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The Experiences of Iranian Nurses in Critical Events and Natural Disasters: A Qualitative Study

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Abstract

Medical staff and healthcare providers are always involved in earthquakes; therefore, the aim of this study was to explore the experience of nurses in dealing with critical events and natural disasters. A qualitative study was conducted by semi-structured interviews with 12 medical staff. Data were analyzed by qualitative analysis hermeneutic approach. Four categories were developed as follows: “confusion,” “coercion,” “psychological disturbance,” and “wasting of resources.” The categories led to the development of the main theme of “miss management.” Earthquakes are considered serious challenges for nurses and health professionals involved in such disasters. It will culminate in dire consequences including physical, mental, and psychological damage as well as high mortality rate among people and healthcare providers.

Keywords

disasters, earthquakes, qualitative study, nurses

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The Experiences of Iranian Nurses in Critical Events and Natural Disasters: A Qualitative Study

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Medical staff and healthcare providers are always involved in earthquakes; therefore, the aim of this study was to explore the experience of nurses in dealing with critical events and natural disasters. A qualitative study was conducted by semi-structured interviews with 12 medical staff. Data were analyzed by qualitative analysis hermeneutic approach. Four categories were developed as follows: “confusion,” “coercion,” “psychological disturbance,” and “wasting of resources.” The categories led to the development of the main theme of “miss management.” Earthquakes are considered serious challenges for nurses and health professionals involved in such disasters. It will culminate in dire consequences including physical, mental, and psychological damage as well as high mortality rate among people and healthcare providers.

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Introduction

Earthquakes are natural phenomena which have caused panic among people along with the destruction of cities, villages, high rate of mortality, and bereavement of people throughout humankind’s history (Djalali et al., 2011). Every year more than 50 thousand quakes are recorded in the world (Hotz et al., 2010). Earthquakes claimed the lives of 400 thousand people and damaged or hurt 46 million people around the globe from 1991 to 2005 (Djalali et al., 2011). Nowadays, the world is still witnessing such inevitable disasters, and Iran has always been grappling with problems and crises associated with natural disasters throughout history (Habibzadeh et al., 2015). During the past 90 years, over 80 thousand people were killed in the wake of earthquakes (Djalali et al., 2011). Natural disasters are not usually under human control and can cause irreparable damage and destruction (Pararas-Carayannis, 2010). Iran is one of the ten most earthquake-prone countries in the world mostly due to its geographical location (Habibzadeh et al., 2015). Recently a relatively powerful earthquake with the magnitude of 7.3 on Richter scale, hit Azgale, in Kermanshah province near the Iranian-Iraqi border, 32 km southwest of Halabcha, in Iraq on Sunday night, November 21, 2017. The death toll in Iran has reached 434. Also 9388 people have been wounded, and about 70 thousand have become homeless (Hafezi & Jalabi, 2017). Earthquakes can lead to death, physical, mental, economic,

and social damage as well as the destruction of infrastructures in cities or villages. They can also cause dramatic changes in the ecosystems on earth (Bartels & VanRooyen, 2012). Natural disasters, depending on their severity, time, and location can cause destructive damage to equipment, staff, patients, and their families (Habibzadeh et al., 2015). Bam's earthquake was measured 6.6 on Richter scale (Yamazaki et al., 2005). According to the official statistics, this quake left 40 thousand people dead, 30 thousand injured, and more than 100 thousand homeless. More than ninety percent of buildings in the town were totally devastated. Bam Castle, with a history of over 2,500 years, was demolished. Health practitioners were physically and mentally hurt to the extent that most of them had lost either a parent, a child, or all their children (Djalali et al., 2011). The findings of this study indicated the prevalence rate of psychological disorders increased six times as much after the Bam quake (Montazeri et al., 2005). This rate rose to 35% and 92.5% of people had lost at least a member of their families, and physical disabilities rose from 10.2 percent before the quake to 22.6 percent two months after (Ali et al., 2012). The results of another study showed that there was no efficient management system before and after Bam earthquake. Due to the destruction of the local infrastructures, people sustained tremendous physical, psychological, and economic damage. In natural disasters, proper and efficient systems of health and clinical management play a fundamental role in reducing the mortality rate and damage. Earthquakes are also associated with physiological damage particularly renal damage due to myoglobinuria (Ardalan et al., 2017; Gheshlaghi, 2012; Shahreza, 2016; Spasovski, 2013; Tamadon et al., 2017; Tavafi, 2012). The present study follows the experiences of medical staffs especially nurses who were present during the crisis and faced with events and natural disasters. The choice of research method depends on the nature of the phenomenon and research question, but phenomenology helps the researcher to understand the phenomena comprehensively and profoundly in order to obtain a vivid and accurate picture of the truth (Linton & Farrell, 2009)

There are also few such studies which have used qualitative methods to evaluate natural disasters in Iran. The current study is an attempt to provide an adequate account for nurses' experiences of natural disasters such as earthquakes, although the available data is scanty. Thus, this qualitative study aimed at exploring crisis management and the experiences of nurses in critical events and natural disasters.

