

**Research Article**

## **The needs of elderly during an earthquake: qualitative content analysis**

**Running Title:** Elderly and earthquake

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### **ABSTRACT**

**Objective:** this qualitative study was conducted to explain the needs of the elderly during an earthquake.

**Methods:** In this qualitative study, 12 elderly participants with experience of earthquake accident were selected through purposeful and theoretical sampling. The data collection method was semi-structured interviews and the data were analyzed using qualitative content analysis method. **Results:** Based on the results, five main themes were emerged including "physical needs," "psycho-mental needs," "religious-spiritual needs," "medical needs," and "security needs".

**Conclusions:** Considering the need to pay attention to the elderly as at-risk groups, especially in accidents and disasters, and the needs of these loved ones, it is recommended that authorities and stakeholders, based on the results of this study, make the necessary decisions and policies to pay attention to this group.

**Keywords:** earthquake, elderly, need, crisis management, qualitative research

### **INTRODUCTION**

The world is fast moving towards aging, and the number of people aged 60 and more will be doubled from 11% in 2006 to 22% in 2050 (1).

Today in the world, one out of nine people is older than 60. The United Nations Population Division predicts that this ratio will reach 5 to 1 in 2050.

Iran will not be exceptional from these demographic changes. According to a census of the Iranian Statistics Center and conducted studies, the population over 60 years of age in Iran in 2020 is estimated to be more than 10 percent, which seems to pass 20 percent by 2050 (2).

Iran, as one of the 10 countries with high rank of natural disasters throughout the world, has always also faced with natural disasters. Iran has ranked fourth among the countries of the world in terms of natural disasters. Only in the last 50 years, Iran has seen 50 earthquakes with a magnitude higher than 6 magnitudes, some of which have left heavy losses and damages (3). The earthquake is one of the most devastating natural disasters, which has severe physical and psychological effects on human life (4). One of the most shocking earthquakes was the Bam earthquake that occurred on December 26, 2003. The city of Bam is located in a vast plain in the southeastern part of Kerman province and is known throughout the world due to the Bam Historical citadel. In this earthquake, about 40,000 people died, more than 30,000 were injured, the old citadel of the Bam was destroyed, and more than 25,000 buildings were collapsed (5).

The elderly are the most vulnerable groups against the direct impact of natural disasters. For example, a survey of people's health in the area affected by the earthquake of Ci Chuan showed that the most complications were among people over 60 years of age. After Charlie's storm, the medical condition of at least one elder was worse in one third of the homes that had an elder with special medical condition before the storm. During the Hurricane Katrina in Louisiana, 71 percent of the victims were older than 60 years old and 47 percent were older than 75 years old (6). Studies also point to psychological injuries and post-traumatic stress disorder after natural disasters, especially earthquake and tsunami (7). The results of Liu et al. show that the risk of post-traumatic stress disorder in elderly is twice higher than that of young people (8). According to the results of Jia et al. the incidence of mental disorders and

posttraumatic stress disorder in the elderly was two and a half times that of young people (6).

Sensory loss (vision, taste, smell, touching and hearing), physical problems, chronic diseases, specific drug needs, problems with adaptation and compatibility with heat, cold, sunlight, pollution and bad weather, reduction of reaction time and Socioeconomic constraints are among the factors affecting the vulnerability of the elderly (9-10). Today, the aging people's economic and social issues are becoming more complicated and require comprehensive and accurate planning and policies, including a plan for the rescue and recovery of the elderly in the event of disasters. Due to the increasing population of the elderly, policies must be designed, planned and implemented in line with their needs during disasters. Based on the results of the study of Musazadeh et al. (11) lack of familiarity with the needs, mismatch of assistance with the needs and confrontation with a large volume of demands caused confusion for the crisis managers in the Bam earthquake, and in spite of serving, irreparable injuries and complications were made for the victims.

Knowing the needs is a necessity for managers and crisis planners to enable them to meet the needs. Therefore, conducting researches in this field is necessary to make the necessary planning possible by identifying the needs and providing useful services in the event of such incidents. In the search, no related study was found except for the study of Mori et al. who studied the health needs of people with chronic illnesses in the Hunshine earthquake in Japan, (12) and the study of Ardalan et al (13) who looked at the needs of the elderly after the earthquake.

Therefore, considering the high rank of disaster in Iran and the growing population of the aged people, attention to the needs of the elderly in the earthquake is very tangible. Given the fact that a few researches have been researcher-driven and only reflect a part of reality, however, subjective perception and real experiences of people who directly experience the phenomenon is a more precise criterion for identifying needs, and this is

possible with a qualitative approach. In qualitative studies, real events, perspectives and experiences of people in different fields of work are explored for a deep and comprehensive discovery (14), deeply addressing this issue in order to find hidden angles can be definitively help crisis management authorities to make more detailed and principled planning for this group which is not possible but through a quantitative research. Therefore, the present study aimed to explain the needs of the elderly during an earthquake with a qualitative method, in order to provide a basis for the group's views on this issue and provide interventions to improve the service to this group.

