in casualties, environmental damage, property losses and psychological impacts. Disasters caused by natural factors include earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, and landslides. Meanwhile, disasters caused by non-natural factors include failed technology, failed modernization, epidemics, and disease outbreaks (Widjanarko & Minnahfiah., 2018).

4.2.2 Definition of Flood

Flood is defined as an overflow of water that surpasses the normal water level and overflows from the riverbed, inundating low-lying areas. Floods are caused by excessive rainfall, which causes a water drainage system comprised of rivers and tributaries, as well as drainage systems and artificial flood storage canals, to become unable to accept the buildup of rainwater, causing it to overflow (Mandasari., 2019).

Flood disasters are hydrological phenomena characterized by excessive flow and/or water levels that can cause flooding of land around rivers, lakes, and other water systems in normally dry locations (Dodon., 2013).

4.2.3 Flood Etiology

High rainfall, silting rivers, degraded terrain, naked forests, and irregular settlements are all factors that contribute to floods (Suryana., 2018). According to Kodoatie, the causes of floods are separated into two categories: natural and human-caused. (1) Natural causes of flooding, such as strong rains during the rainy season, geographical influences on rivers in upstream and downstream locations, silt deposition in rivers, poorly functioning drainage network systems, and sea tides. (2) Human-caused floods, such as changes in river basin regions owing to deforestation, waste dumping into rivers, failure to maintain flood control structures, and failure to maintain river channels (Mas'Ula et al., 2019).

4.2.4 Flood Prevention

Suryana (2018) stated that there are several ways to reduce the occurrence of floods, including not dumping garbage/solid waste into rivers and drainage systems, not building bridges and other structures that block or narrow riverbeds, and not residing on riverbanks. Stop deforestation in the catchment region, and stop agriculture and land use that is averse to the water and soil protection laws.

4.3 Flood Disaster Mitigation

4.3.1 Definition of Mitigation

Mitigation describes a set of actions taken to reduce disaster risk, including physical development as well as disaster awareness and capacity building (Fauzain., 2021). Flood disaster mitigation is a set of activities aimed at reducing the danger of flooding disasters via both physical development and increased awareness and capacity to deal with the threat of flooding disasters (Hermon., 2012).

4.3.2 Stages of Mitigation

According to Fauzain (2021), Mitigation is carried out in three stages, including: Before to the flood: (1) Laws and regulations are disseminated. (2) Locations that are critical (critical) are constantly monitored. (3) Improving the efficiency with which flood control infrastructure and facilities are operated. (4) Information on flood-prone locations is disseminated. (5) A word of caution on organizational preparedness. (6) Evacuation planning to a safer site. (7) Heavy machinery is provided. (8) Providing flood materials in the event of an emergency. 9) Obtaining and preparing evaluation equipment and supplies. 10) Determining the best approach for delivering countermeasures to key locations. (11) Community rescue and rescue programs are planned. (12) Logistics distribution routes to the community are being planned. During the flood: (1) Setting up a flood picket line at each post. (2) Flood warning system operation. (3) At each observation station, water level and outflow are monitored. (4) Compile a report on the monitoring findings. (5) Flood disaster forecasting. (6) Reporting and information. (7) Flood warning systems such as sirens, kentongans, and other similar devices. (8) Population evaluation in accordance with the procedure. (9) Assisting residents is a must. After the flood: (1) Recovery (2) The population's return to their previous location. (3) Loss data collection, observation, and flood damage.

4.4 Preparedness

4.4.1 Definition of Preparedness

Preparedness is an action made before to a calamity (before a disaster occurs). The goal of disaster preparedness is to lessen the risk (and thus the impact) of a disaster (Widjanarko & Minnafiah, 2018). According to the Law of the Republic of Indonesia No. 24 of 2007 on Disaster Management, preparedness is a set of activities carried out to anticipate disasters via planning and taking necessary and effective measures (Mas'Ula et al, 2019). According to Ajmain & Sanusi (2019), preparedness is one part of the disaster management process and increasing preparedness is one of the major elements of pro-active disaster risk reduction efforts before a disaster happens in the currently growing concept of disaster management.

