Women's dual roles in Kermanshah earthquake: challenges and contributions

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ABSTRACT

A destructive earthquake (Mw=7.3) occurred on November 12, 2017, at 9:48 p.m. (local time), in the border region between Iraq and Iran in the Kermanshah province. The earthquake claimed more than 620 lives with a further 8000 injured. Many cities including Ghasr-e Shirin, Ezgeleh, Salaas-e Babajaani, Gilan-e Gharb, Sarpol-e Zahab, Eslamabad-e Gharb and Javaanrood as well as around 2000 villages were damaged or affected severely because of this earthquake and its aftershocks. Due to the wide extent of the damaged areas, the local needs were much higher than the existing capacities. Actually, providing necessary services to the survivors was a challenge considering the extent of affected areas. There were many issues in disaster response, giving assistance to the vulnerable groups such as women, children and elderly, providing rescue and relief services, distributing tents, emergency shelters and materials, etc. One of the groups that suffered more in this earthquake was women. In this paper, challenges as well as their contributions is explored and discussed. On the one hand, women faced challenges such as access to appropriate sanitation, taking care of their family members particularly those with special needs such as handicaps, and also facing various social threats. On the other hand, an overview of the past and recent worldwide research shows women's effective role in all phases of disasters. In this paper, their challenges and contributions following the Kermanshah earthquake is addressed. Specific attention should be paid to the cultural aspects which exist in the country with regard to the role of women in emergency response activities and obstacles that exist for them especially in small communities such as villages. It is hoped that this study can highlight the key role of women in future disasters and provide solutions to their challenges.

Keywords: Women, Challenges, Contributions, Kermanshah Earthquake.

INTRODUCTION AND BACKGROUND

On November 12, 2017, at 9:48 p.m. (local time), a destructive earthquake occurred in the border region between Iraq and Iran in the Kermanshah province with a magnitude of Mw=7.3 Richter scale. This was followed by many weak to strong aftershocks. The number of affected people in the main stricken city Sarpol-e Zahab is shown in Table 1 [1]. This is why the earthquake is also named Sarpol-e Zahab in many reports and studies. It has been reported that many cities as well as around 2000 villages were damaged or affected severely because of this earthquake and its aftershocks. Therefore, providing necessary services to the victims was a challenge in that earthquake considering the extent of stricken areas and at the start of cold weather conditions, there were many emerging issues in emergency response, giving assistance to the vulnerable groups such as women, children and elderly.

Table 1. Number of death, injured and homeless

	Death	**Injured**	**Homeless**
Sarpol-e Zahab	620	8000	70000

The earthquake epicenter was located 10 kilometres south of Ezgeleh and about 37 kilometres northwest of Sarpol-e Zahab with approximately 18 kilometres in depth. Many weak to strong aftershocks occurred after the main shock. The distribution of aftershocks, despite the relatively high dispersion, still implies a trend in the northwest-southeast parallel to the trend of major faults of the region, such as the mountain forehead fault (MFF) of the high Zagros fault (HZF). Also, the large width of

the aftershock zone shows that the slope of this fault is very low. It seems that the aftershocks might have occurred as the result of the activity of existing small faults [1, 2], shown in Figure 1.

