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Availability of Human Resources as a Determinant of Health Service Quality in Multihazard Disasters in Palu City, Indonesia

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Abstract

Health aspects in disaster management, including earthquakes, are very important to formulate because they include pre-disaster, emergency response and post-disaster aspects so that appropriate mitigation and preparedness can be carried out to reduce the impacts that occur. This study aimed to analyze the influence of health resource factors on the quality of health services in multihazard disasters. This study applied a cross-sectional design, involving 57 people selected using accidental sampling techniques. The independent variables were health service providers; human resources; health financing; materials; methods; institutional structures; health information system technology; drugs and health supplies; community conditions; environment; preparedness; and basic needs during disasters. While the dependent variable was the quality of health services in multihazard disasters. All variables were measured by filling out a questionnaire. The measurement data were analyzed using multiple linear regression tests. The results showed that the p-value was less than 0.05 only for the availability of human resources, which was 0.013; so this is a factor that significantly influences the quality of health services. Thus it could be concluded that the determinant of the quality of health services in multihazard disasters in Palu City, Indonesia was the availability of human resources.

Keywords: *Determinant, Health Services Quality, Human Resources, Multihazard Disasters.*

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Introduction

Until now, earthquakes are still one of the natural disasters in many locations in the world [1]. Indonesia is a country that is very vulnerable to earthquake disasters [2]. On September 28, 2018, at 18.02 WITA, an earthquake with a magnitude of 7.4 on the Richter Scale occurred. The epicentre was 26 km north of Donggala and 80 km northwest of Palu City with a depth of 10 km [3]. A total of 55,102 houses were damaged, either severely damaged, moderately damaged, or lightly damaged. The number of victims reached 4194 people with details: died = 2132 people, missing = 570 people and buried in an unidentified condition = 1016 people [4]. The number of refugees reached 62,359 people spread across 147 points [3]. There are three impacts of earthquakes, namely the danger of surface deformation due to fault shifts, the danger of earthquake shocks, and aftershocks such as tsunamis, liquefaction, and landslides [5]. It turns out that the deaths and injuries were not caused by the earthquake, but were affected by building damage. Reducing fatalities can be anticipated with earthquake-resistant buildings. In coastal areas close to the source of the earthquake, it is known that tsunami early warnings are still ineffective because the tsunami is very short, which has implications for the speed of rescue. Strengthening independent evacuation capacity can be done by making strong earthquake shocks as tsunami early warnings [3]. Morbidity, mortality and disability, emergencies can disrupt the health system [6]. Earthquakes pose a risk of damage and destruction of health facilities, disruption of health programs, loss of health staff, and excessive burden on clinical services [7]. Emergency conditions like this can hamper the development of public health and other sectors for some time [8]. In the phenomenon of the earthquake in Palu, it is known that the Palu Regional Hospital building was damaged, namely: 1) one building mass collapsed; 2) the remaining buildings are in a tilted condition; 3) several structural elements are severely damaged. Therefore, health service buildings must truly meet the requirements for earthquake-resistant buildings, namely SNI 1726-2012 and SNI 2847-2013. In addition, there were 6 damaged health centres, namely Talise, Bulili, Mamboro, Lere, Nosara, and Singgani Health Centers [3]. After the earthquake, residents became increasingly aware of the vulnerability of disasters in their residential areas so that they better understood the importance of reallocating from earthquake paths. The positive perception of brick houses changed because brick houses are more susceptible to severe damage due to vertical collapses which claim more lives. Wooden houses tend to collapse sideways, allowing their occupants to save themselves.

Acceleration of emergency response in October 2019, a week after the disaster [3] included further evacuation, search and rescue of victims by the joint SAR team, medical treatment, field hospitals and handling of corpses, distribution of logistics and food for refugees, acceleration of recovery of road infrastructure, electricity, ports, airports, telecommunications, fuel supplies, handling of foreign aid. In addition, health service handling also operates in 9 hospitals, 1 field hospital and 4 ship hospitals, so that orthopedic surgery can be performed. However, in the Sigi Regency, 4 sub-districts are still isolated so they require military helicopters. In Donggala Regency, hospitals use electricity from generators, and there is a shortage of clean water. Waste treatment plants are available but are not yet functioning due to limited electricity. Other problems include damage to the health centre incinerators, as well as obstacles to childbirth assistance due to a shortage of midwives.

