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EMERGENCY RESPONSE MANAGEMENT AND THE NEED FOR INSTITUTIONAL SUPPORT FOR EVACUATION OF VICTIMS INJURED IN EARTHQUAKE DISASTERS

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ABSTRACT

The existence of emergency response management system support is very urgent because the threat of disaster with the disaster risk index are very high. Geographical conditions and the existence of large faults in most of Indonesia's territorial areas as evidenced by the evidence base of earthquake disasters causing victims. On the other hand, support for the management system in making policies and decisions quickly in disaster management efforts during the emergency response period has not been optimal, including limitations in the utilization of resources in evacuating victims injured due to earthquake disasters. This article is written to provide an overview of the forms of institutional support variables needed in order to optimize the provision of assistance to all earthquake disaster victims, especially for the evacuation and transportation process of injured victims during the earthquake disaster emergency response period until they receive definitive health service assistance. However, efforts to optimize the provision of assistance must start from the pre-disaster period through the development of an emergency response plan.

Keywords: Evacuation of victims injured, Disaster, Earthquake.

INTRODUCTION

The threat and high risk of disasters require the Indonesian Government at all levels to be able to manage effective disaster management efforts (Tri Utomo, 2011). Especially emergency response efforts. Disaster events that have occurred show the certainty of increasing needs for humanitarian and health assistance(Chakravarty, 2011). Immediately after a major disaster, we are potentially faced with a large number of victims in a

very short time; Uncertainty at the disaster site; disruption to communication and transportation networks, scarcity of resources including humanresources and the possibility of losing rescue and medical teams. Insuch a situation it is very difficult to manage the situation without adequate preparation, including disaster victim management (Farahani at al., 2020).

Disaster victims need emergency health service efforts for their survival (Muhammad, Kamil, Adlim, & Irwandi, 2024). The effectiveness of these services is highly dependent on the speed of response, on the other hand, such a rapid response is very difficult to do without good preparation and planning (Farahani, at. al, 2020). They exemplified that pre-plannedmedical care is effective in accelerating life support for victims indisaster situations. In addition, good emergency response preparation orplanning will also have a positive impact on the accessibility of services ((Chen & Yu, 2016). (Caunhye & Nie, 2018) underline the importance of planning ongoing care for disaster victims whoexperience serious injuries as part of an emergency response plan. This ongoing care requires referral services by considering the capacity of the Referral Hospital. (Caunhye & Nie, 2018).

Evacuation planning for victims as a priority emergency response plan ((Na & Banerjee, 2019), must be made comprehensivelyto ensure the process of transporting victims to referral hospitals on time by considering the type and level of victim injuries and hospital capacity (Farahani, at. al, 2020). Previously, (Sung & Lee, 2016) explained that in making decisions at each step of the process of providing assistance to injured victims, attention must be paid to the condition of the victim, the environment, and the availability of resources. They gave an example of decision making for resource allocation, the number of ambulances and operators needed is adjusted to the number of victims and triage categories, (Sung & Lee, 2016). Prediction of response time in the evacuation plan by considering the

location and condition of the route to the disaster location ((Bandyopadhyay & Singh, 2016).

Institutional support is needed, especially in optimizing resource management in accelerating disaster response time. Increasing preparedness by testing emergency response time is very important to optimize limited time (IFRC, 2012). The importance of considering the total time required to evacuate victims to the hospital. To obtain time for a concise evacuation process,of course, you must choose a short route and update the hospital status, and always pay attention to the victim's chances of survival (Farahani et al., 2020). This article is expected to provide an overview of the emergency response management plan and the need for support for the implementation of the evacuation process for victims of earthquake disasters.

METHODS

This study uses a Literature Study with a propositional approach, namely an approach to selecting literature that is considered important and answers the needs of the study objectives (Templier & Paré, 2015). This literature review study was conducted by synthesizingscientific articles that discuss the Evacuation Process of earthquake disaster victims, especially those who suffered serious injuries.

The procedure carried out before the preparation of guidelinesor standards for implementing data collection was carried out by (1) searching for and selecting related scientific articles, (2) Identifying variables to sort articles according to needs, (3) selecting articles for theneeds of the main research references and references for discussing variables, (3) Carrying out a synthesis process for valid selected articles. (Templier & Paré, 2015).

The literature search was carried out electronically by utilizing the following search applications: Medline, science direct and Google Scholar. The search was carried out using English keywords, namely Evacuation, Disaster victims, and Earthquake and Indonesian Evakuasi Korban Bencana. The search was carried out with verbatim analysis of the title, abstract, and index of terms used to describe the article. The selection of search criteria was carried out, but was limited by the availability of search criteria in the application. Selection of article criteria according to needs was carried out manually for search applications that did not provide criteria. The search criteria for articles that the author used were research articles or review articles, published from 2014 to the exploration guidelines published in 2021.