4.4.2 Efforts to Prepare

According to Ramli (2010), flood preparedness can be done in three stages: before the flood, during the flood, and after the flood, and includes: Before to the flood: (1) Stay up to date on rainfall and the position of the water on the floodgate by watching TV, listening to the radio, or listening to warnings from the Residents Team. (2) Includes safety items such as a radio battery, flashlight, gas lighters, and candles, as well as blankets, mats, raincoats, and any rubber tires. (3) Gather simple food items such instant noodles, salted fish, rice, baby food, sugar, coffee, tea,

and clean water. (4) Have ORS, anti-diarrhea, and anti-influenza drugs on hand. (5) Keep vital documents out of the reach of water and unscrupulous hands, such as birth certificates, family cards, savings books, certifications, and valuables.

During the flood: (1) Turn off the electricity in the house or contact PLN to have the affected area's electricity turned off. (2) Evacuate to a safe location as soon as feasible when standing water may still be crossed. (3) To avoid getting swept away by flood currents, avoid going near waterways. (4) Move valuables to a higher location as soon as possible. (5) If the water level continues to increase, contact a disaster management organization such as the Village Head's Office, Lurah, or Camat.

After the flood: (1) Clean the house right away, especially the floor, which is usually covered in muck, and apply an antibiotic to kill bacteria. (2) Locate and prepare safe drinking water to avoid developing diarrheal infections, which are common following floods. (3) Be wary of the presence of poisonous animals like snakes and centipedes, as well as disease-carrying animals like rats, cockroaches, flies, and mosquitoes. (4) Try to stay awake at all times in case of possible aftershocks.

4.5 The Relationship Between Flood Disaster Mitigation Knowledge with Community Preparedness

Knowledge is defined as the sum of a person's thoughts, ideas, concepts, and understandings after they have sensed a certain item. Knowledge is mostly acquired by the eyes and hearing, which are then recalled into previously received content or stimuli (Mas'Ula et al., 2019).

Disaster knowledge means the ability to recall events or sequences of events that threaten or disrupt people's lives and livelihoods as a result of natural and/or non-natural factors, as well as human factors, which can result in human casualties, environmental damage, property losses, and impacts of psychological (Adiwijaya., 2017). Knowledge of flood disasters refers to people's understanding of the conditions that could lead to a flood disaster in a certain area (Mas'Ula et al., 2019).

People that live in disaster-prone areas will need disaster knowledge, such as the various types of disasters that can threaten them, disaster symptoms, anticipated disaster coverage areas, self-rescue strategies, advised evacuation places, and other information that the community may need. Before, during, and after a disaster, disaster risk can be mitigated (Adiwijaya., 2017).

Knowledge is the most important component and the key to being prepared. Knowledge can impact attitudes and concerns in order to be prepared. According to the results of Ajmain & Sanusi (2019) study on the relationship of knowledge to disaster preparedness in families in Kuala Langsa village, West Langsa sub-district, there was a p-value of 0.000 (p 0.05) relationship between knowledge and disaster preparedness in Kuala Langsa village, West Langsa sub-district.

The results of Mas'Ula et al (2019) research also said that there was a significant relationship between public knowledge about flood disasters and community preparedness for flood disasters in Pancasari Village with a value of rxy = 0.255 at a significance level of 5%.

Preparedness is an important aspect of the disaster management process and the contemporary disaster concept. One of the most significant components in increasing knowledge and community preparedness behavior, both in the community and in universities, is the importance of preparedness (Ajmain & Sanusi., 2019).

V. CONCLUSIONS

Based on research conducted in RT 14 RW 03 Bentiring area, Bengkulu City on the relationship between flood disaster knowledge and community preparedness in the Bentiring area, Bengkulu City, the main findings:

1. There are 36 people (72%) have good knowledge of flooding, and 14 people (28%) have sufficient understanding of flooding.
2. There are 11 people with a good community preparedness (22%), 28 people with medium community preparedness (56%), and 11 people with poor community preparedness (22%).
3. In RT 14 RW 03 in the bentiring area of Bengkulu city, there is no relationship between flood knowledge and community preparedness.

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