Materials and Methods

Design of Study

Phenomenology, a qualitative research method was used for the study. Phenomenology is the study of lived experience or the world of life. It raises the question, "What kind of experience is lived?" Phenomenology seeks to reveal meanings as they are lived in everyday life. This research method can be both descriptive and interpretive (Linton & Farrell, 2009).

This is a qualitative study using a hermeneutic phenomenological approach. This approach entails a process of identifying, interpreting, and conceptualizing the inner meanings of qualitative data (Graneheim & Lundman, 2004). This study sought to discover and describe the strategies used by health care giver and medical staff during the process of crisis management.

Participants

Participants consisted of 12 health caregivers and medical staff who were selected using purposeful sampling. Inclusion criteria used to choose the participants were as follow enough and suitable experience of Bam quake, who was a medical staff and health caregiver during the

Bam earthquake and ability to communicate well with researcher team therefore the participants in this study were seven women and five men with the average age of 21 to 45. Most of the cases under study were married, and all of them had lost at least a member of their families. There were six nurses, four nurse aides, and three technicians with an average working experience of four years. The economic and social status of most studied units was moderate (\$300 to \$400 a month).

Ethical Issues

This study was approved by the ethics committee of Shahrekord University of Medical Sciences (Ethical#IR.SKUMS.REC.1397.1).

Data Collection

Data were collected via semi-structured interviews, observations, and field notes. Data collection was conducted from January 2018 to May 2019.

Descriptive writing comprised drawing pictures of places, events, situations, thoughts, and feelings of the nurses and other health caregivers who observed the ordeals of the quake-stricken people. Semi-structured (face-to-face) interview was the main data collection method in this study. Each interview started with a number of main questions and proceeded with a lucid and flexible framework (Imani et al., 2018; Rahimi et al., 2018): “As a medical staff or a nurse how do you feel,” “Would you please tell me about your experience as a medical staff,” “I would like to understand more about what happens during care or crisis management and what you do when problems occur,” “Did you face difficulty in dealing with the disaster,” “What should the proper attitude towards earthquake management be,” “Could you elaborate more on this,” “Can you clarify this matter more,” “Can you clarify your point with an example,” and “Is there anything else that you feel is relevant and you would you like to add?” They were asked to answer further probing questions intended to elucidate the details, increase the depth of interviews, as well as make a deeper understanding of the phenomenon under study. Each interview lasted between 60 to 90 minutes. A total of 12 interviews were conducted with participants. Interviews were done individually and in a special room and optionally performed in some participants’ houses. Data collection and analysis were done simultaneously. Interviews continued until saturation. When the data saturation was achieved and new classifications were found, interviews were stopped (Montalvo-Liendo, 2009).

Data Analysis

Data analysis was conducted according to hermeneutic approach as well as Diekelmann et.al method. (Norlyk & Harder, 2010). This method is a seven-step procedure which hinges upon Heideggerian phenomenology with a team nature comprising the following steps:

1. Studying all interviews and transcriptions to arrive at a general understanding.
2. Writing an interpretive summary for each interview.
3. Group interpretation of selected copies out of interviews or writings and identifying and extracting the respective themes.
4. Referring to interview transcriptions or to participants to identify, clarify or classify misinterpretations or discrepancies in the presented interpretations and writing an overall and integrated analysis for each interview.

5. Comparing and contrasting interviews transcriptions to identify, determine, and describe common definitions and performances.
6. Identifying and extracting fundamental patterns which act as links between themes.
7. Presenting themes drafts along with some selected excerpts from interviews transcriptions to the interpretation team and those who are familiar with the methodology to collect their responses and suggestions to be used in preparing the final report (Flood, 2010).

To clarify, categorize, and sort out any contradiction or discrepancies in interpretations, the team continuously referred to the transcriptions or interviewees themselves. At each stage, as the work proceeded, the interpreted summaries were integrated and the team came up with a comprehensive combination (Imani et al., 2018; Rahimi et al., 2018). This resulted in achieving better links between concepts and themes (Table 1).

