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Abstract

The purpose of the study is to explore community perception about community preparedness in facing flood disaster. The qualitative descriptive with phenomenology approach was used in this study. A semistructured interview, observation, and field notes were used for seven participants of the village that was affected by flood disaster. Colaizzi's method of qualitative data analysis is an approach used for analyzing data. Result of research found five themes about people perception of flood preparedness. The themes are past experience, early warning system, housing condition, shelter, and resource. Public perception and response to flood disaster are influenced by social cognitive and social capacity.

Keywords

community perception, community preparedness, flood disaster

Introduction

Natural disasters can occur suddenly. In Indonesia itself, a frequent disaster is a disaster related to the hydrological disaster.[1] The flood disaster has become a national issue that cannot be overcome anymore. Individuals and households are key stakeholders in community preparedness, as they are the spearhead, subject, and an object of direct disaster preparedness of disaster risks.[2] Community in the slum area, riverbank, or flood-prone area is the high vulnerability population.[3] Preparedness in dealing with floods helps communities in shaping and planning what actions need to be taken when flooding. Success in handling evacuation when flooding is highly dependent on community preparedness and the individual itself. Knowledge is a key factor on disaster mitigation and preparedness.[2,4] The knowledge of natural hazard has been acknowledged has a parallel connection with disaster mitigation.[5] The local community knowledge, perceive, and perception may affect the community behavior due to flood.[3] Inadequate community perception about vulnerability of disaster condition often leads to unpreparedness in preventing floods.[6]

According to Sutopo Purwo Nugroho, Head of BNPB (National Disaster Management Authority) Information and Public Relations Center, 2016 is the year of disaster. Based on preliminary data during 2016, there were 1,985 disasters throughout Indonesia, and among the 1,985 disasters, floods were the most common, with 659 occurrences.[1] The incidence of floods as natural disasters in East Java province within range of 2011 to 2015 occupies the first rank of 565 cases. According to BPBD (Regional Disaster Management Authority) Kabupaten Jombang, one of the districts that is often flood-prone is Mojoagung District in Jombang, where the district is prone to flooding every rainy season.[7] The previous study about community disaster preparedness was conducted to determine the community preparedness in this study area. The result showed that most of the communities did not prepare to deal with flood disaster despite the community facing flood disaster annually.[8] Therefore, the study to explore the community perception

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dealing with flood disaster is needed. Hence, the aim of the research is to determine the community perception about disaster preparedness dealing with flood disaster.

Methods

The research design used a qualitative descriptive with phenomenology approach. The data were collected in Mojoagung, Jombang, which was affected by flood every rainy season. Seven participants of the village that was affected by flood disaster participated in the study: Three participants were from the most affected area, two participants were from the less affected area, one participant is the head of KSB (Kelompok Siaga Bencana/Disaster Preparedness Group), and one participant is the head of the village. The participants represent the key informant of disaster management, member of KSB (Disaster Preparedness Group), member of PKK (Pembinaan Kesejahteraan Keluarga/Family Welfare Empowerment Group), member of Ketua RT (Rukun Tetangga/Neighborhood Group), member of Kader Kesehatan (Community Health Volunteer), and member of LINMAS (Perlindungan Masyarakat/Community Protection Agency; Table 1).

The data were collected from July to October 2017 in Kademangan, Mojoagung, Jombang. Kademangan village was the most affected village during flood disaster in Jombang. The people of Kademangan village have experienced flooding every rainy season, due to the geographical condition of the village. Kademangan village is flanked by two major rivers and is located in the downstream area with ground surface conditions such as bowls. In March 2017, the flood had reached 200 cm high. A semistructured interview technique was used to collect the information of the community perception of disaster preparedness. The interview guideline used the theory of community preparedness in disaster management by Sopaheluwakan[2] in 2006 that focused on the knowledge and attitude, policy and guideline, emergency response plan, early warning system, and human resource mobilization. A previous study that determines the community preparedness used this guideline as the instrument for descriptive quantitative study. The instrument itself is valid and reliable. Therefore, the authors used this instrument as an interview guideline in qualitative study approach to understand more about the finding in the previous study. All the interviews were recorded and transcribed to data analysis.

