

COMMUNITY HEALTH CENTER RESILIENCE IN DISASTER MANAGEMENT: A NARRATIVE REVIEW

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ABSTRACT

Background: Indonesia's disaster management context uses a system called Pentahelix, which is defined as a more optimal framework for activities and jobs. The community health center is the front line that plays a significant role in the preparedness and management of disaster victims. The aim of this study is to review the resilience of disaster management in community health center.

Subject and Methods: This was a narrative review. Sources of data in this study come from articles obtained through PubMed, Science Direct, and Scopus databases. The keywords used were “disaster” OR “emergency” AND “resilience” AND “hospital” OR “healthcare” OR “health care”. The inclusion criteria consisted of: (1) articles published in English; (2) research or review articles; (3) publication from 2014-2019. **Results:** Based on the available articles, it was found that the resilience of public health centers was generally identified in 5 aspects, namely physical toughness, social resilience, institutional toughness, infrastructure resilience, and vulnerability. **Conclusion:** Community health center resilience is needed to ensure that community health center will be resilient, safe and will continue to operate in the event of an emergency or disaster.

Key words: resilience, community health center, disaster.

Background

The context of disaster management in Indonesia uses a framework called Pentahelix which is interpreted as a framework for carrying out activities and working to the maximum extent. Pentahelix consists of government, society, business, academics or experts and the mass media who have roles, interests and characters. In Indonesia, CBDRM (Community Based Disaster Risk Management) is well known, namely a method to increase the capacity of the community in managing disaster risk in their own area. Community health center

are identical in community, so capacity building is the resources involved and support from stakeholders/pentahelix around community health center.

The community health center is the front line that plays a major role for disaster victim preparedness and management (Sugino, et al., 2014). This is stated in the Republic of Indonesia's Minister of Health Kepmenkes Number 145/MENKES/SK/1/2007, namely the implementation of health service duties in disaster management at the location of the incident is the Head of the community health center. Based on Article 53 of Law No. 24 of 2007, health service is one of the basic needs that must be met in a disaster condition. Health service facilities include polindes, poskesdes, pustu, community health center, and hospitals. The Directorate of Community Empowerment at BNPB (2018) states that there are 7 (seven) vital objects that can be a factor to leverage community resilience, one of which is the community health center. This is reinforced by the existence of a global target in the Sendai Framework, which is to substantially reduce disaster damage to critical buildings and disruption to basic services, including health and education facilities, including through resilience building by 2030 (SFDRR, 2015).

Article 5 of the Republic of Indonesia Minister of Health Regulation Number 75 of 2014 states that the function of the community health center is the implementation of the first-level Public Health Efforts (UKM) in their working areas and the first-level Individual Health Efforts (UKP) in their working areas. Based on KepMenKes No. 145 of 2007 the activities of community health center in disaster management are divided into the implementation of pre-disaster, during disaster, and post-disaster activities. This is in accordance with the research of Sugino et al. (2014) which states that during the disaster the community health center was badly damaged by the disaster, causing major disruption to health services. The impact of paralyzed health services at community health center, apart from the potential for increased disease outbreaks due to disasters, also resulted in an increase in the number of victims who died and were injured due to obstruction of life saving measures and medical treatment (Pascapurnama, et al., 2018). Community health center activities in disaster management are still not optimal because community health center located in disaster-prone areas do not yet have an adequate information system.

Health reconstruction efforts towards community health centers depend on accurate information and good coordination between sectors. The simultaneous collection of information and emergency actions has been able to collect: 1 area and geographic location of the disaster and population estimates, 2 status of transportation routes and communication systems, 3 availability of clean water, foodstuffs, sanitation facilities and shelter, 4 number of victims, 5 damage, service conditions, availability of medicines, medical equipment and personnel in health facilities, 6 locations and the number of residents who became refugees and 7 estimated numbers who died and disappeared.

The definition of resilience in the context of disaster means the capacity of a system, community or community that is potentially exposed to hazards to adapt or change to achieve or maintain an acceptable level of function and structure (UNISDR, 2012). In the health context, resilience is the capacity or ability of the entire system to prepare, plan, absorb, recover from disaster events and maintain necessary health services in both expected and unexpected conditions (Zhong, 2014).

The general objective of the preparation of this literature review is to identify the resilience of community health centers in disaster management. In particular, the literature review will discuss the resilience of community health center in 5 aspects, namely physical resilience, social resilience, institutional resilience, infrastructure resilience, and vulnerability.

Subject and Method

This was a narrative review. Sources of data in this study come from articles obtained through PubMed, Science Direct, and Scopus databases. The keywords used were “disaster” OR “emergency” AND “resilience” AND “hospital” OR “healthcare” OR “health care”. The inclusion criteria consisted of: (1) articles published in English; (2) research or review articles; (3) publication from 2014-2019.