Table 1

Maine Themes, Categories and Subcategories

Maine Themes	Categories	Subcategories
Mall management	Contusion	Irresponsibility of officials' inexperience
	Coercion	To rule care based on unplanned
	Psychological disturbance	Environmental stress depression caused by crisis
	Wasting of resources	"Lack of tact" and "improper distribution"

Trustworthiness

Rigor involved both application of appropriate techniques and research methods and application of such methods in an internally consistent manner to achieve the study objectives (Lincoln & Guba, 1985). In this study, the validity and reliability of the data were tested by the following:

1. Verifying the codes with the participants, observers', and researchers' long-term engagement was reloaded with the issue. The researchers were involved in this study for more than one year. During the verification with participants, they observed a part of the text with the initial codes, and the homogeneity of the extracted ideas was compared to the participants' points of view (Graneheim & Lundman, 2004).
2. In the peer check, the extracted concepts and categories were also presented to two prominent professors of qualitative studies who reviewed them to confirm their proportions in the text, and then, a consensus was achieved in the codes.
3. However, sampling was performed with maximum variation in terms of age, sex, education level, duration of care and socio-economic status, enhancing the validity of the data since this strategy enables researchers to capture a wide range of experiences and views (Elstad et al., 2010).

Findings

Four categories were developed as follows: “confusion,” “coercion,” “psychological disturbance,” and “wasting of resources.” The categories led to the development of the main theme of “mal management.”

Confusion

Irresponsibility of officials and inexperience have created the theme of confusion. Not being responsiveness of the authorities. Participant No. 12 said so:

Officials have not come here to see our problems. A number of nurses who had called the officials were threatened and warned that they would lose their jobs. Part of the hospital is destroyed; but they still insist that we take care of the patients here.

Another participant said, “Why no official is accountable unless they are paid to be accountable. I am being destroyed by this irresponsibility.”

Inexperience - it indicated that officials and caregivers had no experience or training in crisis management. In this regard, one of the participants said, “The authorities there had not had the requisite experience in managing the crisis and this lack of experience ended in dramatic rise in mortality rate in the region.” Other participants reported, “The official themselves needed someone to manage their crises. There were confused and did not know what to do. They simply issued circulars.” Participant No. 6 said, “I have been working in the field of health for 14 years, why shouldn't they have given us a crisis management training class once?” Another participant said, “I have been working in the field of health for ten years. When this happened, I just understood what a crisis means.”

Coercion

This theme includes two categories of to rule and care based on unplanned and indicates that caregivers were forced to take care. As one of the nurses said about to rule: “The health officials in the regions had issued different regulations and warned their personnel that if they fail to attend their work, they will face dismissal.” Another participant said, “The only sound I heard was, “Sir, madam, work, work,” but he did not say what to do.” Another nurse also said, “A good number of health care professionals had arrived in the region, but almost all of them were confused and the local officials forced us to do our duties.” Another nurse said this about unplanned care: “The only sound I heard was, “Sir, madam, work, work,” but he did not say what to do.” Another participant said, “We don't know who is here. We have become redundant and confused. There is no one here to organize us so that we could help people. No one answers our questions. However, the aid workers from other countries were well-organized and had established some make-shift hospitals and took care of the injured.”

Psychological Disturbance

Two categories of “environmental stress” and “depression caused by crisis” formed this theme, so that the stress and depression caused by the accident has caused severe behavioral and cognitive disorders in caregivers.

Regarding the environmental stress, one of the participants said, “I couldn't believe that. We had undergone such a horrific disaster, yet they force us to attend our work such as nurse

and care from the patients.” Another participant said, “I was not in the mood to do anything. I was under intense pressure and in a state of dilemma. I had some conflicts with myself, but they want to be caring from the people who damaged.”

Regarding the depression caused by the crisis, one of the caregivers said, “Overall, most of the nursing personnel had developed severe depression and anxiety. They were all worried about their families and the future of their careers.” One of the female nurses said, “When the earthquake happened, I was just crying, and I was so sad and anxious that I was just thinking about death.”

Waste of Resources

Two categories of “lack of tact” and “improper distribution” formed the theme of waste of resources. One of the participants said, “Due to government confusion and poor management, peoples' donations, health facilities, and government funds were not well-distributed among those who really needed them.”

Regarding lack of tact, another participant said, “Although there are ample medical facilities and equipment here, people face a shortage of such items.” But regarding the improper distribution, one of the participants said, “The distribution of medication, medical and welfare equipment is inappropriate, and authorities have no systematic and specific plans for this job.”

