

# Elderly Took Preventive Role in Facing Flood Threat in Mountain Slope Area in Jember, East Java

Citra Anggun Kinanthi<sup>1\*</sup>, Adistha Eka Noveyani<sup>1</sup>, Arsyizilma Hakiim<sup>2,3</sup>

<sup>1</sup>Department of Epidemiology, Faculty of Public Health, Universitas Jember

<sup>2</sup>Department of Public Health, Faculty of Medicine, Universitas Jember

<sup>3</sup>Postgraduate Program of Bioethics, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

Email: citraanggun@unej.ac.id

---

## Abstract

Tempurejo Subdistrict is a cantilever for Meru Betiri National Park in the southern part of Jember Regency. In every rainy season, it is certain that several villages in this sub-district are always flooded. Hence the flood disaster preparedness education becomes very necessary. Knowledge and understanding of disaster preparedness must be known to anticipate disaster situations quickly and accurately. The purpose of this activity is to provide education to the community regarding before, during, and after a disaster management. In addition, to maintain the sustainability of the community, a sub-district disaster preparedness team was formed and continuously assisted. The activity was held in October 2021 with the target of Karang Wreda Abiyoso members. Counselling materials were related to the flood disaster preparedness and the risk disease of post-flood through videos and the disaster response pocketbooks. As the result, there was an increasing of the post-test than the pre-test, so this counselling is effective in increasing the knowledge of the participants. Furthermore, disaster response training was carried out and one of the training courses was preparing a disaster preparedness bag. As a result, 9 out of 10 participants were able to simulate the preparation of a disaster preparedness bag within the allotted time. Furthermore, continuous assistance was carried out through WhatsApp Group. This team is expected to be able to disseminate disaster preparedness knowledge to local residents and increase understanding regarding appropriate disaster preparedness in their area.

*Keywords:* disaster; disaster response team; elderly; flood

---

## 1. Introduction

National Agency for Disaster Management (BNPB) data states that Jember is one of the areas prone to flooding. Floods that occurred on January 12, 2021 until January 12, 2021, flooded in Jember had an impact on 3,986 families. Floods occurred in seven sub-districts in Jember, namely Bangsalsari, Tanggul, Gumukmas, Puger, Ambulu, Tempurejo and Jenggawah sub-districts. The most severe flooding occurred in the Tempurejo sub-district. High rainfall also resulted in subsequent flooding in Tempurejo District. The number of families affected by the flood in Tempurejo District reached 2,320 families 1. The village most severely affected by the flood was Wonoasri Village. The high water made access to the location difficult so that the evacuation process was also slightly hampered. Based on topographical conditions, Tempurejo

District is the southern part of the lowland area<sup>2</sup>. Based on BPBD data, Tempurejo District has been mapped as a flood-prone area<sup>3</sup>. Floods in Wonoasri Village, Tempurejo District, were caused by the confluence of two rivers, namely the Sanen River and the Mayang River. The presence of blockages in the watershed also increases the risk of flooding.

The urgency of this community service is to increase the capacity of the community in dealing with flood disasters through increasing knowledge about what activities need to be done when dealing with floods and the risks of diseases that may be suffered after the disaster. It is hoped that by increasing the capacity of the community to be able to read the risks that may occur during a flood and be able to carry out self-evacuation. In addition, it is hoped that the public will know the potential for diseases that may occur in each individual and be able to prevent and overcome the disease so that the severity of the disease does not occur. Community capacity building is also expected to be able to minimize the impact of disasters.



**Figure 1. Preliminary Survey after Flood**

Based on topographical conditions, Tempurejo Sub-District is the southern part of the lowland area. Based on BPBD data, Tempurejo District has been mapped as a flood-prone area. Floods in Wonoasri Village, Tempurejo District, were caused by the confluence of two rivers, namely the Sanen River and the Mayang River. The presence of blockages in the watershed also increases the risk of flooding. Tempurejo has one of most active elderly community in Jember Regency, Karang Wreda Abiyoso. This

community also generates the Elderly Integrated Guidance Post (Posbindu) becoming more routine and active.