### Material and Methods

In this qualitative study, content analysis approach was used to discover and reveal the participants' experiences. Content analysis is a research approach and a scientific tool aimed at providing new knowledge, enhancing researchers' perception of phenomena and identifying operational strategies (16), for this reason, this approach was also used in this study.

The participants of this study were 12 elderly who experienced earthquake experiences in Bam and Zarand cities of Kerman province. The ability to understand and speak Persian, age over 60 years old for the elderly during an earthquake, having favorable mental and physical conditions for participation in the study, willingness to participate in the study, and signing an informed consent form were criteria for being included in the study. The change in the mental conditions of the participants during the interview and their willingness to terminate the interview also formed the criteria for exclusion from the study.

At first, participants were included in the "purposeful sampling" study. Based on the results of the data analysis of the previous interviews, the next participant and the questions to be asked in the subsequent interviews were determined. In fact, with the advancement of the study, purposeful sampling became "theoretical sampling". The researcher reached conceptual

saturation through a regular review of the data and asking questions, ultimately with 12 interviews.

The data collection method was semi-structured interviews. After obtaining informed consent from the participants, the interviews were conducted with the consent of the participants in a suitable and reliable place for the participants (such as their home or work place). All interviews were conducted by a researcher [first author]. At first, the guidance questions for the start of the research were set up and, following the review and approval of the research team and based on the response of the participants, the interview process was guided, such as "What needs your elderly experience in the earthquake?", "Is it possible for you to talk about your condition at the time of earthquake? What happened? How were you feeling? What conditions did you experience? Who helped you? How was your status of service? Did you get any special health care? How was the health care provision? What do you think elderly need in the earthquake?". The researcher tried to minimize interference in the interview process. During the interview, questions were also raised regarding the experiences of the participants. In addition, the researcher used some public exploration questions like what you mean by this subject? Why? How come?. The duration of each interview session lasted an average of 45 minutes according to the status and willingness of participants.

Data analysis was carried out in accordance with the proposed method of Granheim&Lundman (17). Initially, interviews were recorded, then were scripted word by word, reviewed, coded, and analyzed. In fact, data analysis was carried out simultaneously and continuously with data gathering. The participants' words were used for the initial coding, and indicative codes (researcher's perceptions of the statements) were used, followed by subsequent interviews. The units of meaning from the participants' statements were extracted from the interviews in the form of primary codes or open-source codes, the codes were reviewed for several times. The codes that were representing a single issue based on

similarity and proportion were categorized in a category or class. Categorization was done using separate coding and frequent browsing and merging of similar codes, thus coding the (axial) second level or data categories was formed. In the next stage, the categories were compared and the categories that were similar in character were interconnected and formed a broader category and were introduced. In order to facilitate the data analysis process, the Onenote and Word version 2010 software were used.

In order to observe ethical considerations, after approval of the study at the Ethics Committee of the Iran University of Medical Sciences, the participants were explained about the research and its objectives, and informed written consent was given by them. In the case of confidentiality of the name and information of the participants and their freedom to leave the study at any time of the research was assured to them, the confidentiality principle was also maintained for dissemination of information.

To enhance rigor of the study, credibility was done by reviewing the handwritten notes and the contact and the relationship between the researcher and the participants, which, on the one hand, inspired the participants' confidence and, on the other hand, helped to understand their experiences. Confirmability with respect to the researchers' neutrality (reviewing and studying transcribed interviews by the research team and obtaining an agreement on extracted codes); agreement of the members on the codes and themes, as well as reviewing the text of the interviews, codes and the extracted classes were done by two faculty members. Dependability of the findings was provided by copywriting as soon as possible, using expert opinions and re-reading the entire data. Transferability through interviews with different participants and providing direct quotes and examples, a rich explanation of the data was possible.

## RESULTS

Participants in this study were 12 elderly people who were present in the Bam and Zarand

earthquake in Kerman. The age range of participants was 75-90 at the time of study, and all of them were aged over 60 at the time of the earthquake. The duration of the interviews lasted an average of 45 minutes. "Physical needs", "psycho-mental needs", "religious-spiritual needs", "medical needs", and "security needs" formed the main themes of the study in five main categories, that each of the category, with the corresponding subcategories will be explained in the following.