Due to the traditional rather than systematic methods used in this review, the authors acknowledge the possibility that selection bias may have affected the articles discussed in this paper. However, while this more purposive strategy to conduct a literature review has the potential to bias the scope of the literature

examined and the subsequent conclusions that are drawn, the narrative synthesis method is considered appropriate for the purpose of summarizing, synthesizing, drawing insight from the collective body of work, and positing additional directions particularly when research on a topic is limited.

Results and Discussion

The concept of community health center resilience against disasters is a comprehensive concept, which includes: 1 Structural components, including: building location, design specifications, and materials used; 2 Non-structural components, including: architectural design and elements, medical and laboratory equipment, life-saving facilities, safety and security systems; 3 Functional components, including: location and accessibility, internal circulation, equipment and supplies, standard operating procedures and guidelines, logistics and utility systems, safety and hazard warning, human resources and monitoring and evaluation (Kemenkes RI, 2012). The concept of community health center resilience is needed to ensure that community health center will be resilient, safe and will continue to operate in times of emergency or disaster (WHO, 2010; Kemenkes RI, 2012).

Based on research by Zhong et al. (2014) there is a hospital resilience framework. This framework consists of 4 (four) domains, including: security and vulnerability, disaster preparedness and resources, sustainability of essential services, and recovery and adaptation. This study was conducted in 50 tertiary hospitals A, B, and C in Shandong Province, China. Hospital samples were taken by stratified random sampling. The results showed that four main factors from eight domains reflect the overall level of disaster resilience, including hospital safety, disaster management, disaster resources and disaster medical care capabilities. The domain of vulnerability and security consists of surveillance and security. The disaster preparedness and resources domain consists of leadership, emergency communication, cooperation, disaster planning, logistics management, emergency staff, and disaster training. The domains of essential medical care sustainability comprise emergency services, health interventions, and surgical capacity. The recovery and adaptation domain consists of recovery, evaluation and adaptation. Factors that affect resilience include cooperation,

training, resource capabilities, equipment, structural and organizational operational procedures (Cimellaro, Malavisi, & Mahin, 2018). Based on the research results of Cai et al. (2018) found that the three most frequently recommended adaptation strategies are empowering local governments and leaders, increasing public awareness, and improving infrastructure and community communication. Other research states that policies, procedures, resources, and structures in organizations affect resilience (Twigg, 2007; Zhong et al., 2014; Madan & Routray, 2015). Morales et al. (2019) stated the factors of leadership, organizational culture, adaptive capacity, and organizational management ability as predictors of resilience.

Research by Samsuddin et al. (2018) discusses the attributes of hospital toughness. The study was conducted in 26 hospitals in Malaysia with a cross sectional method. The hospital toughness assessment used a questionnaire consisting of 243 attributes (21 structural questions; 107 non-structural questions; and 115 functional questions) and 23 toughness indicators (5 robustness; 5 redundancy; 6 resourcefulness; and 7 rapidity). Data were analyzed using Spearman Rank analysis. The results showed that 17 attributes of preparedness and 23 indicators of resilience were rated as 'very critical' by respondents where human resources & training and the ability to adapt at the right time were ranked first. In addition, non-structural preparedness provides greater correlation strength to resilience; redundancy; and sense. In contrast, the functional attribute shows a higher correlation with speed. The results can be an indicator for public hospital stakeholders in Malaysia to improve their preparedness and resilience.

Preparedness is influenced by social factors, community capacity, economy, institutions and infrastructure. Meanwhile, vulnerability is influenced by social factors, community capacity, economy, institutions, infrastructure, and hazards (Kusumastuti, et al., 2014). Disaster preparedness is influenced by several factors. The results of research by Adams et al. (2018) mentions that structural factors consisting of trust between organizations and government-funded programs affect disaster preparedness. Other research states that health workers (nurses) also play a role in disaster preparedness and response, which consists of organizational knowledge, attitudes, facilities and infrastructure (Melnikov,

2014; Veenema, et al., 2015; Veenema, Losinski, & Hilmi, 2016). Nurse readiness is in the poor category during the disaster preparedness phase or in overcoming post-disaster situations (Martono, et al., 2018). Disaster drills are often the best learning method for achieving effective disaster preparedness (Sangkala & Gerdtz, 2018). This is in accordance with the results of research which states that knowledge, attitudes, skills of nurses, and personal readiness are directly proportional to disaster preparedness (Duong, 2009; Khalaileh, et al., 2012; Baack & Alfred, 2013; Ibrahim, 2014).

Conclusion

The concept of community health center resilience to disasters is a comprehensive concept, which includes structural components, non-structural components, and functional components. Based on the existing articles, it was found that the resilience of public health centers was generally identified in 5 aspects, namely physical toughness, social resilience, institutional toughness, infrastructure resilience, and vulnerability.

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