Australasian Emergency Care xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Australasian Emergency Care

journal homepage: www.elsevier.com/locate/auec

Research paper

Flood disaster preparedness experiences of hospital personnel in Thailand: A qualitative study

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ARTICLE INFO

Article history:
Received 18 May 2018
Received in revised form 16 July 2018
Accepted 25 July 2018

Keywords:
Disasters
Disaster nursing
Disaster preparedness
Hospital personnel
Flood disasters
Thailand

ABSTRACT

Background: Nurses, as well as other health personnel and health systems, worldwide need to be adequately prepared for disasters because it is often difficult to predict where and when disasters strike. The 2011 Thailand flood disaster caused significant damage, including to hospitals. The purpose of this study was to investigate the experiences of hospital personnel regarding flood disaster preparedness in the central region of Thailand.
Methods: This qualitative study was conducted using content analysis. Purposive sampling was used to select the participants. Semi-structured interviews were conducted with 15 participants who were doctors, nurses, and persons involved in flood disaster preparedness. Content analysis was used for data analysis.
Findings: Two themes and ten subthemes were extracted with regard to flood disaster preparedness. The two themes were maintaining the function of care provision and struggle with preparedness. Personnel realized that preparation levels of their hospital were inadequate and identified the challenges in providing care during and after floods.
Conclusions: The finding identified several areas to improve the current state of preparedness of all hospitals that experienced service disruption due to flood disasters. This can help healthcare personnel, hospitals, and healthcare system to enhance flood disaster preparedness so that they can be better prepared.

Introduction

Flood disasters are the most common natural disaster worldwide, including Thailand, and pose significant community challenges when they occur [1]. In 2011, Thailand was hit by the great flood disasters and caused 1085 deaths, thereby affecting 4,103,322 residents [2] and costing approximately 45.7 billion USD [3]. The World Bank estimated that this disaster strike ranked the fourth most expensive disaster after the 1995 Kobe earthquake, the 2011 earthquake and tsunami in Japan, and the 2005 Hurricane Katrina in the USA [4]. Hospitals were also particularly hit hard by the floods, thus resulting in significant problems for health institutions, even for those with experience in managing and responding to disaster events. Five hundred sixty-one hospitals under the jurisdiction of the Ministry of Public Health (MOPH) were damaged, and most of the affected hospitals were located in the central region of Thailand [5]. Ideally, during flood disasters, hospitals need to both maintain the provision of care to current patients and expand their facilities to meet the immediate healthcare demands of flood disaster victims regardless of whether their facilities have been damaged or their ability to offer services has been disrupted. The 2011Thailand flood disaster showed that the previous level of preparedness was insufficient [6]. Disaster preparedness has been accepted as a critical part of reducing the effect of disasters worldwide [7]. Therefore, after the 2011 Thailand flood disaster, hospitals in the central region of Thailand carried out a series of steps to improve their flood disaster preparedness. It is little known regarding experiences of health personnel in flood disaster preparedness for the hospitals. It is important to understand their experiences and opinions before going forward to prepare with great efforts. The literature review showed that there are only a few studies revealing that healthcare systems were poorly prepared for a flood disaster [8,9]. In Thailand, several studies were conducted following the 2011 flood disaster [10–12], reflecting on

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https://doi.org/10.1016/j.auec.2018.07.002
2588-994X/

lessons learned and evidencing the limitations of disaster preparedness, especially regarding hospital settings, and only one study [13] was conducted on flood disaster preparedness for hospital settings in the central region of Thailand. This explanatory sequential mixed methods design study was conducted during 2015–2016 to investigate the flood disaster preparedness level and directions for improvement. The first study phase was conducted as a survey of 27 people responsible for hospitals' disaster preparedness in 24 hospitals after the 2011 flood disaster [14]. The current report is a sequential qualitative evaluation of this project. The purpose of this study was to investigate experiences of hospital personnel about flood disaster preparedness, with the intention to inform data to healthcare provider, hospitals, and healthcare system to improve on flood disaster preparedness for hospitals.