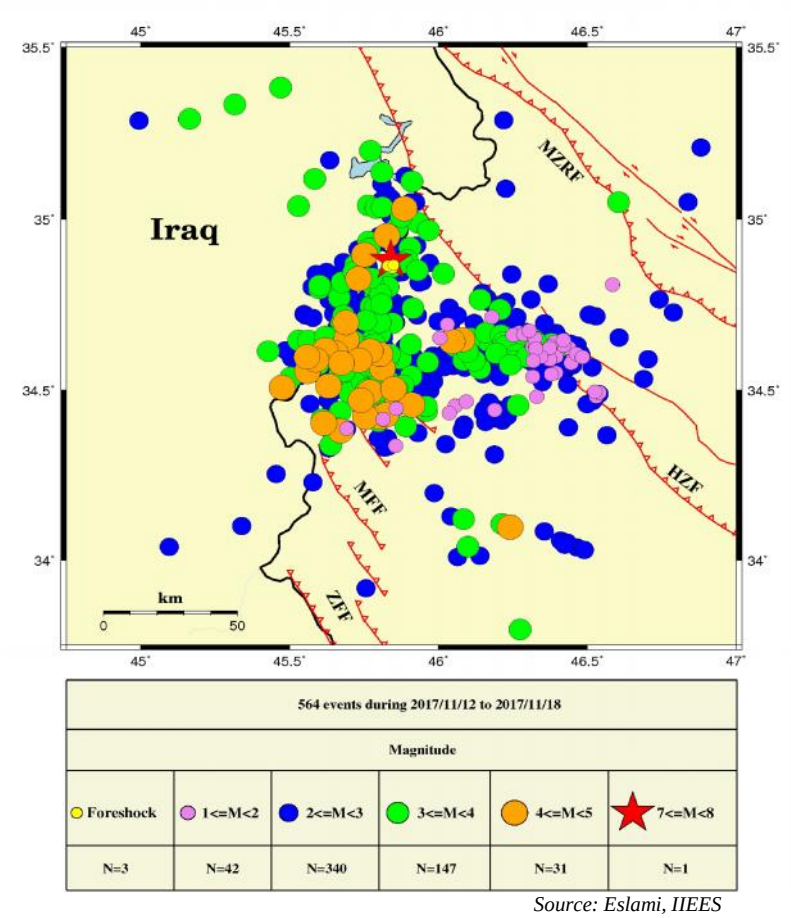

Figure 1. The epicenter, foreshocks and aftershocks in the first week after Kermanshah Earthquake

In this paper, the dual role of women in Kermanshah earthquake is studied. In general, women are mentioned as one of the most vulnerable groups of a society. Evidence from the past has repeatedly shown that the number of women who have lost their lives in natural disasters are far more than men [3]. For example, the 1992 floods in Bangladesh reveals that due to the existing traditions, the cultural limitations, as well as social prohibitions, women faced difficulties in surviving themselves and therefore the number of casualties went high among this group [4] Years later, in December 2004 South Asian Tsunami, in Sri Lanka, Indonesia and India [5] as well as in South Asian floods in August 2007, in Bangladesh, India and Nepal, it has been reported that many women have lost their lives due to the lack of awareness and preparedness or faced difficulties in securing their livelihoods after the disaster [6]. Sometimes, it has been observed that discrepancies existed between men and women which results in inequalities. For example, as mentioned by Neumayer and Plümper, boys are given preferential treatment during rescue efforts and following disasters, both women and girls suffered more from shortages of food and economic resources [7].

In Iran, there are various problems which women have to go through daily. The main problems which Iranian women especially those living in small cities and villages face includes malnutrition, poor health, maternal mortality, lack of education, mistreatment, overworking, lack of power and traditional limitations. In this regard, many issues such as providing rescue and relief services, distributing tents, emergency shelters and materials, etc. that caused further difficulties for the survivors, considering the cold weather condition at the time of earthquake needed to be considered especially for women. At the same time, this might not always be a general case. In many disasters in the past, it has been recorded that women played a crucial role in the recovery and reconstruction process. For example, in Iran Manjil-Roudbar Earthquake in 1990, most of the families that the wife of the house had survived the disaster, were managed perfectly and children's matters were handled

properly, temporary houses were built and overall routine life went on systematically [8]. Also, in Silakhore earthquake in 2006, women were very helpful in reconstruction process after the earthquake as shown in Figure 2 [9]. A research conducted in the affected areas of Gujarat in 2001 records the role women played in post–quake reconstruction. Women were found to be engaged in rubble clearing, in masonry reconstruction, as well as in community work. They were taking part in community meetings about the quake, and met other villagers to address the drought issues, which were also affecting the stricken areas in Gujarat [10]. In some cases, they show themselves to be stronger in terms of recovering from the immediate consequences of the earthquake and helping to secure the livelihoods of their entire family. Women were also seen taking extra efforts to bring the situation back to normal to ensure sense of security of the families for the community [11].

Photo: Izadkhah

Figure 2. Women helping in the process of reconstruction in Darb-e-Astaneh village

In the following section, the methodology used in this study will be looked at. Based on that, and in the following sections, challenges of women in this earthquake will be discussed and their contributions and roles in disaster risk reduction will be addressed. Finally, some recommendations will be presented for training and upgrading their role in the possible future events.