### **Problem**

High rainfall in Jember Regency increases the risk of flooding. It was recorded that until January 2021 there had been several floods. Floods occur repeatedly due to high rainfall in the Jember Regency area. Floods in Jember Regency occurred in several sub-districts, the worst impact occurred in Tempurejo sub-district, Wonoasri village. The high water resulted in delays in the evacuation process by the officers. It was recorded that the flood in January 2021 had an impact on 2,558 families in Wonoasri Village. The impact of flooding that is not immediately evacuated is causing casualties, especially for vulnerable groups such as the elderly, toddlers and pregnant women. Diseases caused after the flood also need to be considered. The presence of standing water increases the risk of leptospirosis and dengue fever. Limited clean water affects sanitation hygiene which affects digestive tract diseases such as diarrhea, typhoid and hepatitis A. Diseases that arise after the flood disaster are infectious diseases that have the potential to cause outbreaks (Alderman et al., 2012). The community must understand how to prevent post-disaster disease. Tempurejo District is a flood-prone area. The ability of the community in dealing with flood disasters needs to be improved both during the disaster and after the disaster occurs to minimize the impact of the disaster.

### **Target solution**

Based on these conditions, the target solution in community service included basic counseling activities to deal with flood disasters and the risk of post-flood disease provided by a team of disaster experts and doctors from the University of Jember to residents of Tempurejo District. The material provided includes an understanding of flood disasters, signs of flooding, and the efforts made during a flood, potential diseases that may occur after a flood, and prevention and mitigation efforts. Subsequently, a village disaster preparedness team was formed, which was then provided with a simulation of the disaster response mechanism. In addition, the community service team also formed a WhatsApps Group, which consisted of a team of disaster experts, doctors and the Tempurejo District disaster preparedness team, in order to provide

ongoing assistance and consultation facilities between the disaster preparedness team and the expert team. Furthermore, it is hoped that the village disaster preparedness team will become a distributor of information to residents around where they live regarding disaster alertness. In addition, this team is expected to monitor conditions or signs of potential disasters and report to the village government. The basic contribution of this activity is that residents in Wonoasri Village, Tempurejo District, Jember are able to read the risks that may occur during a flood and are able to evacuate themselves. In addition, it is hoped that the public will know the potential for diseases that may occur in each individual and be able to prevent and overcome the disease so that the severity of the disease does not occur.

## **2. Method**

This community service was conducted in October 2021 by direct socialization and training in village meeting hall of Wonoasri. Wonoasri was the village that most affected by the flood last January 2021. The participants were the Abiyoso Elderly Group members at Tempurejo Subdistrict, that is also elderly cadre of Elderly Integrated Service Post (POSBINDU). Since it was conducted during Covid-19 pandemic, we ensured the implementation complied the health protocols of Covid-19 prevention such as conducting in outdoor, < 15 people, < 3 jam/each meeting, all of us wore a mask, and the participants were healthy.

We chose the elderly as our participants that next would be the disaster preparedness team because since this team focus on raising awareness of disaster preparedness among people in Tempurejo, hence through the elderly the knowledge related to disaster preparedness will smoothly deliver and people tend to listen and pay attention when elderly give them advice. Since the way elderly share the knowledge, they give generously. Moreover, older people must be given more chances to learn since they want to contribute to society and the volunteers are typically seniors. The elderly involvement would hopefully increase awareness related to disaster prevention and preparedness among the Tempurejo people.

10 participants of disaster preparedness team candidate attended the socialization with health protocols during the COVID-19 pandemic by performing social distancing, wearing masks, and washing hands before joining the socialization.

The socialization methods were counseling, self-practicing by disaster preparedness team candidate, and after socialization they were assisted by experts.

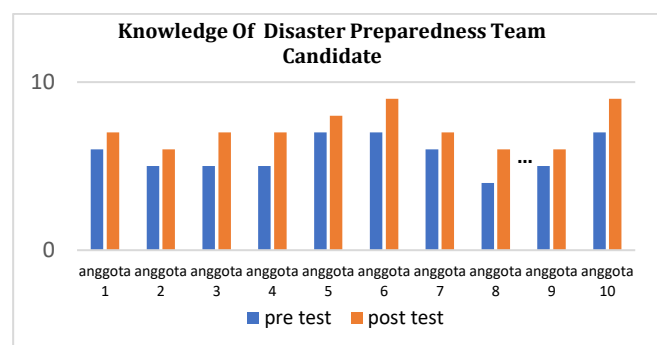
### 3. Result

On Sunday, October 24, 2021, this community service was held at the Wonoasri Village Hall entitled "Creating the Disaster Preparedness Team of Tempurejo". Based on the initial observation results, the flood that happened in Tempurejo Subdistrict, especially in Wonoasri village as the village that most impacted by flood because of the heavy downpour. The flooding was caused by high-intensity rain from higher land areas.

