



Challenges and Problems Facing 2017 Kermanshah Earthquake Survivors: A Qualitative Study

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Abstract

It is widely accepted that earthquake poses many challenges to human life. Therefore, the main objective of this study was to explore challenges and problems facing the 2017 Kermanshah earthquake survivors. The present qualitative study was conducted using conventional qualitative content analysis in Kermanshah Province, Iran, in 2018. The data were collected through semi-structured interviews with 28 earthquake-stricken individuals, aged over 18 years, selected through purposive sampling method. The Graneheim and Lundman method was also used to analyze the data, and then Lincoln and Guba criteria were employed to provide robustness and transferability of the research. The results of data analysis were classified into 4 main categories and 11 sub-categories. Accordingly, the main categories were: (1) health problems and issues, (2) economic problems and issues, (3) improper management of human and non-human resources, and (4) incomplete social services. According to the results, earthquake victims face many challenges. Therefore, fundamental steps can be taken to reduce survivors' problems by considering all aspects of their health, improving equal distribution of social assistance and services provided, and using local social capital in a better way.

Keywords Earthquake · Challenges · Issues · Kermanshah · Qualitative study

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Introduction

Natural disasters are among global concerns affecting many people (Ni et al. 2015) and can be associated with displacement, death, and injury; disruption of health systems, shortage of food, water, and energy supplies, as well as threats to human health (Gerdin et al. 2014). Due to high incidence of natural disasters and 60% mortality rate from natural disasters worldwide (Guha-Sapir et al. 2012), numerous research studies have been conducted in recent decades on the impacts of these disasters on human lives (Blanc et al. 2015; Kuwabara et al. 2008; Liang and Cao 2014; Tural et al. 2004; Wu et al. 2014).

According to statistics, earthquake has taken the second place among natural disasters in terms of impacts and risks on human life (Şalcıoğlu and Başoğlu 2008). In addition, it is considered as one of the most threatening, destructive, and unpredictable natural disasters (Farooqui et al. 2017). Earthquakes annually cause more than 10,000 deaths, most of which occurring in developing countries (Baytiyeh and Naja 2016). Iran is also one of the developing countries exposed to a wide range of natural disasters, including earthquakes, which is historically known as one of the oldest countries

affected by earthquake challenges (Khankeh et al. 2011; Rafiey et al. 2019; Schwind et al. 2019). As an earthquake-prone country, Iran has correspondingly experienced 18 earthquakes over 7 Richter magnitudes in the past 90 years, causing severe socioeconomic damage and killing thousands (Rakshani et al. 2017).

The profound psychological impacts of major earthquakes on human life have been also demonstrated in diverse cultures (Carter et al. 2014; Xu et al. 2019), with their own devastating social, economic, and health consequences (Alipour et al. 2015). In this respect; Yagi et al. found in a survey of earthquake survivors in Japan that 28% of people experiencing earthquakes were suffering from behavioral problems, and 21% of mothers had post-traumatic stress disorder (PTSD) symptoms, 19% of whom had severe depression and anxiety (Yagi et al. 2016). Wu et al. further examined the 2008 Wenchuan earthquake adult survivors and reported that the prevalence of PTSD was 40.1% among survivors; and female gender, low income, and low perceived social support were risk factors for anxiety, depression, and PTSD among them (Wu et al. 2016). In a qualitative study, Ahmadi et al. similarly examined how older people responded to post-earthquake challenges in Iran and their findings revealed two types of reactions; positive reactions such as religious compatibility, sharing emotions and information, and catching up with new activities and roles; and negative reactions such as lack of motivation to seek relief facilities and reduced social activity (Ahmadi et al. 2018). In another qualitative study of earthquake-stricken rural areas of Iran, Alipour et al. found that earthquake survivors were facing problems such as failure of NGOs, lack of public awareness, insufficient comprehensive rehabilitation programs, misallocation of resources, absence of local social capital, adoption of top-down approach, and psychological problems (Alipour et al. 2014).