### **Physical needs**

The most important subcategory of this category was the need for food. Considering the physical needs, especially the nutrition of the elderly, was one of the important issues emphasized by the elderly. In this regard, one of the participant states:

*"Considering the type of nutrition of the elderly is very important. It is important for the elderly to understand the taste of food. Elderly have some diseases like diabetes etc., requiring more attention, and milk and yogurt are important too."*

### **Psycho-mental needs**

In this theme, there were sub themes such as "the need to maintain morale and hope," "the need to preserve dignity of the elderly," "the need for recreational and sport services, and the need for psychological counseling." In this regard, one of elderly says:

*"It is hard for elderly because they lost their jobs and professions, and caused them to be isolated and stay at home. The most important point in discussing events for the elderly is to keep life expectancy alive in them."*

Another elder states that:

*"The hope made me come back to life. I was disappointed for 24 hours, and when I saw that I was getting help from each side, I got the hope that my future was getting better and improved."*

Another participant states:

*"There is a need for love, love from both authorities and people."*

The need to preserve oneself and dignity were among the other needs that were important from

the point of view of the elderly. In this regard, a participant states:

*"Elderly do not go to take food or a tool. I did not have the face to get a soda or a tuna fish. Here, people have a special mood. They are high-minded. Something must be done to maintain their dignity".*

Another participant says:

*"When they were helping, I was never willing to stay in line. I preferred to sleep without a blanket rather than waiting in a line. It was a downfall for most of the elderly to stay in line and get something".*

Another elderly who experienced an earthquake and was a member of the crisis management team, said:

*"At that time, the first thing that the elderly needed was mental relaxation, you should sometimes cry with them to give them the primary tranquility and a decent respect should be provided for them."*

Providing sports and recreational services was another need. Another participant says:

*"I was so good in earthquake. Every morning after a morning prayer, I did some good sport there and swam, and then I walked or ran, which kept my spirit alive."*

Another elder says:

*"A good way of helping is creating stores, and then telling people that they can go to shop everything out of charge up to a special amount with this coupon or card every day. When they come out of tent, they will feel better. If they come out of tent for some times, they will start recreation. We must be careful to provide the ground for them. We must flatten the path that they must go on foot; the path must be without stairs".*

The need for psychological counseling was also among other needs

*"What afflicted many of the elderly were their grief, and the stability that they did not have. At that moment, no one thought that the city would be a city for itself. This was a terrible mental falter. In this condition, elderly were severely feeling misery and loneliness. Here, government must*

*make some mental interventions, and make such a financial relief for them ensuring that".*

**Religious and spiritual needs**  
Consideration of religious issues and their role in elderly comfort was one of the issues raised by the participants.

One elder says:

*"The thing that pacified me was my incomplete faith. The discussion of beliefs for anyone is the biggest deterrent to discomfort, that is, if the ceremonies of the Qur'an and prayers are established, mental burden will be greatly reduced. I recited the Quran more than before, because it made me calm "*

Another participant states:

*"Holding funeral ceremonies was very influential. That they went to the ceremonies and visited each other was very relaxing for them. Because the days of mourning of Imam Hussein were near, it could help them. In my idea, holding religious rituals was even more effective than holding parties".*

Another participant stated:

*"See, there are some needs that are specific to our culture. I talked to somebody saying that when this disaster happened for us, they held Ziyarat Ashura reciting session for us, and it was very effective for us".*

**Medical needs**  
"Need for medication" and "need for prosthesis" were among the subcategories that made up this category.

One participants, who was also a member of the crisis management team in addition to the experience of the earthquake, states:

*"About the medical needs of the elderly, I must mention that, for example, we had a casualty needing TNG pill but it was not available to them. They are emergency pills that re extremely necessary, especially during periods of shock." There is no Salbutamol; there is no insulin to be used. We saw this drug need very seriously. The lack of urgent drugs that elderly need them and they are vital is felt, and we did not see any agency to provide them. What we can do is to put*

*some important drugs, such as TNG, and so on in emergency sets.*

One of the elderly also states:

*"Well, those who are old have cardiovascular and antiarrhythmic symptoms. Older people should take pills that are very important for their health, and the need to care for their medication is very important."*

In the context of the need for prosthesis, one of the participants states:

*"I think that the elderly' equipment should be considered, for example, an artificial teeth that is one of the main needs and many elderly lost their teeth during the earthquake"*

### **Security Needs**

Security needs were also the case for participants.

One of the participant states:

*"When we were burying our dead, our houses were rubbed. My neighbor had a shop that everything in it was stolen. When something happens, people usually pay attention to their dears, then think of their properties, so security must be provided".*

### **Discussion**

Today, natural and human disasters such as earthquakes, floods, volcanoes, terrorist attacks, coups, etc. are mentioned in news more than before. Natural disasters cannot be stopped, but with strategic planning and actions, the consequences can be minimized (18).

