

The Relationship Between Health Workers' Knowledge And Flood Emergency Response Preparedness

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Abstrak: Data from the National Disaster Management Agency (BNPB) reveals that the most common type of disaster is flooding. Based on the 2010-2030 Regional Spatial Plan (RT/RW) document of Padang City, as stipulated in Perda No. 03 of 2019, Article 58 B, there are 10 sub-districts in Padang City that are classified as flood-prone. These sub-districts include Koto Tangah, KurANJI, Pauh, West Padang, East Padang, South Padang, Lubuk Begalung, Nanggalo, Lubuk Kilangan, and Bungus Teluk Kabung. In this context, the preparedness of health workers in facing disasters is very important. This study aimed to assess the relationship between the level of knowledge of health workers and their preparedness in facing floods at Puskesmas Pauh, Padang City. The study was conducted in March 2024 involving 74 respondents as samples. Data were analyzed using the Chi-Square test with a 95% confidence level. Based on the characteristics of the respondents, the majority were between 37 to 47 years old (42 people or 56.8%), had a DIII education (47 people or 63.5%), were female (67 people or 90.5%), and worked as midwifery health workers (38 people or 51.4%). Most of the respondents had good knowledge related to flood disaster preparedness (52.7%) and had a mature emergency response plan (89.2%). The results of this study indicate a significant relationship between the level of knowledge of health workers and flood emergency response preparedness at Puskesmas Pauh, Padang City, with a p-value of 0.006.

Keywords : Emergency Response Preparedness; Flood Emergency ;Knowledge;

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INTRODUCTION

Indonesia's geographical position along the equator, combined with its varied topography, results in a high susceptibility to natural disasters due to the region's active tectonic plate movements (Taridala et al., 2017; Marfai et al., 2013). The country faces significant risks from various natural disasters, including landslides, earthquakes, volcanic eruptions, tsunamis, and floods (Bakri et al., 2020). According to the Global Natural Disaster Assessment (2019), floods account for 49.31% of the world's natural disaster occurrences (United Nations Office for Disaster Risk Reduction, 2019). In January 2020, Indonesia experienced 207 disaster events, as reported by the National Disaster Management Agency (BNPB) (DIBI, 2020). Specifically, in West Sumatra, there were 30 recorded flood events throughout 2020 (BNPB West Sumatra, 2020). In Padang City, flooding remains the most common disaster, with 25 incidents reported (Fauziah, 2023).



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According to data from BPBD Padang City, in recent years there have been a number of floods due to high rainfall. On November 9, 2018, floods hit Baringin Village in Lubuk Kilangan Subdistrict, causing 29 households to be isolated, while in Alai Parak Kopi Village several houses were damaged and covered in mud. Another flood occurred on December 25, 2019 in Lubuk Begalung, Padang City, resulting in a number of houses being submerged. Then, on September 23, 2020, floods hit several areas in Padang City, namely Pauh, Bungus, Teluk Kabung, Nanggalo, Kuranji, Koto Tangah, and South Padang. Floods and landslides also occurred again on September 29, 2021 in six sub-districts, namely South Padang, East Padang, Lubuk Begalung, Lubuk Kilangan, Nanggalo, and Koto Tangah (Syarif et al. 2023).

As many as 200 families were affected by the flash flood that hit Batu Busuk, Pauh Subdistrict, Padang City on Monday (1/23). The Regional Disaster Control Agency (BPBD) of Padang City said the flood occurred after the river overflowed after heavy rain fell. Head of Emergency and Logistics of BPBD Padang, Basril, said that the 200 families were vulnerable groups indicated to be affected by the flood who were trying to be evacuated. "We are still collecting the exact number of affected victims and this is information from the local RT and RW," he was quoted as saying by Antara, Tuesday (24/1) early morning. His party tried to evacuate slowly because this flood was caused by a river that came at high speed from upstream so it needed professional officers to handle it.