An earthquake measuring 7.3 Richter magnitudes occurred in Kermanshah Province, in western Iran, on Sunday, November 12, 2017 at 21:48 pm, affecting 7 cities and 950 villages. In this earthquake, 620 people died and 9388 others were injured and about 70,000 were left homeless. Moreover, 12,000 urban and rural residential units were completely destroyed and overall 15,000 units and all health centers including 190 nursing homes and 22 healthcare centers were seriously damaged (Ghanjal et al. 2019).

Since the earthquake-stricken areas had been previously underprivileged ones, people faced many problems and experienced numerous social and psychological damages. Therefore, the researchers found it necessary to carry out a research in this domain and entered the research field of. Most previous earthquake-related studies has been quantitative and empirical, and most had investigated the psychological effects of earthquakes (Baral and Bhagawati 2019; Duncan et al. 2013; Goenjian et al. 2018; Nobakht et al.

2019; Xiao et al. 2019), but fewer cases had examined social problems facing post-earthquake survivors, while qualitative research could reveal other problems in addition to psychological ones. In addition, since the best way to gain knowledge of earthquake prevention, preparedness, and response is via examining people's experiences in dealing with earthquakes, this study was conducted with a qualitative approach to discover challenges and problems facing the 2017 Kermanshah earthquake survivors.

Methods

Study Design

This study was conducted with a qualitative approach, categorized as a conventional qualitative content analysis. The study participants consisted of 28 individuals aged over 18 years (residing in Sarpol-e Zahab and Salas-e Babajani counties) who had experienced the Kermanshah earthquake and stayed in disaster-stricken areas. Since the earthquake in Sarpol-e Zahab and Salas-e Babajani counties had caused more financial and life damage (Ghanjal et al. 2019), all samples were selected from these two cities to better understand the challenges and problems. Additionally, this study recruited an age group over 18 years because children and adolescents were facing different problems and challenges compared with those among adults also Since our goal was more to identify the problems of the survivors, people over the age of 18 could better help because they were more involved in the problems and saw closely the services that the government provided to them.

The inclusion criteria were, age over 18 years, ability to speak, and willingness to participate in the research.

Semi-structured interviews along with individual and face-to-face methods were also used for data collection. because questions can be prepared ahead of time. This allows the interviewer to be prepared and appear competent during the interview also allow informants the freedom to express their views in their own terms.

Interviews began two months after the earthquake and generally took four months with data coding and analysis. Initially, the researchers asked several demographic characteristic information questions from the samples. Then, the interview started with the general question, of "What happened on the night of the earthquake?". Along with descriptions by the sample, several other exploratory questions were also raised to better understand their experiences of earthquakes. For example, "What did often bother you after the earthquake?", "How was the quality of services provided to you?", and "What problems do you have now after two months of earthquake?".

After the first interview, the process of coding and analyzing the data was initiated by the researchers and it continued until theoretical saturation. Purposive sampling method was also used in this study, performed by interviewing 28 participants until theoretical saturation was met. The mean interview time was 30 min, recorded by the recorder.

The data analysis process was carried out according to the proposed method by Graneheim and Lundman (2004). Thus, after the interviews were transcribed in the shortest time, the text of the interviews was read several times to allow the researchers to immerse in the data and gain a general sense. Initial codes were then extracted and subsequently categorized according to similarities to categories and sub-categories and their relationships were determined.

The proposed Lincoln and Guba criteria were further met in terms of robustness and transferability of research (Lincoln et al. 2011). Initially, long-term involvement of the researchers with the research field was considered; that is, the researchers attended the research field for several months, and they could communicate well with the participants since they were native to the study area. At the time of sampling, there were attempts to select the samples with the greatest diversity in terms of demographic characteristics. The process of coding and analyzing the data was also carried out simultaneously by two researchers and eventually they shared the codes so that they could reach consensus. Upon the consensus of the researchers, the process of coding and data analysis was sent to three experts in the field of qualitative research familiar with the local culture of the study area to express their views and make corrections if needed. At the end of the work, the categories and sub-categories along with relevant quotations were sent to 13 participants for further confirmation.

To comply with the research ethics, the researchers obtained oral informed consent from the participants prior to each interview. In addition, the participants were assured of confidentiality, anonymity, and voluntary withdrawal of the interview at any time.