#### Our programs consisted of 4 stages:

##### Stage 1. Socialization

This session was conducted using the lecture method, question and answer, also discussion between the team and participants. The material is delivered in the form of Microsoft Powerpoint and each participant gets a hard copy of the material in "Disaster Preparedness Team Guidance Pocket book" form (figure 3). The materials presented including pre-disaster and disaster preparedness which includes the causes of flooding, prevention methods, as well as post-flood disease risks, disease risk factors, prevention and mitigation efforts. This session was 90 minutes. There were pre-test before socialization started and post-test after the socialization. The result was increasing of participants' knowledge (figure 2).



**Figure 2. Pre-test & Post-test Result of Socialization**

## Stage 2: Formation of disaster preparedness team

Based on disaster preparedness village regulation that encouraging for villagers empowerment, we developed **the village disaster preparedness team** from representatives of Tempurejo Subdistrict residents, consisting of 10 elderly residents that active member of elderly community (Karang Wreda Abiyoso). We choose elderly because they are the best model to give education among Tempurejo residents. They provide emotional support and friendship, like the senior who looks in on a house-bound friend to make sure that everything is alright and stays for a chat. Seniors provide care for neighbors or friends. The formation of the team begins with an explanation of the duties and responsibilities of the Disaster Preparedness Team, including providing information that has been obtained to other residents. This team will also report and coordinate with the village government regarding the disaster situation. They also got the Disaster Preparedness Team Guidance Pocket book (figure 3). After the pocket books were distributed, the disaster preparedness team was trained to understand its contents and if anything was not clear, it would be explained again.



**Figure 3. Disaster Preparedness Team Guidance Pocket book**

## Stage 3: Flood preparedness training

The flood alert simulation activity is carried out by direct practice from what has been conveyed in the counseling material. This session was 30 minutes. The speaker gave an example of how we respond to flood disasters. This activity includes actions that must be taken when a flood disaster occurs. In this activity participants were trained

about what things need to be recognized to read the symptoms of a flood disaster. After the signs of symptoms increase, what are the next steps to take, including securing electronic goods or other items in a higher place, turning off all electric currents, placing disaster alert bags that have been prepared in advance so that they are easily accessible during emergency conditions. Immediately evacuate yourself when the water flow gets higher to the designated evacuation route. After that, participants were asked to simulated one by one directly regarding the steps that need to be taken if a flood occurs such as a family emergency plan; they should also mention the 10 most important items needed and must be carried (in a bag) during a disaster (figure 4). The result was 9 out of 10 participants could practice it perfectly in allotted time.



**Figure 4. Simulation of Preparing Disaster Preparedness Bag**

#### **Stage 4: Team mentoring**

After everything was understood, a WhatsApp Group was formed to facilitate the coordination process. The WhatsApp Group contains a team of disaster management experts, doctors, and members of the newly formed disaster preparedness team. The existence of this Whatsapp group was also to facilitate the mentoring process carried out by the community service team. Monitoring will continue after the training and update information related to disasters will be provided. So it is hoped that this activity can be a forum for consultation and monitoring (figure 5).





**Figure 5. Assistance for Disaster Preparedness Team Via Whatsapp**

#### 4. Discussion

From the increasing of the participants' knowledge, we knowed that the socialisation was effective. Knowledge is the result of knowing, and this occurs after people have been taught by particular objects. According to previous community development, one factor influenced knowledge level was information access. Lack of information caused ineffective acts and attitudes (Saputra & Mulasari, 2017). The more information obtained by a person, the better his understanding and knowledge.

Morover, according to disater preparedness village regulation, villagers empowerment is encouraging (National Agency for Disaster Management (BNPB), 2012b), that was why we developed the village disaster preparedness team from representatives of Tempurejo Subdistrict residents, consisting of 10 elderly residents that active member of elderly community (Karang Wreda Abiyoso).