The initial search resulted in 17,682 articles with details through science direct 275 articles, Medline 25 articles and googlescholar 16,500 articles. The number of articles was reduced to 124 articles after being selected by considering the following reasons: (1) not in accordance with the study, (2) the same article, or duplicates, (3) articles were only available in abstract form, articles did not focus on Evacuation of earthquake disaster victims. In the end, 95 articles were read in full, and 79 of them were reread for review and data extraction. The final results only obtained 18 articles that were included, the rest were not related to the objectives of this study

RESULTS AND DISCUSSION

A. Institutional Support and Management of Emergency Response Efforts

Institutional support plays a critical role in earthquake disaster management. Government agencies, including the military and police, contribute significantly to victim support despite capacity constraintst (Shrestha & Pathranarakul, 2018). Resilient communities with enhanced institutional capacity and earthquake-resistant design demonstrate better disaster preparedness (Ray, 2017). The Japaneseexperience highlights the importance of strong pre-disaster measures, such as pre-financing arrangements and prior agreements with the private sector, in facilitating rapid recovery (Ishiwatari, 2014).

However, challenges remain in providing equitable coverage to private sector facilities. Academic institutions can also contribute effectively to disaster management through multidisciplinary interventions that address medical, mental health, education, and sanitation needs (Cordero-Reyes et al., 2017). These approaches promote survivor autonomy and community recovery. Overall, strong institutional support, combined with community resilience and multidisciplinary efforts, are critical to effective earthquake disaster management and recovery.

In disaster response management efforts in the emergency response phase, the minimum activities that must be carried out are identified emergency health service efforts with disaster victim management that goes through five steps, namely (a) search and rescue, (b) field triage (c) life support, (d) transportation to the hospital and (e) comprehensive care (Farahani et al., 2020).

When a disaster occurs, the Central or Regional Government, especially the National Disaster Management Agency (BNPB), is responsible for disaster management efforts, they are also authorized to determine the emergency response status based on the scale of the disaster (Syamsidik, at. al., 2017). The authorities it has include

optimizing and coordinating the structure of state institutions, in the form of identifying resources, assessing needs, legalizing and utilizing and their resources (Syamsidik, at. al., 2017). Another way is toutilize the cooperation system of the global community if needed. ((Amatya, Lee, Galea, & Khan, 2020). BNPB/BPBD has three main functions: coordination, command, and implementation. These functions are the basis for optimizing their roles and responsibilities in disaster management. An extraordinary emergency requires an immediate response, but can be adequately managed at the local level bydesignated officers such as police, firefighters, emergency medical technicians, and health officials using local resources (Brown, Hickling, & Frahm, 2010).

B. Resource Support in the Evacuation Process of Injured Victims

As an important part of emergency response operations, health services including victim evacuation services must be carried out as optimally as possible (Chen & Yu, 2016)and focus on managing disaster victims. The activities are: Dispatch/search and rescue of resources, (ii) on-site triage, (iii) on-site medical assistance, (iv) transportation to the hospital and (v) comprehensive triage and care (Farahani at al., 2020).

As part of the main focus of disaster victim management, important points of concern related to the management of the disaster victim evacuation process are (Farahani at al., 2020):

a. Coordination between emergency response programs, namely between victim evacuation programs and network and route recovery.
b. Shortening the route or shortening the travel time for victim evacuation to the hospital.
c. Regulating the flow and direction of disaster victim evacuation to the hospital by considering its capacity.
d. Location management and allocation of health resources and disaster victim transportation.
e. Identification of types, specifications and capacities of disaster victim evacuation vehicles.
f. Development of victim evacuation vehicles according to geographical location and conditions and vulnerability based on the type of threat.

C. Health Service Coordination Support for Disaster Victim Evacuation.

One way to accelerate medical assistance to disaster victims is to establish health service facilities in several selected places around the disaster area (Caunhye & Nie, 2018) and (Farahani at al., 2020). These facilities can be served by medical personnel and paramedics trained in

basic emergency medical care,from the Military, Red Cross, Hospitals or other volunteer groups. These health service facilities are able to serve: Triage, medical action and care for minor and moderate injuries, Stabilization of seriously injured victims, and facilitating referrals to hospitals (Caunhye & Nie, 2018)

However, this process takes a lot of time. For this reason, pre-hospital services in the form of transportation or evacuation of victims are the first priority immediately after adisaster. Victim transportation can be done by directly evacuating victims with or without basic emergency medical care. Providing basic emergency medical care in pre-hospital services can help the survival of victims but it is not recommended to provide further medical assistance because it has not been proven effective. Advanced emergency medical care assistance can be provided in pre-hospital services if the hospital is very difficult to reach in a short time (Smith & Conn, 2009).