METHODOLOGY

In this study, a qualitative approach using content analysis was applied. Women in the Kermanshah stricken areas were interviewed randomly. A total of 32 women participated in the interviews, ranging from 19 to 78 years old, one month after the earthquake. 10 women were also interviewed one year after the earthquake. Data were collected through unstructured interviews carried out in the affected areas (tents and temporary houses). The main questions focused on the challenges women faced after the disaster as well as how effective they thought they can be or have been after the occurrence of the event. Data gathering and analysis were performed simultaneously. The answers were coded in specified items and were divided into categories in order to be addressed. The interviews were done by the first author who is a woman; due to the cultural boundaries in the region, and therefore it was much easier to undertake the interviews. However, few interviews were done by two male students after a year and due to cultural limitations, the number of interviews was less. No men were interviewed in this study since the focus was to understand the challenges and capabilities of women.

Finally, two categories of women challenges and capabilities were extracted from the gathered data. These categories will be addressed separately in the next two sections.

WOMEN CHALLENGES

Most women are subjected to lose the entire social support structure following a disaster. They have to deal with the grief of having lost their family members along with the burden of increased responsibility towards their surviving family particularly with young children. Therefore, they can become easily vulnerable. Various socio cultural consequences may affect them such as [12]:

Physical impact: Sleep and eating disturbances, gynecological problems, injuries miscarriages, aches and pains, physical impairments, and rape.

Emotional impact: Anxiety, fear, humiliation, nightmares, degradation, disbelief, listlessness, shame, embarrassment, denial, irritability, and anger.
Socioeconomic impact: Dealing with new societal roles such as becoming a widow, single parent, or head of house, inability to work, feeling isolated, feel stigmatized, withdraw from external life, and loss of discontinuity of life routines.
Cultural Impact: Suffering from cultural boundaries and limitations particularly in developing countries and small communities.

Many samples of the abovementioned cases and difficulties women faced were observed in the affected towns and villages in the affected areas following the 12 November 2017 Kermanshah earthquake. As can be seen in Figure 3, difficulties in access to clean water have been one of the major issues for women after the earthquake. Also women had problems in long distances for throwing waste disposal as well as finding the closest toilet, see Figure 4. In general, various sanitation issues existed for them that caused other emerging problems such as body infections. In addition to problems young women faced including sanitation problems and maternity issues, the elderly women suffered more due to their age such as long distance to toilets, sloppy paths, and shortages of special medications.

One of the most important issues women confronted was related to cultural boundaries. Due to the existing rules in small towns and villages, these women have less freedom than those who live in bigger cities which makes them more dependent to men. Of course this is not a general case, but a majority of women suffer from the traditional customs in their communities.

Photo: Izadkhah

Figure 3. Many women struggle with access to clean water after the earthquake

Photo: Saeedinejad

Figure 4. Finding nearby toilets and waste disposal were another issues confronting women

Although more reports concerns the weakness aspect of women in disasters, however they can have a positive role and outstanding contributions after the earthquakes which will be discussed in the next section.

WOMEN'S ROLES AND CONTRIBUTIONS

In reality, while women's vulnerability to disasters is often highlighted, their actual and potential roles in disaster risk reduction have often been overlooked. Few existing disaster risk reduction policies and projects recognized the skills and capacities of women which could significantly contribute to disaster risk reduction policies and building resilience [13]. Gender-specific capacities of women deriving from their social roles proved to be beneficial for their whole communities during every stage of the disaster cycle. Women's high level of risk awareness, social networking practices, extensive knowledge of their communities, task in managing natural environmental resources and caring abilities [14] makes them important players of effective risk assessment, early warning , disaster response and recovery actions [13]. Taking care of the family in emergencies, taking children and animals to safety, and storage of food and other essential items are some of the functions can be carried out entirely by women in such situations. Women should be given the strength to get involve in design, decision making and planning. They should plan for the activities and programmes that are related to the disaster reduction. In general the role of women can be:

- Cooperation in setting up policies in disaster risk reduction activities and implementing them;
- Presenting an active role in decision making, planning and cooperation in programmes related to earthquakes as part of the national development;
- Cooperation of expert women in education, research and conducting the comprehensive activities on disaster risk reduction for various levels of the society specially women and children;
- Cooperation in response related to cultural, social and emotional fields in order to identify the vulnerable society and to use the outputs in conducting and implementing appropriate programmes and emergency teams in disaster risk reduction with regard to those feedbacks;
- Cooperation in nutrition and health management after a disaster, as food shortages increases the vulnerability of children. Health management covers both the physical and mental aspects;
- Cooperation in initiating work groups with the aim of gathering information and sharing the group and personal experiences from various levels of the society who has been involved in previous disasters;
- Cooperation in research on economical, cultural, social and emotional fields related to disaster risk reduction; and finally,
- Cooperation of expert women in research related to earthquake engineering and seismology.