The Field Notes of the Researcher

“The distribution of medicines, medical and welfare equipment was inadequate. While foreign aid workers with less equipment provided better services than domestic workers due to their efficient system of distribution and good management.”

Discussions

One of the prevailing sub-themes in this study was “confusion.” Based on the findings of this study, facing the earthquake was a formidable challenge for all healthcare officials and managers, especially the nurses. As the findings indicated, one of the major problems in the face of earthquake was lack of preparation on the part of authorities, improper planning, lack of definite strategies, along with inability to manage the situation. This apparent “confusion” led to a drastic rise in the mortality and morbidity rate, wasting the time and energy of the dispatched healthcare relief workers from other parts of the country, and putting the bulk of the burden on the local healthcare personnel. The results of a study conducted on the quake-stricken people in China indicated that mismanagement there also culminated in the death of 69 thousand people and hundreds of thousands of injured ones (Su et al., 2010). Severe stress in life exerts a serious psychological impact on people (Gheshlagh et al., 2016; Khaki et al., 2017).

In 2005, a quake in Pakistan affected more than 3.5 million people (Ali et al., 2012). An earthquake in Armenia also resulted in the death of thousands of pupils due to the officials' apparent mismanagement (Goenjian et al., 1995).

Results of other studies have shown that the major problems in Bam quake included transportation, lack of organized healthcare plans, confusion of healthcare professionals, and inappropriate health services provided to people (Sadeghi-Bazargani et al., 2015). Therefore, it is advisable that well-experienced, fully prepared and qualified managers and officials to be dispatched to the quake-stricken areas in order that the local officials and healthcare service providers are replaced with fresh, more energetic, and vigorous care givers. In addition, competent psychologists should come to help health professionals to alleviate the harmful

consequences of earthquakes and help the healthcare personnel to return to their normal lives as soon as possible. Further, the results of another study showed that following devastating earthquakes, there will be widespread disruption in general, civil, and health services with no relief centres for those seeking help. This will lead to a remarkable increase in the morbidity and mortality rate in most quake-stricken areas (Djalali et al., 2011).

Another common sub-theme in this study was “coercion” in which health professionals were forced to provide services regardless of their serious conditions. This had resulted in their inefficiency in providing proper healthcare to the people. In this study most of the health professionals in the quake-stricken areas had developed depression, PTSD (Post Traumatic Syndrome Disorder), and post-quake marginalization. Khavari in his study found that, following any disastrous event, nurses develop mental and psychological disorders, and they will not be able to provide proper healthcare to people as before (Khavari et al., 2008). In another study it was found that vulnerable groups like the elderly will develop PTSD and severe psychological and behavioural disorders in the wake of earthquakes (Jia et al., 2010). This can lead to the dependence of the elderly on their families and society with great amount of economic and social damage to families and society.

Sou Chu et al. found that earthquakes can result in individuals' disintegration as well as socio-psychological disorders (Su et al., 2010). The emergence of mental disorders and stress among the quake-stricken people, relief workers, healthcare givers, and even their relatives are quite predicable and can be alleviated or removed through some well-thought out and calculated measures. Therefore, it is highly advisable that authorities send well-educated, trained, and experienced managers to the areas hit by disasters. Executive managers should have access to the requisite information and communications systems in the stricken areas and obtain information either themselves or through reliable sources to make judicious decisions in the disaster zones. Wasting of medical resources, as another emergent sub-theme of this article, shows that the distribution of medical equipment was quite inefficient and inappropriate. The results of a study by Mirhashemi et al. (2007) have shown that most of the patients had not received basic health services in quake-stricken regions. The official reports on other earthquakes demonstrate a relatively similar situation in the world. The most important factor which affected the performance and efficacy of the medical services was the absence of triage (Gautschi et al., 2008). In an earthquake in Pakistan factors which hindered quick medical response were geographical factors, equipment, resources, and medical personnel (Yasin et al., 2009). Thus, it is vital to develop an efficient and well-organized system for the proper distribution of medical and healthcare services. Attention to the experiences of medical personnel, especially nurses in critical situations such as earthquakes, floods, and pandemics of infectious disease is important, the results of this study showed that attention to the experiences of medical staff should be considered in all cultures and treatment systems.

Conclusion

The current study demonstrated that earthquakes are considered serious challenges for nurses and health officials involved in these disasters. If this challenge is not tackled appropriately, it will culminate in various physical, mental, and psychological damages as well as increasing of mortality among people and healthcare providers.

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