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Disaster Preparedness Risk Analysis at Makassar Health Quarantine Center

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ABSTRACT

Fires, as one of the disasters causing significant losses, are often attributed not only to physical or natural conditions but also to human negligence. Therefore, preparedness requires consideration of both physical and social aspects. This study analyzes the risk of disaster preparedness at the Makassar Health Quarantine Center. It employs descriptive research, with a population consisting of all 132 employees at the center. Using purposive sampling, the study included 99 respondents. The findings showed that the emergency response plan was categorized as ready, with 66 respondents (66.7%), followed by the disaster warning system, with 64 respondents (64.6%), and resource mobilization, with 53 respondents (53.5%) in the ready category. The study concludes that, based on disaster preparedness parameters, employees at the Makassar Health Quarantine Center are, on average, very prepared to face disasters. To sustain this level of preparedness, employees are encouraged to remain proactive in activities related to disaster preparedness, ensure access to updated information, and maintain disaster preparedness facilities. Continuous efforts in these areas will help maintain and further improve disaster readiness in the workplace.

INTRODUCTION

Natural disasters are caused by an event or series of natural phenomena such as earthquakes, tsunamis, volcanic eruptions, floods, droughts, cyclones, and landslides (Faisal et al., 2019). Fire disasters can cause significant losses if not adequately managed and addressed as part of disaster response efforts. According to the Disaster Management Law No. 24 of 2007, fire disasters are classified as natural or non-natural disasters depending on the cause. This indicates that fire disasters are not only caused by physical or natural conditions but also by human negligence. In addition to the physical (normal) perspective, disaster preparedness requires particular attention to the human (social) perspective (Manik et al., 2020).

According to data from the United States Fire Departments in 2018, there were approximately 1,318,500 recorded fire incidents that year. These incidents resulted in 3,655 deaths, 15,200 injuries, and an estimated $25.6 billion in losses, including $12.4 billion due to wildfires in California. In 2018, there was typically one fire-related death every 2 hours and 24 minutes and one fire-related injury every 35 minutes (Ilham Bintoro and Agus Triyono, 2021).

According to data from the Indonesian National Disaster Management Agency (BNPB), there were 2,163 disaster cases in Indonesia over the past 10 years, with 980 fire incidents recorded nationwide between 2011 and 2017. The recurring nature of fire incidents highlights that fires are a critical issue for human life. Every building owner should prepare a fire contingency plan (Animenendra et al., 2021). Based on disaster data from South Sulawesi Province, fires were the most common disaster in 2022, with 115 reported cases. In Makassar City, fires were also the most frequent disaster, with 11 reported cases (BPBD South Sulawesi, 2022).

Research by Rio Animenendra, Makomlamin, and Christine Vita GP (2021) on the role of librarians in implementing the fire protection system for Building B of the Soman HS Regional Library in Pekanbaru in 2020 revealed significant issues. The findings showed that no firefighting organization had been established, and several active protection devices, such as fire extinguishers and hydrants, were not operational. Additionally, some passive protection systems were non-functional, such as the absence of emergency lighting and non-functional fire exits or signs (Animenendra et al., 2021).

The Makassar Health Quarantine Office is one of the Special Implementing Units (UPT) of the Ministry of Health, reporting to the Director General of Disease Prevention and Control. One of its main tasks is to implement, facilitate, and advocate for preparedness and response to disease outbreaks and health-related disasters, including organizing health-related activities during the hajj and population movements.

Initial data from safety patrols at the Makassar Health Quarantine Office, including its work areas at Soekarno-Hatta Port and Sultan Hasanuddin International Airport, revealed that it has an emergency response team and conducted its last fire simulation in 2021. However, areas such as emergency response procedures, fire disaster management, procurement and maintenance of fire extinguishers, as well as employee preparedness and awareness to participate in safety simulations, were found to be suboptimal.

Based on the problem outlined, every office environment faces disaster threats, but fire disaster management is a shared responsibility among all employees. Assigning tasks and responsibilities to enhance disaster preparedness in the workplace is particularly crucial, especially for the Makassar Health Quarantine Office. This study aims to analyze disaster preparedness risks at the Makassar Health Quarantine Office based on emergency response plans, disaster warning systems, and resource mobilization.