We choose elderly because they are the best model to give education among Tempurejo residents. They provide emotional support and friendship, like the senior who looks in on a house-bound friend to make sure that everything is alright and stays for a chat. Seniors provide care for neighbors or friends. Morover, making social contact by gathering with peers, communicating, educating people can reduce stress and boredom for elderly (Setyorini et al., 2018). Acknowledging seniors' contributions would help to make ours a more age-inclusive society that does not pit one generation against the other. The pocket book given was expected to be used as a guideline for the



team in disaster prevention and management. The pocket book consists of the definition of flooding, types of floods, factors causing flooding, flood impacts, preparation before flooding, preparation for floods, contents of disaster preparedness bags, disease during floods (Alderman et al., 2012), and emergency contacts. Through practicing participants would be easier to understand and remember (Azza & Wardhana, 2021). Facilitator should gave an example of how to respond flood disasters. This activity includes actions that must be taken when a flood disaster occurs. In this activity, participants were trained about what things need to be recognized to read the symptoms of a flood disaster (Khambali, 2017). After the signs of symptoms increase, what are the next steps to take, including securing electronic goods or other items in a higher place, turning off all electric currents, placing disaster alert bags that have been prepared in advance so that they are easily accessible during emergency conditions (National Agency for Disaster Management (BNPB), 2012a).

## **5. Conclusion and Recommendation**

Socialization and counselling regarding the flood disaster management increased knowledge of the disaster preparedness response team at Tempurejo Subdistrict. Furthermore, 9 out of 10 participants were able to simulate the preparation of a disaster preparedness bag within the allotted time. Furthermore, continuous assistance was carried out through WhatsApp Group. Moreover, this team is expected to be able to disseminate disaster preparedness knowledge to local residents and increase understanding regarding appropriate disaster preparedness in their area. We suggest that coordination and cooperation is needed with the village apparatus and BPBD to support future team activities.

## **Acknowledgement**

We are sincerely thankful for The Subdistrict Head of Tempurejo, Jember Regency and the Elderly Group members involved.

## REFERENCES

- Alderman, K., Turner, L., & Tong, S. (2012). Floods and human health: a systematic review. *Environ Int*, October(47), 37–47. <https://doi.org/10.1016/j.envint.2012.06.003>
- Azza, A., & Wardhana, D. I. (2021). Empowerment of Integrated Health Post Cadres through Fish Nugget Processing to Prevent Anemia in Pregnant Women. *Community Development Journal*, 5(2), 245–250.
- Central Bureau of Statistics (BPS). (2020). *Kecamatan Tempurejo Dalam Angka*. BPS Press.
- Geoportal Kebencanaan Indonesia. (2021). *Geoportal Kebencanaan Indonesia*. National Agency for Disaster Management (BNPB). [bnpb.go.id](http://bnpb.go.id)
- Khambali. (2017). *Manajemen Penanggulangan Bencana*. Andi Publisher.
- National Agency for Disaster Management (BNPB). (2011). *Indeks Rawan Bencana Indonesia*. BNPB.
- National Agency for Disaster Management (BNPB). (2012a). *Pedoman Sistem Peringatan Dini Berbasis Masyarakat*. BNPB. <http://www.bnpb.go.id>.
- National Agency for Disaster Management (BNPB). (2012b). *Peraturan Kepala BNPB Tahun 2012 tentang Pedoman Umum Desa/Kelurahan Tangguh Bencana*. BNPB Press.
- Saputra, S., & Mulasari, S. A. (2017). Pengetahuan, Sikap, dan Perilaku Pengelolaan Sampah pada Karyawan di Kampus. *Jurnal Kesehatan Masyarakat*, 11(1), 22–27.
- Setyorini, E., Wulandari, N., & Sari, Y. (2018). UPAYA UNTUK MENINGKATKAN KUALITAS HIDUP LANSIA MELALUI PERLAHAT (PERSATUAN LANSIA INGIN HIDUP SEHAT) DI DESA JATIDOWO KECAMATAN REJOTANGAN KABUPATEN TULUNGAGUNG. *Community Development Journal*, 2(2), 354–366.