Results

Participant Characteristics

Overall, 28 people participated in this study with a mean age of 33 years; that is, minimum and maximum age of 19 and 65 years; respectively. Other demographic characteristics information is listed in Table 1. After analyzing the data, 4 main categories and 11 sub-categories were obtained (Table 2), presented below with examples of codes and followed by quotations and explanations.

Table 1 Demographic characteristics information

Variables	Dimensions	Frequency	Percentage
Gender	Male	16	57.15
	Female	12	42.85
Type of accommodation	Tent	10	35.71
	Conex box	9	32.14
	Home	9	32.14
Level of education	Uneducated	7	25
	≤ High school	12	42.85
	> High school	9	32.14
Marital status	Single	10	35.71
	Divorced or widowed	13	46.42
	Married	5	17.85
Residency	Urban	11	39.28
	Rural	17	60.71
Experience of death of first-degree relatives	Yes	8	28.57
	No	20	71.42

Health Problems and Issues

The Kermanshah earthquake was so severe and devastating that it affected all aspects of people's health.

Spiritual Disruption

Since the earthquake is caused by God's will, and it is considered to be God's testing in some cases, the relationship between earthquake-stricken people and God is affected and each person interprets it based on their own intellectual insights. In this respect; a 40-year-old married woman said that, "I don't know if we were guilty or not and why God brought this calamity on us, we must have been bad humans." A 58-year-old married man also stated that, "I do not want to pray after the earthquake, we did not deserve to be condemned by God for this calamity." Moreover, a 27-year-old single man added that, "I no longer believe in God, because if he had true justice, he would not have done this to us. He took everything from us. I feel absurd." As well, a 38-year-old widow said that, "I used to turn to God whenever I had a problem and I would feel calm; but now, when I see that God has caused this problem for us; I no longer know what to do to calm down."

Mental Disintegration

The Kermanshah earthquake caused many damages. Many people lost their loved ones and their homes, and their entire lives faced severe challenges. Therefore, they faced many psychological problems. In this respect, a 36-year-old married man said that, "I lost my son in the earthquake, and

Table 2 Categories, sub-categories, and examples of codes

Categories	Sub-categories	Examples of codes
Health problems and issues	Spiritual disruption	Assuming the earthquake as a punishment from God or some kind of experiment, quitting prayer and worship
	Mental disintegration	Sadness of losing loved ones, thinking about committing suicide, overwhelming fear, no hope for the future, loss of memorable objects and places
	Disruption of physical health	Sleep imbalance, nutritional disruption, drug abuse, physical disability
Economic problems and issues	Loss of property	Destroyed place of residence, loss of livestock, loss of a car, no afford a living
	Loss of income	Loss of workplace, loss of work equipment, disruption of working conditions
	Inadequate financial assistance	Low amount of financial assistance, difficult conditions to get a loan, time-consuming process of getting a loan
Improper management of human and non-human resources	Improper use of local human resources	Abuse of local social capital, lack of skilled native people, lack of proper use of efficient local groups and communities
	Improper management of non-human resources	Inadequate management of financial and non-financial resources, discrimination in financial and non-financial assistance
Incomplete social services	Neglecting culture in disaster management	Ignoring social contexts governing local areas, lack of social workers familiar with regional culture, lack of social need assessment
	Inappropriate rehabilitation program in earthquake	Cross-sectional psychology counseling, inappropriate referral to psychologists and clinicians
	Neglecting vulnerable groups	Disregard for needs of the elderly, disregard for needs of women, disregard for people with specific illnesses

his figure is still in my mind.” A 33-year-old married man also stated that, “Everything was destroyed in one night. I don’t want to live anymore. I wish I was dead. I wish I could kill myself. I attempted it several times but I failed.” A 19-year-old single woman additionally added that, “After the earthquake, I was very scared of the simple things that I had never been afraid of. You may not believe it, I’m afraid of even the vibration of my phone. I sleep with fear every night. It’s been several months now, but I still feel scared.” Moreover, a 36-year-old married man said that, “I lost all my life, my son, my home, my life, everything was destroyed. I have no hope for the future.” A 65-year-old married man further stated that, “When I look back to the village, I see everywhere I had in my memory was destroyed by the earthquake, and there is nothing to calm myself by thinking of it.”