Methods

Sample and settings

Purposive sampling was used to recruit 15 participants from eight hospitals located in the central region of Thailand that received the highest and the lowest total scores on hospital flood disaster preparedness based on the previous survey results [14]. Participants were hospital directors, people responsible for hospital disaster preparedness (emergency physician, emergency nurse, community health nurse practitioner, and deputy hospital director of administration), or others who could provide additional information about preparedness issues (emergency nurse and butler in the hospital). On the basis of service disruption resulting from the 2011 Thailand flood disaster, hospitals were divided into three types: severe, moderate, and slight.

Data collection

Data were collected through semi-structured interviews by project investigator, and she was trained with interviewing techniques by taking a qualitative course. The interviews, which were approximately an hour long, were digitally recorded with the participants' permission. The interview guide contained broad questions focusing on effected experiences from flood disaster, responding experiences in the 2011 flood disaster, the current status of flood disaster preparedness, and the expectations and obstacles of preparedness. Interviews were continued until data saturation was achieved. Field notes were also taken as observations of participants and settings. After the interview, audio files were transcribed verbatim to check the accuracy of the information.

Data analysis

The transcribed data were read and reread to focus on the description and meaning of the experiences of participants within the data. Content analysis was used according to Graneheim and Lundman's four techniques of coding, subcategory, category, and theme [15].

Rigor and trustworthiness

A rigorous qualitative study was demonstrated through the criteria of credibility, transferability, dependability, and confirmability [16]. To achieve credibility, peer debriefing was used to validate analysis and findings. To ensure transferability, attempts were made to give clear and distinct descriptions of context, selection and characteristics of participants, data collection, and the process of analysis as well as a rich and vigorous presentation of the findings with appropriate quotations. To facilitate dependability, the researcher made reflexive notes throughout the process of the study and the co-researchers served as auditors to examine processes and product. To enhance confirmability, the researchers verified their findings through member checking. Additionally, the findings were strengthened by a process of forward and backward translation from Thai to English and back to ensure that the transcripts were a true mirror of the participants' experiences [17].

Ethical considerations

Ethical approval was obtained from the Research Ethics Committee, Faculty of Nursing, Chiang Mai University (215/2013), and the institutional review board of each targeted hospital, and written informed consent was obtained from each participant. Their rights, including confidentiality, were strictly preserved.

Findings

In total, there were 15 informants: eight responsible for disaster preparedness for hospitals (56.67%), four directors of hospitals (26.67%), and three (20%)were others. There were five women (33.33%) and ten men (66.67%). Three participants were from hospitals experiencing severe service disruption during the flooding (20%), eight from hospitals experiencing moderate service disruption (53.33%), and four from hospitals experiencing slight service disruption (26.67%). For data analysis, the actual two themes that emerge from the data are as follows:

Theme 1: maintaining functions for the provision of care

After the flooded hospitals had to perform their usual functions for the public, as well as deal with the disaster situation, five subthemes emerged from this theme regarding staff disaster preparation.

Enhancing ability of staff

Hospitals enhanced staff ability to care for patients associated with disaster to ensure that disaster victims would get proper care. Participants explained methods of enhancing the abilities of staff (staff included hospital staff and volunteers), such as classroom training and job training. For instance, participants said

> "*We sent nurses to participate in psychosocial response because most disaster victims got stressed so we had to serve and we sent nurses from Health Promoting Hospitals to take the course." (C3)*

> "*Nursing division rotated nursing staff to all departments. It was good that we could call for a replacement. All nursing staff knew job descriptions in each department so they knew (the operation of) every department" (C10)*

> "*In our hospital, nurses experienced rotation to other wards, except for chief wards" (C8)*

Increasing number of staff

Hospitals could not battle a great sudden healthcare demand with the routine number of staff. Participants described measures for increasing amount of staff in advance for staff surge capacity by staffing in hospital and healthcare network. They described

> *"We plan to let emergency nurses work in their ward and mobilize other nurses who were available from other departments to join the medical mobile unit."(C9)*

> "*We could ask for support from healthcare network in our area through Provincial Public Health Office" (C6)*

Please cite this article in press as: Rattanakanlaya K, et al. Flood disaster preparedness experiences of hospital personnel in Thailand: A qualitative study. Australasian Emergency Care (2018), https://doi.org/10.1016/j.auec.2018.07.002