METHODS

The study employed a descriptive research method. Descriptive research aims to describe, investigate, and explain disaster preparedness risk analysis based on disaster parameters. This research was conducted at the Makassar Center for Health Quarantine (Soekarno-Hatta Seaport and Sultan Hasanuddin International Airport) from August 24 to September 13, 2023. The study population consisted of all employees at the Makassar Center for Health Quarantine, totaling 132 individuals. The sample included a portion of the employees, selected using purposive sampling techniques, with a total of 99 respondents. Data collection was carried out using questionnaires, and the disaster preparedness risk analysis referred to the preparedness index parameters based on LIPI UNESCO 2006.

RESULTS

Table 1. Characteristics of Respondents

Characteristics		n = 99	%
Gender	Male	40	40,4
	Female	59	59,6
Age Group	18 – 27	1	1,0
	28 – 37	20	20,2
	38 – 47	52	52,5
	48 – 57	25	25,3
	58 – 60	1	1,0
Education	Diploma 3 (D3)	13	13,2
	Diploma 4 (D4)	4	4,0
	Bachelor's Degree (S1)	63	63,6
	Master's Degree (S2)	19	19,2

Source: Primary Data, 2024

Table 1 shows that, for the gender category, the number of male respondents was 40 (40.4%), while female respondents totaled 59 (59.6%). In the age group category, the highest number of respondents was in the 38-47 years age group, with 53 respondents (53.5%), and the lowest was in the 18-27 years and 58-60 years age groups, each with 1 respondent (1.0%). In terms of education level, the highest number of respondents was in the Bachelor's degree (S1) category, with 64 respondents (64.6%), while the lowest was in the Diploma IV (D4) category, with 4 respondents (4.0%).

Univariate Analysis

Table 2. Distribution of Respondents Based on Disaster Preparedness Variables at the Makassar Health Quarantine Center

Categories		n = 99	%
Emergency Response Plan	Ready	66	66,7
	Very ready	33	33,3
Disaster Warning System	Ready	64	64,6
	Very ready	35	35,4
Resource Mobilization	Ready	53	53,5
	Very ready	46	46,5

Source: Primary Data, 2024

Table 2 shows that the distribution of respondents based on the parameters of the emergency response plan indicates that the highest category is "ready," with 66 respondents (66.7%), while the lowest category is "very ready," with 33 respondents (33.3%). For the disaster warning system parameter, the highest category is "ready," with 64 respondents (64.6%), while the lowest category is "very ready," with 35 respondents (35.4%). Based on the

resource mobilization parameter, the highest category is "ready," with 53 respondents (53.5%), while the lowest category is "very ready," with 35 respondents (46.5%).

DISCUSSION

Based on the results of the study on the Risk Analysis of Disaster Preparedness at the Makassar Health Quarantine Center in 2023, the following can be explained:

Respondent Characteristics

According to Table 1, the characteristics of respondents were categorized by gender, with 40 male respondents (40.4%) and 59 female respondents (59.6%). In terms of age groups, the highest number of respondents was in the 38-47 age range, with 53 respondents (53.5%), while the lowest was in the 18-27 and 58-60 age ranges, each with 1 respondent (1.0%). The youngest respondent was 18 years old. Regarding education level, the highest number of respondents had a bachelor's degree (S1), totaling 64 respondents (64.6%), while the lowest was from the D4 category, with 4 respondents (4.0%).

Emergency Response Plan

Disaster preparedness is a crucial aspect of maintaining operational continuity and individual safety in the workplace, including at the Makassar Health Quarantine Center. As an institution with a strategic role in controlling and preventing public health risks, the readiness of employees to face emergency situations, such as fires, is an important measure in disaster mitigation efforts.

The study found that the highest parameter for the emergency response plan was the “ready” category, with 66 respondents (66.7%), while the lowest was the “very ready” category, with 33 respondents (33.3%). Disasters will lead to losses if initial handling by employees is not adequate to manage the event. Every employee at the Makassar Health Quarantine Center is always on alert and prepared to respond to any disaster-related issues.

According to Mufida and Martiana (2019), fire risk reduction is critical when preparing procedures related to guidelines for actions to be taken in the event of a fire in a building. This emergency guide outlines general provisions, identification, organizational structure, emergency supplies, evacuation routes, assembly points, communication systems, recovery response procedures, and emergency training and simulations.

Based on the questionnaire responses, most participants were knowledgeable and alert in responding to fire disasters. However, one statement under a variable scored in the “almost ready” and “unprepared” categories, explaining that in dangerous conditions, neither colleagues nor close relatives prepared evacuation sites due to the office being their place of work.