Based on the above items, next section will address the way forward in fostering the role of women in future disasters in developing countries.

MOVING FORWARD

Nowadays, gender issues have been gradually and effectively been integrated into disaster research, planning, and organizational practice. In Beijing Agenda for Global Action on Gender-Sensitive Disaster Risk Reduction, items such as collecting gender-specific data and statistics on impact of disasters, carrying out gender-sensitive vulnerability, risk and capacity assessments and developing gender sensitive-indicators to monitor and measure progress have been emphasized. Also increasing awareness of the public and media on the gender-sensitive vulnerabilities and capacities in disasters and gender-specific needs and concerns in disaster risk reduction and management research institutions to study the efficiency of gender-sensitive programmes in disaster risk reduction is highlighted [13].

It has also been proved that women have a definite role to play in disaster relief and reconstruction activities. Therefore, training women for disasters is recommended in order to reduce their possible fears after the occurrence of an earthquake. In addition, specific attention should be paid to the cultural aspects which exist in the country with regard to the role of women in disaster management activities and obstacles that may exist for them especially in small communities such as towns and villages. This can be integrated into the training that can be designed for women confronting disasters. It has also been noticed that women's groups that participate in emergency relief, resettlement, and reconstruction efforts need to acquire significant knowledge and expertise to possibly benefit their communities as well as those which experience similar crises. These were all cases that have been observed in Kermanshah earthquake among women. They all seek training for disasters as they live in a territory with the threats of earthquakes every now and then. Accordingly, issues that can be considered in successful training programmes and initiatives training women for disasters are as follows:

- Increasing the risk perception of women: If the women get convinced about the risk and its consequent dangers, they would take any action to reduce the consequences, and therefore training will result in positive outcomes. As an actual case, after the recent Kermanshah earthquake, women had fear in returning to their houses due to the lack of enough perception of risk.
- Classification of women: It is obvious that the information given to a woman who works in an office differs to one who stays at home and looks after the children. Furthermore, the level of education is also different in those who work outside their houses. This should be taken into consideration into training materials and their learning. Cases have been observed in Kermanshah earthquake about trained women who have been more effective in helping the vulnerable groups such as children, elderly and disabled about safety measures after the earthquake.
- Conducting training materials and tools: Materials should be designed by reliable sources and knowledgeable expertise that can include seismic safety at home as well as the awareness and training of neighbours on the safety measures in three different phases of before, during, and after the earthquake [15]. This can be done by the meetings of women groups to share their experiences about disasters and how they can help each other if one occurs. In the interviews after Kermanshah earthquake, women native to the area provided applicable suggestions on how to make their houses safe against earthquakes.
- Training time: This should be set differently for various groups of women depending on their daily involvement. In addition to the meetings of parents-teacher associations, classes can be conducted in mosques or large residential complexes for women to gather weekly or monthly. In case of Kermanshah, there was an opportunity to train women who lived in tents. Most of them preferred afternoon time for learning about earthquake safety measures.
- Physiological issues: Providing consultancy to those women who have lost their family members or have lost their properties in the earthquake. Some families also suffer from serious injuries such as loss of body limbs which affect their future life drastically. This is an issue that could stay for a long time after the event. In the interviews one year after the Kermanshah earthquake, it could be observed that still the time could not heal their wounds.
- Cultural issues: Due to the traditional limitations that women face in small towns and villages in Iran, they have to be assigned with more liberties in their communities so they can act as one who can provide the family income in case of the loss of their husbands. This can ease the situation for those women who have lost their husbands in the earthquake and will be considered as the head of family.