Preparedness is crucial during a disaster. It reflects how effective the overall response to a disaster is. Disaster preparedness strategies are important steps to be taken, especially by health workers and organizers. As the frontline in disaster management, health workers are expected to have higher preparedness compared to other teams. Their readiness to deal with emergency situations must be supported by strong knowledge and the right attitude in disaster management (Nurjanah et al., 2021).

The health service center at the time of the disaster is one of the main factors to prevent death, disability, disease incidence, and minimize the impact caused by the disaster (Minister of Health RI, 2006). According to Minister of Health Decree No. 066/MENKES/SK/II/2006 on Health Human Resources Management Guidelines for health services during disasters, it is necessary to pay attention to the disaster competence of local health human resources, especially those in charge of Community Health Centers (Puskesmas), especially in disaster-prone areas.

Puskesmas Pauh Padang, located in Pauh Sub-district, Padang City, is in a disaster-prone area. As the main health service provider in the area, health workers on duty as well as first responders in emergency situations are expected to have a higher level of preparedness than other teams. Their readiness to deal with disasters needs to be supported by adequate knowledge and the right attitude in handling emergency situations (Nurjanah et al., 2021).

Puskesmas Pauh is a health service center located in an area prone to flash floods. This is due to the overflow of the Batu Busuak River which causes flash floods. Maximum health services will be able to reduce the worst risks to public health. As the closest health service center, the preparedness of health workers in responding to flash flood disaster emergencies needs to be known by the preparedness of Pauh health workers in dealing with disaster situations.

The results of preliminary studies that have been conducted on December 20, 2023 at the Pauh health center. Researchers took a sample of five people consisting of three nurses, doctors, and midwives, of the five health workers, three stated that they knew the concept of preparedness, two health workers did not understand the concept of preparedness, these health workers also said that they had never attended flood disaster preparedness and emergency training.

A study by Indri et al. (2020), titled "Overview of Nurses' Knowledge and Attitudes about Health Service Preparedness in the Face of Flood Disasters," found that 22 respondents (52.4%) lacked sufficient knowledge about health service preparedness, and 24 respondents (57.1%) displayed inadequate preparedness attitudes. Most respondents with good knowledge were from a nursing background (75%) and

had over 10 years of work experience (72.2%). Additionally, those who had participated in flood disaster response as health workers generally demonstrated better preparedness. Effective preparedness among health workers is crucial for minimizing casualties and managing emergencies, especially in flood-prone areas (Setiawati et al., 2020). These findings underscore the need for further research on "The Relationship Between Health Workers' Knowledge and Flood Disaster Emergency Response Preparedness at the Puskesmas of Pauh District, Padang City."

METHOD

This research employs a cross-sectional method, focusing on a one-time observation of both independent and dependent variables within a single period (Nursalam, 2017). Each subject is observed only once, with measurements taken of their status or characteristics at that particular time, without any subsequent follow-up or monitoring.

In this study, the population comprises all the subjects under investigation (Notoatmodjo, 2012). Specifically, the research targets health workers at the Puskesmas in Pauh District, Padang City, totaling 74 individuals. The total sampling technique was used, meaning the entire population was included in the sample. Data analysis was conducted using the chi-square test, with a 95% confidence level ($\alpha = 0.05$). A P value of less than 0.05 indicates a significant relationship between the independent and dependent variables, while a P value greater than 0.05 suggests no significant relationship between them.

RESULTS AND DISCUSSION

The following is a table distributing the characteristics of respondents

Table 1. characteristics of respondents

Respondent characteristics	<i>f</i>	%
Age:		
26 - 36 years	21	28,4
37 - 47 years	42	56,8
48 -58 years	11	14,9
Last Education:		
third diploma	47	63,5
Fourth diploma	11	14,9
Undergraduate	15	20,3
Postgraduate	1	1,4
Gender:		
Male	7	90,5
Female	67	9,5

work:		
Head of puskesmas	1	1,4
Midwife	38	51,4
Nutritionist	2	2,7
Doctor	5	6,8
Nurse	16	21,6
Sanitarian	1	1,4
Dentist	3	4,1
Dental nurse	2	2,7
Medical Recorder	2	2,7
Nutrisionist	2	2,7
Pharmacist	1	1,4
Health analyst	1	1,4
Jumlah	74	100

Based on table 1, it was found that of the 74 respondents, most were aged 37-47 years, namely 42 people (56.8%), DIII graduates, namely 47 people (63.5%), female gender, namely 67 people (90.5%) and work as midwifery health workers, namely 38 people (51.4%).