Disruption of Physical Health

Thousands were buried under debris after the earthquake and suffered deep injuries, forcing them to stay in hospital for long. In addition, the earthquake had such profound effects that people’s daily habits, sleep and nutrition disrupted, and some people turned to drugs to get rid of these problems.

A single 29-year-old man said: "my back was damaged in the night of the earthquake, and for several months I still couldn't get up." A 25-year-old single man said: "when the earthquake happened, I couldn't eat for a few days. I was shocked. The foods were mostly canned, and I had no appetite to eat. It was as if my stomach was closed. After a few days, I started slowly to eat, but I'm still not like before." A 22-year-old single woman said: "I did not eat some foods before the occurrence of the earthquake, but after the earthquake, I eat any food, I can even eat rock! ". A 35-year-old married woman said: "I didn't sleep at all until a few days after the earthquake, or if I was asleep, I would try to sleep during the day, when everyone was awake. Even now, I wake up suddenly on many nights." A 24-year-old divorced woman said: "After the earthquake I see nightmares many nights. I hate the darkness. When I sleep, a light bulb must be on." A 32-year-old single man said: "Before the earthquake, I had abused the drug several times for hobby, but after the earthquake, to forget about the disaster, I started abusing the drug. I thought to myself that I would be quitting the drug for a few weeks, but I haven't been able to do it until now."

Economic Problems and Issues

The magnitude of the earthquake devastation was so great that it made life difficult for ordinary people, and caused enormous financial losses.

Loss of Property

The earthquake had destroyed homes, livestock and their stables in rural areas, making it difficult for people to make a living. A married 47-year-old man said: "My house was ruined and my sheep were wasted. There is nothing left for me, I cannot afford my living expenses."

Loss of Income

The earthquake destroyed many of the small and large workshops in addition to destroying the house, and many workers became unemployed. In addition, the employment of many people had problems.

The 28-year-old single man said: "I was working on glass cutting, all the glass I had in the shop was broken during the earthquake, and my belongings were destroyed." A 37-year-old widow said: "I was working in the workshop, which was completely destroyed during the earthquake, and I got laid off and my condition got worse."

Inadequate Financial Assistance

Many participants believed that the funding they received was too low and that the loans they were supposed to borrow were both time consuming and difficult to obtain. The 65-year-old married man said: "The financial help they give us does not compensate for the damage we have seen. We are in bad financial shape." A 33-year-old married man said: "The government was going to lend us money, but the banks hurt us so much that we regretted getting it."

Improper Management of Human and Non-human Resources

After the earthquake, there were conditions that many people criticized for not having the right program for proper human and non-human resources management, believing that government and non-governmental organizations were not properly managing and distributing resources.

Improper Use of Local Human Resources

Many participants believed that, after the earthquake, skilled people and local groups and associations in various fields were not supported and were not given any attention. A 37-year-old married man said: "In most jobs, they used non-native people while we had many skilled people." A 25-year-old single man said: "Popular local communities and groups with high capacity were getting less attention, and so they helped people spontaneously." A 24-year-old divorced woman said: "When things were brought to the village for distribution to the people, they were not usually delivered to good people. That's why, they gave everything to their families and relatives."

Improper Management of Non-human Resources

After the earthquake, despite the large amount of donations provided by the government and the people in the earthquake-stricken areas, the majority of the samples criticized the distribution of the aid and believed it was highly discriminatory. A 28-year-old widow said: "Some families received ten blankets and a few tents while some families did not even receive one." A 58-year-old married man said: "All posted supplies were delivered to villages near the main roads, and remote villages were deprived."

Incomplete Social Services

Most study participants were dissatisfied with their received social services and claimed that they did not help much to return to normal life.

Neglecting Culture in Disaster Management

Most samples stated that social contexts governing local areas have been overlooked in providing social assistance and services, and the dispatchers were not familiar with the culture and customs of the earthquake affected areas, and could not understand their social needs.

A single 19-year-old girl said: "Conex boxes were set up very close together in the village, so we weren't comfortable and we didn't usually get out of the box." The 53-year-old married man said: "The helpers sent us were mostly Kurdish, and we were reluctant to go to them because we could not speak Persian correctly." A 26-year-old single man said, "In the village, they were always trying to build the mosque while most of our villagers were Ahle Haqq and they wouldn't go to the mosque at all."