The health system plays an important role in reducing hazards, exposure and vulnerability, and in building capacity to prevent or reduce the consequences of emergencies [9-11]. These capacities include primary care, disease surveillance, pre-hospital care, mass casualty management, chemical and radiological safety, mental health, and risk communication [12]. The health system must also ensure that additional capacities are available to manage non-routine or emergency-related risks, such as event-based surveillance, special teams for emergency health, standards for infrastructure in high-risk areas, emergency response plans, and simulation exercises. Handling the health sector in an earthquake disaster is important to formulate because it includes pre-disaster, emergency response and post-disaster aspects so that appropriate mitigation and preparedness can be carried out to reduce the impacts that occur [13].

Therefore, research is needed that aims to analyze the influence of health resource factors on improving the quality of health services in multihazard disasters.

Materials and Methods

The study was a quantitative study with a cross-sectional design, based on the earthquake disaster in Palu City, Southeast Sulawesi, Indonesia in 2018. Given the emergency situation, the sample was selected using the accidental sampling technique, so that a sample size of 57 people was obtained, consisting of disaster volunteers, the community, health center staff, Disaster Management Agency staff and Health Service staff.

The dependent variable was the quality of health services in multihazard disasters. Meanwhile, there were 12 independent variables which are health resources, namely: health services; human resources; health financing; materials or equipment; governance methods; institutional structure; health information system technology; medicines and health supplies; community conditions; environment; preparedness; and basic needs during disasters. All data on these variables are measured by filling out an online questionnaire. The collected data were analyzed using multiple linear regression tests.

This study was conducted by applying the principles of health research ethics, especially to respondents such as respecting autonomy, not causing harm, being fair, maintaining privacy and other ethical principles.

Results

The results of the analysis of the influence of each factor on the quality of health services in multihazard disasters are presented in Table 1.

Table 1. The Results of the Analysis of the Influence of Resource Factors on the Quality of Health Services in Multihazard Disasters in Palu City, Indonesia

Variables	**Regression coefficient**	**t-count**	**B**	**p-value**
Constant	74.820	4.976		0.000
Availability of health service providers	7.239	1.432	0.271	0.159
Availability of human resources	5.154	2.592	0.401	0.013
Availability of funding	4.070	0.719	0.149	0.476
Availability of materials	-8.997	-0.809	-0.126	0.423
Availability of methods	-0.058	-0.011	-0.003	0.992
Availability of machines	-8.600	-0.882	-0.116	0.382

Availability of technology	3.886	0.717	0.125	0.477
Availability of medicines and health supplies	0.387	0.067	0.011	0.947
Market or community conditions	10.718	1.165	0.281	0.250
Environment	-8.394	-0.853	-0.281	0.398
Preparedness	-0.689	-0.063	-0.015	0.950
Availability of basic needs during disasters	0.986	0.262	0.088	0.794

The results of the multiple linear regression analysis showed that the factor that significantly influences health services in multihazard disasters was the availability of human resources, with a p-value of 0.013. The R-square value was 0.792, which means that the quality of health services in multihazard disasters could be explained by the availability of human resources by 79.2%, while the rest (20.1%) was caused by other factors that were not measured in this study.

Discussion

The results of the study indicate that the factor that significantly affects the quality of health services in multi-hazard disasters is the availability of human resources. Human resources are the only resources that have reason, feelings, desires, skills, knowledge, drive, power and work [14-16]. All of these human resource potentials affect the organization's efforts to achieve goals [14]. Human resources are employees who are ready, capable, and alert to achieving organizational goals [17]. For organizations, three strategic resources must be owned to become a superior organization, namely financial resources, human resources, and informational resources to make strategic or tactical decisions. Human resources as human capital with quality that is by organizational expectations are the most difficult resources to manage and obtain [18].

Health human resources are someone who works actively in the health sector, whether they have formal health education or not, which for certain types requires the authority to carry out health efforts [14]. Health human resources are professional health workers, including strategic health workers and non-professional health workers, as well as supporting or supporting health workers who are involved and work, and dedicate themselves to health efforts and management [19].

Human resources are a central factor in an organization [20]. Whatever the form and purpose, the organization is created based on various visions for the benefit of humans and in its implementation, the mission is managed and managed by humans. So, humans are a strategic factor in all activities of institutions or organizations [21-24]. Human resources are a strength that comes from humans. Human resources are the abilities possessed by every human being, which consist of the thinking power and physical power of each human being. Strictly speaking, the ability of every human being is determined by their thinking power and physical power. Therefore, about overcoming health problems due to disasters, health human resources are very important as technical implementers or implementers of operational activities, both during disasters and in the post-disaster phase [25].

Conclusion

Based on the results of the study, it was concluded that the determining factor for the quality of health services in multihazard disasters in Palu City, Indonesia is the availability of human resources.

Conflict of interest

There is no conflict of interest related to this research and publication

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