Table 2. Frequency Distribution of Respondents Based on Knowledge

Knowledge	f	%
Less	29	39,2
Medium	6	8,1
Good	39	52,7
Total	74	100

Based on table 2, it is found that out of 74 respondents, most of them have good knowledge about flood emergency response preparedness, namely 39 people (52.7%).

Table 3. Frequency Distribution of Respondents Based on Preparedness

Preparedness	f	%
Ready	66	89,2
Not Ready	8	10,8
Total	74	100

Based on table 3, it is found that out of 74 respondents, most of them stated that their preparedness was in the ready category, namely 66 people (89.2%)

Table 4. Relationship between Officer Knowledge and Preparedness

Variable	Preparedness				Total		<i>p-value</i>
	Ready		Not Ready				
Knowledge	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
Less	22	25,9	7	3,1	29	100	0,006
Medium	5	5,4	1	0,6	6	100	
Good	39	34,8	0	4,2	39	100	
Total	66	59,1	8	8,0	74	100,0	

Based on table 4, it is found that the proportion of respondents stating preparedness in the ready category is found more in respondents with good knowledge, namely 39 people (34.8%) compared to other knowledge. The chi square test results from the table above obtained a p-value of 0.006 (p-value <0.05) which indicates that there is a relationship between Officer Knowledge and Preparedness in Flood Disaster Emergency Response.

Respondent Characteristics

The results revealed that of the 74 respondents at the Puskesmas of Pauh District, Padang City, the majority were aged 37-47 years, namely 42 people (56.8%). This finding is in line with Susilawati's research (2018) which discusses the sociodemographic relationship with the practice of health workers in disaster management at Puskesmas in disaster-prone areas of West Sumbawa Regency, where most respondents were in the early adult category at 63.5%. Research by Adisah et al (2022) also supports these results, with the majority of health workers at the Silih Nara Health Center, Central Aceh Regency, aged over 30 years (88.2%). According to Sa'adah (2021), a person's age is calculated from birth to their birthday, and the older they are, the more experience they gain. Swasana (2015) added that older age is associated with maturity in thinking and behavior. Individuals aged 30-45 years tend to be more active in social life and more prepared to face old age, which contributes to increased knowledge and experience, including disaster preparedness (Artini et al., 2020).

The study's findings reveal that most of the officers fall into the older adult age category, suggesting they possess substantial experience in handling disasters and performing their roles as disaster relief workers. This accumulated experience is likely to enhance their knowledge and preparedness for disaster situations. Additionally, the study identified that among the 74 respondents at Puskesmas Kecamatan Pauh in Padang City, the majority were DIII graduates, totaling 47 individuals (63.5%). This aligns with the research conducted by Adella et al. (2020), which found that most health workers involved in flood emergency response at Puskesmas Bidara Cina, East Jakarta, were also D3 graduates, accounting for 69%. Similarly, Setiawati et al. (2020) found that a significant proportion of nurses, 90.5%, who were D3 graduates, displayed strong preparedness in dealing with flood disasters.

According to Rahman et al. (2022), education is a process that is consciously designed and planned to create a learning environment that supports the active development of students' potential. The objectives of education include the development of spiritual strength, self-control, personality, intelligence, noble character, and skills needed for both individuals and society. Rahman adds that education is not only limited to providing information and skills, but also includes efforts to fulfill individual needs, desires, and abilities

in order to achieve a satisfying personal and social life. Education serves not only as preparation for the future, but also as a way to support a child's current development towards adulthood. The educational process aims to improve students' understanding, maturity and critical thinking skills (Rahman et al., 2022). A good education is essential for obtaining relevant information, including health information, which can contribute to improving one's quality of life (Bucher, 2018).