Table 1. General Information of the Participants.

N	Age	Gender	Position	Education
Participant 1	47	Male	Ketua RT	High school
Participant 2	33	Female	Kader Kesehatan	High school
Participant 3	35	Female	PKK	High school
Participant 4	55	Male	LINMAS	High school
Participant 5	36	Female	KSB	High school
Participant 6	43	Male	Head of KSB	High school
Participant 7	53	Male	Head of village	High school

Abbreviations: KSB, Kelompok Siaga Bencana; LINMAS, ■; PKK, Pembinaan Kesejahteraan Keluarga; RT, Rukun Tetangga.

In 1978, Colaizzi's qualitative data analysis method was used for analyzing data. The data analysis consists of seven essential steps. The analysis began with (a) familiarization: reading each protocol of transcribed data interview. Then, (b) identifying: identifies all the statements that are relevant to the phenomenon; (c) formulating meaning: taking the meaning of the significant statement. The next step was (d) clustering theme: organizing the meaning statement into cluster theme. After that, (e) develop an exhaustive description: writing the inclusive description of the phenomenon. Next, (f) producing the fundamental structure: condensing the description phenomenon into a fundamental structure. Following, (g) seeking verification of fundamental structure: validating the data to the participant.[9,10]

Result

Past Experience

In this research, the first theme found is past experience. Past experience of the participants greatly influences the decision-making in disaster preparedness. All participants have experienced flood disaster every year, so participants rely on past experiences in facing floods.

> P1: If the water comes in front of the house, and it's still raining, dark clouds in the east, definitely is going to flood.

> P5: It's flooding here every year, usually if the river has rough sound it means no flood. But on the contrary, if the river has no sound is the sign of flood.

Early Warning System

The second theme of the study was the flood disaster early warning system. The effective delivery of information and access to local, traditional, and modern information is the beginning of disaster response.

> P2: Well, here's Pak RT (head of hamlets) do a quick look in the river, he is the one who announces to the people when the water starts up.

> P5: Mr. Polo (head of subvillage) who usually brings Handy Talkie who is contacting people in the upstream river. When it was raining up there, then it will be flooding here and then Mr. Polo told the community, sometimes using WA (Whatapps Application).

Housing Condition

The theme of housing condition arises due to the public's preparation for the annual floods. Rainy season always makes Kademangan village experience floods every year. Thus, residents prepare the condition of the house in facing flood disaster.

> P1: This year's flood was a regular, the resident who was ready to make "wuwung"(attic) in the rooftop, so it was safe for the water to rise.

> P3: Normally, when the water comes up, here is a bench in the school, we used it to place furnishings high, LPG (Liquid Petroleum gas) tied up, children goes to shelter, then we go upstairs.

Shelter

The shelter theme cannot be excluded from this study. Refugees and shelter are a major factor in disaster management. The purpose of evacuation is to accommodate the affected people and avoid adverse impacts. However, for some reason, residents are reluctant to go to the shelter, so the impact of a worse disaster is unavoidable.

> P5: I brought my children to the shelter. Sometimes in the village hall, sometimes in the park when the village hall hit by the flood, but it's okay. The reason is that we are worried about leaving home. The shelter was far from the home. For some reason, when the floods dry, we have dirt and clay attached in the wall and floor, it hard to remove. So we prefer to stay at home, therefore most of the community did not go to the shelter.

> P6: They totally aware of the risk not going to the shelter. Therefore after floods, POSKESDES (Pos Kesehatan Desa/Subdistrict Health Post) and PUSKESMAS (Pusat Kesehatan Masyarakat/Public Health Center) always full of patients.

Resource

The fifth theme that appears in the results of this study was resource. Resources in tackling disasters should be prepared from the mitigation stage. Optimal sharing of resources with job descriptions and responsibilities can accelerate the response of disaster.

> P2: When the flood sometimes yes the help is divided equally. So far we only rely on outside assistance. Division of tasks and coordinators are not there yet.

> P6: KSB has just been established, so the division of tasks and coordinator in disaster response is not yet optimal.