Inappropriate Rehabilitation Program in Earthquake

Despite the psychological damage caused by the earthquake, not much was done to rehabilitate people, and the performed actions were often ceremonial and dramatic because the number of counseling sessions was limited, and most people refused to go to counselors because of the conditions.

A 27-year-old single man said: "Early on when the earthquake happened, a few helpers would come and talk to us, but later there was no more of them, and they thought that two hours of talk could help forget everything." A 28-year-old widow said: "Because the helpers were men, we were embarrassed to come to them because we were scared of people talking behind us."

Neglecting Vulnerable Groups

After the earthquake, vulnerable groups usually need more attention. However, in the Kermanshah earthquake, most vulnerable groups such as women, the elderly and people with specific illnesses were criticized for providing services. A 38-year-old widow said: "Because I was a woman and I had no husband, I was embarrassed to go get something, so nothing came to me, and no one asked me about my deficiencies."

A 35-year-old married woman said: "Nobody paid any attention to the needs of women, many women needed sanitary napkin, but no one provided." A 65-year-old married man said: "Most people thought that we seniors did not need psychoanalysis, while we had the psychological problem most of all."

A 35-year-old married woman said: "At the time of the earthquake, I was pregnant and the doctor had prescribed an absolute rest for me, while we were the last to receive a tent in the village, we were seriously hurt so my baby was aborted after twenty days."

Discussion

The current study was conducted to determine the challenges and problems of the 2017 Kermanshah earthquake survivors. One of the major challenges for earthquake survivors was impairment in three dimensions of health including spiritual, mental and physical health. In fact, the magnitude of the Kermanshah earthquake and the extent of the devastation were so great that it affected all aspects of the survivors' health. Since most of the study areas were religious and had low literacy, there was less geological explanation of the earthquake, and most people saw it as a divine doom or a God's testing, in which people's relationship with God was under the impact of this insight, and most of them did not

know themselves to be doomed and could not cope with it. Therefore, they reconsidered their relationship with God, which itself could have put more psychological pressure on them, while previous research has shown that approaching God and religious practices can be a useful strategy to deal with natural disasters (Ahmadi et al. 2018; Glass et al. 2009; Henderson et al. 2010). In the study of Wahida et al., among the earthquake victims in Bam in Iran, it was shown that the survivors knew that the earthquake was a sign of divine doom and suffered some form of fatalism (Vahida Fereydoun et al. 2012).

The earthquake destroys in a matter of moments what a person has saved for many years, which in turn causes great stress on the survivors and derives them towards great psychological problems, as the results indicate the development of many mental health problems among survivors of the earthquake. In previous research, psychological problems were cited as major consequences of earthquakes (Alipour et al. 2014; Anwar et al. 2011; Baral and Bhagawati 2019; Duncan et al. 2013; Wu et al. 2014; Xiao et al. 2019). In the studies of Hyodo et al., Yang et al. and Yip, suicide as one of the causes of psychological problems has been the most prevalent event among earthquake survivors (Hyodo et al. 2010; Yang et al. 2005; Yip 2009). The earthquake not only affects the spiritual and mental health of the specimens, but also affects their physical health, with much of their daily life being disrupted such as sleeping and eating habits. In addition, they were tormented by injuries and fractures caused by the earthquake. Re-understanding the accidents in sleep and sleep imbalances are consequences of the earthquake that have been mentioned in previous research (Tsai et al. 2004). After the earthquake, due to lack of nutrition facilities and nervous pressure on survivors, many of them may experience eating disorders such as anorexia, overeating, abandoning eating habits or developing new habits. This issue has been overlooked in previous earthquake investigations. Taylor & Patten has recognized that changing eating habits is one of the major symptoms of the effects of disaster on the elderly (Taylor and Patten 1989). Muscle and limb fractures, like this study, are usually of the most common problems in all earthquakes (Dhar et al. 2007; Ghomian et al. 2018). Another post-earthquake problem was the increase in drug abuse, which is in line with the studies of (Factor et al. 2002; Vlahov et al. 2002). Economic hardship was another issue. Prior to the earthquake, the earthquake-stricken zones were one of the most economically and socially deprived areas of Iran, and these conditions were made worse by the earthquake. In fact, since the buildings were not securely erected in the areas under study, the severity of infrastructure destruction was very high and some of the villages were 100% demolished. Therefore, in addition to the people's residence, livestock and their employment