Based on the findings of this study, the majority of officers involved were D3 graduates, which suggests that this level of education affects their knowledge of disaster preparedness. It is important to strengthen the capabilities of disaster officers with regular training on disaster management. In addition, the results showed that of the 74 respondents, most were female, with a total of 67 people (90.5%) at the Puskesmas of Padang City Sub-district. This finding is in line with research by Adisah et al (2022), which noted that 87.1% of officers at Puskesmas Silih Nara, Central Aceh District, were women. Research by Setiawati et al (2020) also found that 92.9% of officers in flood disaster management were women.

The results showed that the majority of officers were female, which could affect their level of knowledge about disaster preparedness. According to Artini et al (2022), gender is one of the factors that influence a person's knowledge. Gender differences often influence perspectives, attitudes and knowledge, with men usually focusing more on competition and success, while women tend to be more task-focused and less competitive. While men often engage in learning with an emphasis on success, women often show greater diligence and thoroughness in completing tasks. As a result, women may have better knowledge or cognitive abilities in some aspects.

From the results of this study, it is concluded that most of the officers at the Puskesmas Kecamatan Kota Padang are female, which may affect their knowledge and preparedness in facing disasters. Gender plays a role in determining cognitive levels and competitive attitudes, which relate to disaster preparedness. The study showed that of the 74 respondents, most were obstetric health workers, with a total of 38 people (51.4%). Research by Adella et al (2020) on the relationship between knowledge and attitudes of health workers in flood emergency response at Puskesmas Bidara Cina, East Jakarta also revealed that the majority of respondents were paramedics, namely 21 out of 32 health workers (66%). Mustamin & Muchsin's research (2022) on the knowledge, attitudes, and preparedness of puskesmas health workers in dealing with flood disasters in Sidenreng Rappang Regency also found that most of the officers were medical officers, namely 75%.

Research shows that the majority of officers at Puskesmas are midwives, which contributes significantly to disaster preparedness. Midwives play a crucial role in preparing and delivering sexual and reproductive health (SRH) services especially in emergency situations. Their expertise and knowledge, coupled with their position as frontline service providers and their proximity to the communities they serve, make them particularly important in the context of disaster management (Hesti et al., 2019).

Midwives are essential health professionals who typically operate in health centers or communities that are at high risk for disasters. Their involvement in disaster risk reduction and preparedness is vital. Despite this, midwives are frequently overlooked in disaster preparedness teams at various levels, including local, national, and international. The World Health Organization (WHO) emphasizes that maternal, newborn, and women's health should be prioritized in the response to large-scale emergencies. Consequently, the International Confederation of Midwives (ICM) and its affiliates are working to ensure that midwives are actively involved and play a significant role in disaster preparedness efforts (WHO, 2011).

Disasters cause various potential health problems for society. This impact will be felt more severely by vulnerable population groups. In Article 55 (2) Law Number 24 of 2007 concerning Disaster

Management, vulnerable groups include: 1). Babies, toddlers and children; 2). Mothers who are pregnant or breastfeeding; 3). People with disabilities; and 4) Elderly people. 5 Protection efforts should be prioritized for these vulnerable groups, starting from rescue, evacuation, security to health and psychosocial services. Based on this, the researcher's conclusion from this study was that it was found that most of the officers were midwives. Midwife This is really needed in dealing with disaster emergencies, especially in dealing with maternal and child health.

The results revealed that of the 74 respondents at the Puskesmas of Pauh Subdistrict, Padang City, most 39 people (52.7%) had good knowledge about flood disaster preparedness. Research by Setiawati et al. (2020) showed similar results, where the majority of nurses also had good knowledge about disaster preparedness, namely 52.4%. In addition, research by Mustamin & Muchsin (2022) on the knowledge and attitudes of health workers in Sidenreng Rappang Regency found that most of the officers who had good knowledge were in the moderate category, namely 60%.