> P7: Residents have been individuals, thinking of themselves and their families, but I am confident that with the KSB coordination, the division of tasks and resources can be maximized.

Discussion

The research area is very vulnerable to flood disaster; due to the low geographical area and being flanked by 2 major rivers, this area is flooded every year. In flood disaster management to carry out local community participation is important to understand people perceive of disaster risk, awareness of the disaster preparedness actions and perception.[3,11] People perceptions are rooted in social, cultural, and public acceptance of flood.[3,4,6,12] Disaster risk perception and coping mechanism can improve the disaster mitigation and preparedness by acquiring knowledge of disaster risk and effective participation of local community.[3,13,14] The public perception of flood disaster is a consideration in preparing the mitigation and preparedness phases to face floods.[11]

The first perception expressed is past experience. The people in Desa Kademangan have experienced flood disaster every year during the rainy season. This makes the people hold on to the past experience in acting toward the flood disaster. Past experience has been proven to have influenced people's perception, adaptation, and coping strategies toward flood disaster.[3,6,15–17]

The next factor that influences people's perception of flood disaster preparedness is an early warning system. Early warning systems are an important part of community preparedness mechanism.[2,13,18] A warning can be an important key factor linking the preparedness and emergency response.[13] The use of flood disaster early warning systems in Indonesia has experienced many developments. The development of early warning systems can be done by the government at large costs and resources, but complex systems can reduce the usefulness of early warning systems.[19] Early warning systems are developed to be more effective and efficient. Some regions that have developed the flood warning early warning system are Jember, Jakarta, Banten, Jogjakarta, and Aceh.[13,20–24] Theoretically, when an early warning is delivered on time, then the negative impact of a catastrophic disaster can be minimized. Thus, communities can reduce the impact of disasters by having an appropriate early warning system.

The condition of the house is also one type of preparedness of the community to face the flood disaster. Home conditions are adapted to the natural and geographic conditions of residential areas. Lowland flood plains that are prone to floods certainly have different home conditions with highlands this is delivered informants about the condition of the homes of people affected by floods. People affected by the flood have higher housing conditions, and there is more than one floor or attic.[3,5,6,25] The existence of appliance

friendly, the household type, is one of the factors that cause fear to face the disaster[3,6,26] so that the public is more vigilant and more prepared the conditions of residence to face the disaster. In addition, community attachment in the community keeps people in a vulnerable place during disasters because of their sense of security and solidarity.[3,6,27]

Shelter becomes a factor that cannot be excluded in flood disaster management. People affected by floods or vulnerable to disasters are advised to evacuate. The existence of shelter is also one of the factors influencing community preparedness. Public perception of the evacuation site is not good. People are not willing to leave the residence to the evacuation due to many factors, which include the daily activities, the distance of refuge from the house, and damage of the household equipment.[3,6]

Establishment of evacuation sites should follow security requirements, ease of access, attachment, capacity, convenience, stability, and sustainability.[28] The evacuation should provide a link between the capacity of the evacuation site and the appropriate evacuation route. Refugee allocation should take into account evacuation routes and destination options.[29]

At the time of the disaster, the selection of resources should be done appropriately. Resource sharing of tasks and responsibilities is a separate issue in organizing disaster management. So far, people rely solely on village apparatus for organizing disaster management teams. Inappropriate sharing of resources makes people feel more vulnerable in disaster conditions.[14]

Community groups who become village leaders or hamlets have a responsibility to the community. A person who has a sense of attachment to a community is quicker to act in a disaster response situation.[30] The same is true of someone who has a security responsibility in a community.[31] Social capacity affects community resilience, including the capacity to reduce disaster risks and engage communities and encourage communities to reduce dependence on disaster response.

Conclusion

Community perceptions of flood-affected areas of disaster preparedness include past experience, early warning system, housing condition, shelter, and resource. The people of Kademangan village have experienced flooding every rainy season, due to the geographical condition of the village. This exacerbates the flood condition during high rainfall. Surely, this perception is in accordance with previous studies on social–cognitive communities and social capacity in facing flood disasters.

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