D. Human resources, constraints and management

Disasters have a major impact on the community, including health workers. Nurses as health stakeholders must be able to respond to the needs of disaster victims appropriately and efficiently during the emergency response period (Murray, at. al., 2019). To be able to respond to the health needs of disaster victims, special competencies are needed during the emergency response period. Nursing practice competencies are important and needed in pre-hospital services during the disaster emergency response period, including: (1) the ability to provide and quickly distribute the resources needed. (2) The ability to adapt to the environment, disaster emergency response plans and public health systems in the work area. (3) The ability to understand the specifics of the role in response and recovery efforts, and theability to evaluate the situation directly and adjust as needed. (4) The ability to have a personal disaster plan before providing services to disaster victims. (Brown et al., 2010)

How many other obstacles such as ambulance nurses' responses to requests for assistance become faster in the time span of a disaster event (Tseng, Shen, & Hsieh, 2018), The number of victims evacuated is closely related to the performance of officers in each work shift, in addition to disaster location factors, hospital capacity and ambulances. (Sung & Lee, 2016). Considering this, it is very important to allocate emergency medical resources basedon priority to maximize life-saving capacity (Sung & Lee, 2016).

E. Constraints, existence and operation of evacuation vehicles

(Wang, Xie, Liu, Pei, & Liu, 2022) and (Farahani, at. al, 2020) that, in the process of evacuating disaster victims, especially in

transportation management, emergency response leaders can optimize the use ofall available resources and facilities. This activity is useful to helpbalance the load between hospitals and avoid unnecessary waiting and moving victims. Selection of Victim Transportation Mode: The selection of transportation modes for evacuating disastervictims is adjusted to environmental conditions and infrastructuredamage due to the disaster. The selection includes the modecategory (Land, Water or Air); type, availability, size and capacityof vehicles. Transportation costs: operational costs, fuel purchases, and rental of space or parking including airport and port fees (Farahani, at. al, 2020).

F. Support for the availability of evacuation routes, infrastructure and public facilities

Between each event that occurs, it does not cause thesame quantity or quality of human injury and environmental damage. This is partly influenced by the distance of the center of the incident from the location of the population (Shiripour & Mahdavi-Amiri, 2019). Salman & Gul (2014) stated in (Caglayan & Satoglu, 2021) that Timeperiod management should be able to optimize the victimevacuation process because the longer it is, the more resources willbe available.

Environmental conditions and infrastructure or public facilities are basic components that can be used to predict thenumber of victims of a disaster. This is done because it considers the high level of vulnerability in areas that have low quantity and quality of facilities. The travel time to evacuate disaster victims with damaged instructor conditions is clearly long. (Shiripour & Mahdavi-Amiri, 2019). Disaster victim evacuation planning based on information technology is a smart and efficient way as a reference in every decision in a disaster event . ((Na & Banerjee, 2019))

G. Resource support from definitive health facilities

Managing resources in the first few hours after a disasteris very important for victim safety. Efficient victim management can significantly increase the survival rate of victims. (Farahani et al., 2020).

In providing resources for victims, the quantity of victims must be considered based on the level of emergency, the behavior of minor injury victims and the time for the evacuation process. (Caunhye & Nie, 2018). In addition, the location of Triage and BHD as a place to pick up victims affects the efficiency of evacuation time and ongoing assistance to victims. (Caunhye & Nie, 2018). Victims with minor injuries or their relatives try to seek help themselves, including the available ambulance facilities. So this causes a lack of facilitiesfor the evacuation process for victims with serious injuries (Caunhye & Nie, 2018) It is important to update the emergency status of victims and the queue for evacuation as

additional victims are found by considering resources including ambulances (Sung & Lee, 2016).

Minor injury victims independently precede higher priority injury victims in utilizing health service facilities. This is due to the condition of the victims who were seriously injured, travel timeand other obstacles in the evacuation process (Caunhye & Nie, 2018).

CONCLUSION

Support for the management system is needed to optimize the provision of assistance to all earthquake victims, especially for the evacuation and transportation of injured victims. However, efforts to optimize the provision of assistance must begin in the pre-disasterperiod through the development of an emergency response plan. Support provided for problem solving: Emergency response operations policies & management, deployment of competent human resources, readiness of health facilities, availability of victim transport vehicles, management of affected areas, and victim evacuation routes.

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