It can be seen from research that most health workers have good knowledge about disaster preparedness. This can be caused by several factors, as stated by Notoatmodjo (2017) that knowledge is the result of sensing, or the result of a person's knowledge of objects through their senses including the senses of sight, hearing, taste, smell and touch. There are several factors that can influence a person's level of knowledge regarding disaster management, namely environment, experience/information, social culture and age.

Another opinion expressed by Sari et al (2020) stated that good knowledge cannot be separated from various information that has been read, heard or watched by health workers because the ability to answer questions is very closely related to the ease of information obtained. Based on this, the researcher's conclusion from this study was that it was found that most officers had good knowledge. This shows that officers have a good understanding of disaster preparedness. This can be influenced by several factors, namely education, age, training received and the experience of officers in handling disasters.

The results showed that of the 74 respondents, most showed preparedness in the ready category, with a total of 66 people (89.2%) at the Puskesmas of Pauh Sub-district, Padang City. This finding is consistent with a study by Mustamin & Muchsin (2022) which found that 66.5% of health workers in Sidenreng Rappang District were also in the ready category. Research by Bakri et al (2020) on the preparedness of health workers in Manggala Subdistrict, Makassar City in 2019 found that 92.5% of officers also expressed ready preparedness.

Preparedness is a stage carried out before a disaster occurs (Fakhrurrazi et al., 2015). In dealing with a situation whose arrival cannot be predicted by humans, it requires health workers to have flexible and skilled preparedness so that it can be applied in emergency conditions (Fatih, 2019). Disaster preparedness is a capability or skill developed by the government, disaster-related institutions, communities and individuals. Preparedness is an activity that shows the level of effectiveness of the response to a disaster as a whole (Abidin, 2014).

Emergency is a medical action that is required by emergency patients immediately to save lives and prevent disability (Fakhrurrazi et al., 2015). Dessy & Dewi (2020) stated that an emergency in general is a condition where the sufferer needs help quickly, precisely, responsively to prevent disability and death.

It can be seen from the research that most officers have emergency response readiness in the ready category. This can be seen from the preparedness assessment which includes evaluation of aspects such as readiness to work outside regular working hours in handling flood disasters, readiness to act in accordance with sudden orders, readiness to use existing facilities and infrastructure in disaster management activities, and readiness to operate within available costs. Most of them agreed with these statements, this is in

accordance with the responsibilities of a health worker who is expected to provide full service to the community.

According to Widayatun & Fatoni (2013), the preparedness of health workers in managing flood disasters is crucial, especially in areas prone to such events. As a key health institution in this region, the Pauh Community Health Center plays a significant role in delivering health services during floods. This is consistent with the findings of Seri Rezki Fauziah (2019), which indicate that while health workers at Curahnongko and Cakru Health Centers are considered ready to handle flood disasters, their preparedness does not fully meet the standards required for their work area. This aligns with the 2006 Health Human Resources Guidebook for Disaster Management, which emphasizes that the goal of preparedness efforts in the health sector is to minimize casualties, reduce victim suffering, prevent post-disaster health issues, and facilitate emergency response and rapid recovery efforts.

Based on this, the researcher's conclusion from this research was that it was found that quite a number of officers had emergency preparedness for disasters. This is a good basic capital for officers in preparing for disasters, where officers can also provide education to the community about the efforts that can be taken if a disaster occurs and the preparations that need to be made before a disaster occurs.

The results showed that the proportion of respondents who categorized their preparedness as "ready" was higher among those with good knowledge of disaster emergency response. Of the 74 respondents, 39 people (34.8%) who had good knowledge of disaster preparedness considered themselves ready to deal with emergency situations. In contrast, this proportion was lower among respondents with poor knowledge. This suggests that in-depth and adequate knowledge about disasters is closely associated with higher preparedness in the field. To measure the strength of this relationship, a chi-square test was conducted with a p-value of 0.006. As this p-value is less than 0.05, the results of this statistical test indicate a significant relationship between officers' knowledge and their preparedness for flooding in Puskesmas Kecamatan Pauh, Padang City.