According to a study by the National Security Council, one of the factors causing disaster management system failure is the lack of periodic evaluation and review of emergency response systems, especially when disasters have not occurred within the organization. Emergency response programs may be forgotten (Ramli, 2018). By continuously improving and developing programs, a comprehensive emergency response system can be planned and implemented (Asfarisy & Koesyanto, 2021).

This study's findings do not align with a study conducted at SMK Negeri 3 Semarang, titled "Disaster Preparedness for Fire at Vocational High Schools," where the results indicated that the school community's disaster response plan was categorized as "almost ready" at 58.09% (Rahayu, 2020).

Disaster Warning System

Disaster preparedness is an essential preventive measure to reduce the negative impacts caused by unexpected events such as fires or other natural disasters. Early warning systems are a key indicator of preparedness, as they provide individuals and organizations with time to take appropriate protective actions. Based on the study results, the highest parameter for the disaster warning system was the "ready" category, with 64 respondents (64.6%), and the lowest was the “very ready” category, with 35 respondents (35.4%).

According to Randolph Kent, preparedness refers to preventive actions taken before a disaster occurs, including knowledge of disaster signs, early warning symptoms, the development and regular testing of early warning systems, evacuation plans, and other actions to minimize the potential for death or injury during a warning period (Gustini et al., 2021).

Employees play a role in reducing fire disaster risks. One preparedness indicator is the existence of an early warning system in the community, particularly in fire-prone areas. Awareness systems, such as warning signs and information distribution in case of disaster, are critical (Gowing, 2017). This study’s results are consistent with a study conducted at the Governor's Office of Aceh, titled "Preparedness Study of Public Building Users for Earthquake Disasters at the Aceh Governor's Office," where the disaster warning system aspect scored 65%, categorized as "ready" (Faisal et al., 2019).

Resource Mobilization

Disaster preparedness is not only determined by a well-prepared emergency response plan but also by the ability to mobilize resources effectively. Resource mobilization includes access to information, social support, and available infrastructure that supports disaster response. Based on the study results, the highest parameter for resource mobilization was the "ready" category, with 66 respondents (66.7%), and the lowest was the “very ready” category, with 33 respondents (33.3%).

Resource mobilization is one pathway for preparing to face a disaster.

According to Basri (2019), the availability of savings and insurance as part of employee resources is not yet sufficient, as awareness, interest, access, or information regarding these resources are still limited to certain groups. Most individuals report having relatives or friends who are willing to help in case of a fire disaster. This reduces stress and overall risk, but it needs to be supported by efforts to enhance other elements, such as the disaster warning system.

A study by Windusari et al. (2022) found that the standard for resource mobilization capability is very high at 39%. The highest standard was 36% of the total number of respondents. Respondents with a low standard accounted for 16%, while 7% had a moderate standard, and 2% had a low standard.

According to this study, employees at the Makassar Health Quarantine Center are categorized as ready for resource mobilization, as each employee has access to disaster-related information, especially fire disasters, which is easily accessible. Employees are aware of the importance of learning about disaster preparedness. However, learning about disaster

management through gadgets and other printed media is encouraged to ensure employees consistently update their knowledge on disaster preparedness. This study's results differ from research conducted in Kampung Pelangi, Semarang, titled "Community Preparedness in Facing Fire Disasters in Kampung Pelangi, Semarang," where resource mobilization was categorized as "unprepared" at 38% (Cahyani & Suharini, 2021).

CONCLUSION

This study reveals that the level of preparedness at the Makassar Health Quarantine Center in facing disasters shows varying results across several key indicators. The emergency response plan is recorded as the aspect with the highest level of preparedness, followed by the disaster warning system, which also showed positive results. Meanwhile, resource mobilization, despite being the aspect with the lowest preparedness level, remains within an adequate category. These findings reflect that, overall, the Makassar Health Quarantine Center has a reasonably good level of preparedness to face disaster situations.

It is recommended to improve the resource mobilization aspect by strengthening the distribution and coordination mechanisms among relevant institutions to ensure more efficient disaster response. The emergency response plan should be updated regularly through disaster simulation exercises involving all stakeholders to maintain high preparedness levels. Although the disaster warning system is already good, it can be enhanced by utilizing the latest technology to detect and disseminate disaster information more quickly and accurately. The combination of improvements in these three variables will ensure more optimal preparedness in facing future disasters.

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