The most important damage of natural disasters is damage to human factors, and especially to higher risk groups, such as the elderly. Therefore, in order to formulate effective and sustainable strategic plans, it is necessary to identify the needs of each target group to reduce injuries and improve their health. Additionally, need assessment is an integral part of educational planning and human resource development. The needs for choosing the right measures are determined before any action is taken (19, 20). Accordingly, present qualitative research was designed for richer explanation of the needs of the elderly during the occurrence of an earthquake. Based on the results of this study, the needs of the

elderly were identified in five main categories (main themes) under the headings of physical needs, psycho-mental needs, religious and spiritual needs, medical needs and security needs. The elderly emphasized on physical well-being, especially nutritional needs. They considered the provision of healthy food, especially in the early days of the incident, as the most important physical requirement, and called for the provision of healthy food packages in temporary camps, as some believed that they even do not have enough energy in that condition to get up and go get food. Physical and physiological needs are one of the most important human needs for self-actualization. Abraham Maslow is one of the thinkers who are interested in identifying and categorizing human needs. In his view, the most important level of hierarchy of needs is physical needs, which in general are part of the basic needs and include need to food, water, couple looking, and what is essential for human survival (21).

Sadallahi et al. in their systematic review, consistent with the results of this study, have reported the balance and satisfaction of the physiological needs of the elderly, such as nutrition, respiration and rest, as the main factors in the provision of health care for the elderly (22). Based on this, it is suggested that, in the event of unexpected events, the health of the elderly, especially nutrition and food security, such as the provision of healthy and accessible food packages, should be addressed by authorities and stakeholders.

Other identified needs of the elderly, which were emphasized by the elderly, were psycho-mental needs such as the need for spirit and hope, counseling, respect and consideration of status and dignity of the elderly, and the need for sports and recreational services. Considering the vulnerability of the elderly and the fragility of their mental state, serious attention to their psychological issues seems to be necessary. Elderly emphasized on psychosocial support, rehabilitation, counseling and reduction of depression, affection, and increased life expectancy, maintaining self-esteem, and

providing group recreation services during the earthquake. Sadallahi et al., in their research, have mentioned psycho-emotional needs such as mental, psychological, and social comfort of elderly as the needs related to the promotion of the elderly (22), which is consistent with the present study. Barati et al. (2012), in their research, reported the mental health status of the elderly as one of the important factors influencing promoting health promoting behaviors and emphasized on the design of psychological interventions in this regard (23). Diaz-Lopez et al. (2017), in their research, reported the implementation of interventional programs and the training of success skills as the main factors promoting the health and well-being of the elderly (24). Considering the key role of psychological needs in the adoption and promotion of many health promoting behaviors, the design and implementation of evidence-based interventions to maintain, preserve and improve the mental health status of the elderly, especially in times of crisis and accidents, seems necessary and preparedness of helping and consultative staff is needed in this regard.

Other needs identified by the elderly during the crisis were religious-spiritual needs, medical needs, and security needs. From the viewpoint of the elderly, the provision of facilities and places such as Hosseiniyeh for recitation of the Qur'an, invocations and prayers (especially Ziyarat Ashura) in a group facilitates calmness and acceptance of events and pass through the mournful stages in them. They also called for precise planning in the first weeks of occurrence of accidents to secure and reduce chaos and secure financial security. Elderly also emphasized on the provision of pharmaceutical needs (such as medicines for hypertension, diabetes, cardiovascular disease, respiratory depression sprays) and physician in the early days. Maslow also expressed the need for security as one of the most important human needs in his pyramid (21). Other studies also reported a significant relationship between spiritual health and the quality of life of the elderly and emphasized on

the design and implementation of spiritual well-being promotion programs of this group of community (25, 26). Therefore, it is recommended to authorities and stakeholders to have a comprehensive program and based on scientific evidence for maintaining, supplying and improving the health of the elderly, and taking the necessary steps to promote the development of assistance forces and provide specialized personnel such as counselors, physicians and nurses. Limitations on the number of participants and precautions on the generalizability of the results related to the nature of the qualitative research and the limited number of studies conducted in this field that made limiting the possibility to compare the findings were among the limitations of the present study. Therefore, it is suggested that other studies should be conducted in other areas and with different cultures. In addition, some studies must be conducted based on the experiences of crisis managers and those who are in charge of disaster relief.

## CONCLUSION

The results of this study can help the authorities to become more aware of the needs of the elderly during the earthquake and help them to adopt the necessary policies and design strategic and management plans to address these needs.

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