This indicates that officers who have better knowledge about disaster management are more likely to show better preparedness compared to those who have less knowledge. This finding confirms the importance of comprehensive education and training in improving disaster preparedness. In-depth knowledge allows health workers to understand and apply proper procedures, as well as make better decisions when dealing with emergency situations. By improving staff knowledge through structured and continuous training, it is expected that emergency response preparedness can be significantly improved. Furthermore, to ensure the effectiveness of the training, periodic evaluations should be conducted to assess improvements in knowledge and preparedness. Training programs should be designed based on the results of this study, focusing on the aspects that most affect preparedness.

To enhance disaster preparedness among health workers, updated training materials, disaster simulations, and interactive sessions should be incorporated. These resources are designed to deepen the understanding and skills of officers in managing disasters. By employing a well-structured and evidence-based strategy, it is anticipated that health workers' preparedness will improve, thereby reducing both the risk and impact of disasters. Research conducted by Mustamin & Muchsin (2022) demonstrated a connection between the knowledge and preparedness of health center staff in addressing flood emergencies in Sidenreng Rappang Regency. This finding aligns with the study by Gatot et al. (2021), which identified a significant correlation between health workers' knowledge and their preparedness for flood disaster mitigation, categorizing the relationship as moderate. Additionally, this research highlighted a notable connection between attitudes and preparedness, with a close relationship category, and underscored the

importance of training, which was found to significantly influence preparedness for flood disaster mitigation, especially at the Suka Merindu Community Health Center in Bengkulu City.

This study has revealed a significant relationship between the level of knowledge and disaster preparedness among health workers. The findings suggest that officers with more in-depth knowledge of disasters tend to be more prepared and effective in dealing with emergency situations. This is due to the experience they gather from various disaster events, which in turn strengthens their preparedness. Extensive knowledge not only affects officers' understanding of proper protocols and actions but also enhances their ability to manage stress and make quick decisions when facing disasters. Notoatmodjo (2017) argues that knowledge is a key component in the formation of effective action. Behavior based on knowledge has a tendency to last longer than behavior that has no basis in knowledge.

This means that health workers who understand disaster-related theories and practices are better prepared in emergency situations. In line with this opinion, Fauzi et al (2017) showed that high knowledge, combined with extensive experience, contributed significantly to officer preparedness. Experience gained from disaster situations provides valuable lessons on how to practically apply knowledge to improve preparedness. Therefore, the conclusion of this study is that there is a clear relationship between knowledge and emergency response preparedness among health workers. Officers with better knowledge tend to exhibit higher preparedness, potentially reducing the impact of disasters. To improve preparedness, it is imperative to provide ongoing disaster training to officers. This training should include disaster simulations, case-based learning, and updates on disaster management protocols. Thus, effective training will strengthen officers' knowledge and improve their ability to manage emergency situations more efficiently 40 mini.

CONCLUSIONS

Based on the data on the characteristics of the respondents, most of them were between 37 and 47 years old, with a total of 42 people (56.8%). Most were also DIII graduates, 47 people (63.5%). The gender of the majority of respondents was female, as many as 67 people (90.5%), and the dominant profession was midwifery health workers, with a total of 38 people (51.4%) at Puskesmas Kecamatan Pauh Kota Padang. The study showed that more than half of the respondents, 52.7%, had good knowledge about flood emergency preparedness at Puskesmas Kecamatan Pauh Kota Padang. In addition, 89.2% of respondents stated that they were prepared with emergency response plans in the face of floods. The relationship between the level of knowledge of health workers and flood emergency response preparedness at the Puskesmas of Pauh Sub-district, Padang City was shown with a p value of 0.006. This indicates a significant relationship between the knowledge of health workers and their preparedness in dealing with flood disasters.

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