CONCLUSIONS AND RECOMMENDATIONS

One of the groups that suffered more in Kermanshah earthquake was women. Therefore, special attention should be paid in enhancing women's capacity to manage risks, with a perspective to reduce their vulnerability and maintaining or increasing their opportunities for development. Lessons learnt from this earthquake and previous events revealed a need to train women for disasters. This training will help women to initiate opportunities for them to show their capabilities and strengths in confronting possible future earthquakes.

In addition to what is noted in this study, it can be recommended that the emergency response teams should pay attention specifically to the women needs and their cultural limitations during and after the disasters. For example, sanitation issues for women should be considered as a priority as was observed in this earthquake. Also, the psychological problems such as depression, fear and anxiety that exist for years after the event needs to be further studied. As an opportunity, holding exhibitions that women can show their management capabilities and skills such as knitting, bakery, etc. can be a suggestion. This can give them a sense of being more effective and powerful. A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is also advised in order to complete this study in detail and explore the vulnerabilities as well as the resilience of women in the future earthquakes in similar regions.

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REFERENCES

[1] IIEES Reconnaissance Team (2017). "Preliminary report on 12th November 2017, magnitude 7.3 earthquake in Sarpol-e Zahab, Kermanshah province", 4th Edition, Int. Inst. of Eq. Engr. and Seismology (IIEES), Tehran, Iran (in Persian).

[2] Alavi, E., Mahootchian, A., Yadegari, S., Shamsodin, M., Babania Nouri, M., and Ordoubadi, B. (2018). "M7.3 Ezgele, Kermanshah, Iran Earthquake on November 12, 2017", Published Report in https://www.eeri.org/wp-content/uploads/Kermanshah-Earhquake-Report-E.A.pdf.

[3] Izadkhah, Y.O. (2008). "Key roles of women in earthquake risk reduction and management: Past experience and future approach- Case study of Iran", *IDRC Conference*, Davos, Switzerland.
[4] UNDP HD Report (1995). "Gender and Human Development", http://hdr.undp.org/en/reports/global/hdr1995/.
[5] Oxfam (2005). "The tsunami's impact on women", Accessed Aug. 2018. http://www.oxfam.org.uk/what _we_do/issues/conflict_disasters/downloads/bn_tsunami_women.pdf.
[6] Oxfam (2007). "Hull flood victim sees the extent of disaster for herself", http://www.oxfam.org.uk/publications/blogs/prossofficial/2007/8/0xfam_launches_appeal_for_mass.html.
[7] Neumayer, E. and Plümper, T. (2007). "The gendered nature of natural disasters: the impact of catastrophic events on the gender gap in life expectancy, 1981–2002". Annals of the Association of American Geographers, 97(3). pp. 551-566. ISSN 0004-5608.
[8] Shaadi Talab, J. (1994). "Sociology of disasters, case study of Manjil-Roudbar earthquake", Housing Foundation Report, Tehran, Iran.
[9] Izadkhah, Y.O. and Hosseini, M. (2007). "Community challenge following Dar-E-Astaneh earthquake of March 31, 2006", *Ninth Canadian Conference on Earthquake Engineering*, Ottawa, Ontario, Canada.
[10] Ariyanbandu, M. (2003). "Women: the risk managers in natural disasters", A concise version of the paper was published in 'Voice of Women, *Sri Lanka Journal for Women's Liberation*, Vol. 6, Issue 1, Colombo.
[11] Enarson E. (2001). "We want work: rural women in the Gujarat drought and earthquake", Report based on a Quick Response Grant from The Natural Hazards Research and Applications Centre and the National Science Foundation, www.colorado.edu/hazards/qr/qr135/qr135.html.
[12] Gokhale, V. (2008). "Role of women in disaster management: An analytical study with reference to Indian society". *The 14th World Conference on Earthquake Engineering*, Beijing, China.
[13] "How natural disasters affect women", (2009). https://www.iucn.org/content/how-natural-disasters-affect-women.
[14] Aguilar, L., et al. (2008). "Training manual on gender and climate change". San José, Costa Rica: IUCN, UNDP, GGCA.
[15] Hosseini, M. and Izadkhah, Y.O. (2006) "Training people for disasters in residential complexes- from risk to opportunity", *First European Conference on Earthquake Engineering and Seismology*, a joint event of the *13th ECEE & 30th General Assembly of the ESC*, Geneva, Switzerland, Paper No: 1376.