were also lost, and the financial assistance provided by the government was insufficient and the loans provided to the earthquake victims were not in good working order, so that many of the earthquake-stricken people were deprived of their loans and this exacerbated their financial problems. The emergence and exacerbation of economic problems following natural disasters have been documented in previous research (Alipour et al. 2014; Goenjian et al. 2018).

Another category obtained from data was the lack of proper management of human and non-human resources, consisting of two sub-categories of inappropriate use of native human resources and inadequate management of non-human resources. Following the disasters, the best people who can help are the locals because they are familiar with the particular values and cultures of that area and have more social acceptance with the local people. Indeed, proper use of local social capital during natural disasters can be very effective, while this research has shown that misuse of local social capital is one of the problems created after the earthquake, which is consistent with the research by (Alipour et al. 2015, 2014).

As with this study, one of the biggest challenges after a natural disaster is the fair distribution of financial and non-financial assistance. In many natural disasters, it has been observed that the pre-existing power structure is exacerbated afterwards, leading to widespread injustice leading to the deprivation of the most deprived strata of the earthquake stricken (Ruwanpura, 2008). Previous earthquake research has also highlighted the injustice and inequality in providing different assistance and services (Alipour et al. 2014; Goenjian et al. 2018; Lebni et al. 2020).

Incomplete social services were among the other categories comprised of three categories: neglecting culture in disaster management, inappropriate rehabilitation program in earthquake and neglecting vulnerable groups.

Ignoring the social traditions of native people in earthquake-prone areas causes helpers to be perceived as outsiders, which results in earthquake-prone people failing to properly utilize the services provided. In addition, in spite of many psychological problems, providing suitable beds for the rehabilitation of earthquake survivors can be an effective factor in returning to their normal lives. Lack of a comprehensive plan to rehabilitate people after the earthquake has also been mentioned in the studies of (Alipour et al. 2014; Rathore et al. 2008).

Although it seems necessary to pay attention to vulnerable groups after natural disasters due to their fragile conditions, not paying attention to vulnerable groups such as women, the elderly, and people with specific illnesses was one of the problems in this study that was consistent with previous research in this area (Forouzan et al. 2013; Liang and Cao 2014; Van Griensven et al. 2006).

Conclusion

The findings showed that the health of earthquake survivors was affected in all its dimensions and that the earthquake survivors were involved in many financial problems. In addition, they suffered from a lack of proper human and non-human resource management and incomplete social services. Therefore, an important step can be taken to increase the life expectancy and return of the earthquake survivors by paying more attention to all aspects of survivors' health and well-being, more financial assistance and easier access to them, proper financial and non-financial management, making good use of local social capital, paying more attention to vulnerable groups, providing greater oversight and equity in service delivery, using local forces in the region, dispatching psychologists, sociologists and aid workers to the region on a non-cross-cutting basis, implementing a coherent program to rehabilitate individuals and establishing a clear vision of the future.

Limitations and Strengths

This study, for the first time in Iran, qualitatively examines the experiences of survivors of the Kermanshah earthquake that can further our information and insights into the challenges and problems facing them. In addition, since the researchers were native to the study area, they were more able to communicate verbally and emotionally with the samples so that they could more easily describe their problems. Long-term presence of researchers in the field was strength of this study that is essential for qualitative research. Despite these strengths, this study also had some limitations. In some cases, especially in rural areas, other people would gather around the researcher and not allow the samples to speak more easily, in which case the researcher would politely ask them to leave the interview site. In some cases, female participants did not feel comfortable interviewing male researchers. Observing this situation, the researchers recruited a trained female researcher familiar with qualitative studies to interview them.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval Ethical approval was obtained from the Ethical Review Committee of (IR.KUMS.REC.1398.394). Written informed consent was obtained from all participants.

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