Original Article

Journal of Iranian Medical Council, Volume 10, Issue no. 1
http://dx.doi.org/10.18502/jimc.v10i1.23262

Check for updates

Properties of Motivational Short Messages for the Community-Based Disaster Risk Management in the Context of Iran: Implications for Health Systems

Sanaz Sohrabizadeh[1,2*], Roya Alimoradzadeh[2], Mohtasham Ghaffari[3], Masumeh Kamaledini[4], Ali Nasiri[5,6], Katayoun Jahangiri[1,2], Parvaneh Pishnamazi[7], Maryam Rashidi Zafar[8,9] and Fahimeh Shojaei[2]

1. Air Quality and Climate Change Research Center, Research Institute for Health Sciences and Environment, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Health in Disasters and Emergencies, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Public Health, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Department of Social Sciences, Faculty of Social Sciences, Communication and Media, Central Tehran Branch, Islamic Azad University, Tehran, Iran
5. Health Management Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran
6. Department of Emergency and Disaster Health, Faculty of Health, Baqiyatallah University of Medical Sciences, Tehran, Iran
7. PhD in Social Communication, Independent Scholar, Tehran, Iran
8. Department of Health Psychology, University of Applied Science and Technology, Tehran, Iran
9. Tehran Province Branch, Iranian Red Crescent Society, Tehran, Iran

*** Corresponding author**
Sanaz Sohrabizadeh, PhD
Air Quality and Climate Change Research Center, Research Institute for Health Sciences and Environment, Shahid Beheshti University of Medical Sciences, Tehran, Iran
Email:
ssohrabizadeh@gmail.com,
sohrabizadeh@sbmu.ac.ir

Received: 18 Sept 2025
Accepted: 17 Nov 2025

Citation to this article
Sohrabizadeh S, Alimoradzadeh R, Ghaffari M, Kamaledini M, Nasiri A, Jahangiri K, *et al*. Properties of Motivational Short Messages for the Community-Based Disaster Risk Management in the Context of Iran: Implications for Health Systems. *J Iran Med Counc*. 2027;10(1):158-68.

Abstract

Background: It is uncommon to find a community that has not been affected by any disasters. Short motivational messages on how to reduce the disaster risk can increase the public sensitivity on preparedness actions. The present research aimed to identify the properties of motivational short messages to make them effective for improving the disaster risk management in Iran.

Methods: The current study is qualitative research using conventional content analysis. A number of 11 participants was selected using purposeful sampling method. Data were collected through in-depth semi-structured interviews. Data analysis was conducted by the inductive content analysis approach of Graneheim and Lundman.

Results: Four categories as well as 14 subcategories, were extracted from the data. The categories include message content, message appearance, sharing message and context-based message.

Conclusion: The properties of educational short messages were explained by the research and they can be used by the related disaster risk management organizations. Health systems play a crucial role in disaster risk management using their infrastructure and resources to improve the disaster preparedness. Thus, health systems can develop and share the motivational messages with the public for the effective disaster risk communication.

Keywords: Climate change, Community-based short messages, Disasters, Health system, Iran

Copyright © 2027, Journal of Iranian Medical Council.
This work is licensed under a Creative Commons Attribution–NonCommercial 4.0 International License.

Introduction

Disasters increasingly occur all over the world and impose people live and properties as well as community infrastructure and environment. It is uncommon to find a community that has not been affected by any disasters (1). While disasters can destruct one or several regions at once, that impact is perceived at the community level. Such communities are often referred to as "disaster fronts" who need to have disaster prevention and preparedness capacities to mitigate from and respond to disasters themselves (2). That is why the disaster mitigation and risk reduction measures need to be the key concern for all disaster-prone communities. In other words, communities should be involved in disaster risk management to reduce the disaster risk that threaten their lives and well-being (1,2).

The concept of community is perceived in various ways: community as an analysis local scale; an actor's network and interactions among people; the whole of social structures within a specific location; groups of people sharing a place and unstructured interrelations among people (3). The current research has focused on the community or civil society roles in disaster risk management, especially preparedness and mitigation phases.

Global policy frameworks such as Sendai Disaster Risk Reduction framework have actively encouraged the involvement of hazard-prone communities in disaster risk reduction measures and decision-making (4). However, ignoring at-risk communities in disaster risk reduction and prevention process has been reported by the researchers. For instance, the study of nearly 100,000 people in 43 of the most disaster-prone countries in the world, showed that only 16% of at-risk people at feel included in measure and decisions on how to decrease their own disaster risk (5).

Community-based disaster risk reduction is known as an approach within a community and for the community using a "bottom-up" process since solutions often come from the community itself and not the higher authorities. Thus, the local expertise and knowledge can be used for reducing disaster risk in communities. However, knowledge needs to be presented in a way that relates to local culture and conditions in order to be more effective. While this issue has been accepted as a core principle in sustainable development, it has not been integrated in disaster risk reduction policies and strategies (6,7). Community engagement in disaster risk management includes public education about the potential disaster risks, development of clear communication strategies and facilitating strong partnerships among community members, related organizations and responders. Such proactive efforts can result in community preparedness to effectively respond to and recover from the future disasters. Furthermore, involving communities in preparedness and disaster risk reduction activities can improve the communication effectiveness and ensure that all related messages are accessible and culturally relevant (8,9).

On the other hand, development of the effective messages is an important challenge due to the "course knowledge" phenomenon in which the experts who know any special information, communicate it in a way as they are talking to themselves and not to community members as non-experts. That is, the experts should focus the target audience as these messages are not for you but for the people who live in the hazard prone regions (10). For instance, Disaster Management Agency of Banda Aceh City in Indonesia reported that the use of popular social media such as Instagram and Facebook has been highlighted as the important tool for disseminating disaster risk messages throughout the disaster prone communities (11). Similarly, the literature suggests applying various communication and visualization methods in order to ensure that messages are understood by the public. However, achieving effective actions in communities is challenging and need people to act as both sources and recipients of messages simultaneously (12).

Iran is ranked as one of the highly disaster-prone countries in the world. For example, the country is located on several major tectonic plates, facing destructive earthquakes and Iranian people are affected by floods, droughts and landslides worsen by climate change and global warming (13). INFORM Risk Index classified Iran as a high disaster risk country in 2024 (5.4 out of 10) (14). The scores of vulnerabilities and lack of coping capacity were evaluated 4.8 and 4.5, respectively. In Iran, the level of household disaster preparedness was determined as 9.3 out of 100 in 2015, which is concerned as low preparedness

(15). Thus, the hazard-prone communities in Iran need to deeply perceive the necessity performing disaster risk reduction and preparedness measures to save their lives at the time of catastrophes. Designing the short messages on how to reduce the disaster risk can increase the public sensitivity on pre-disaster actions and encourage them for further activities at the personal and household levels (16,17). But what are the properties of such motivational messages to make them effective enough to be followed by the people living in disaster-prone communities in Iran? The present research was conducted to answer this research question which can be widely applied by all policy-makers and authorities who are committed to improve the capacity and resilience of their people for the future disasters in Iran and other similar regions.

Materials and Methods

Study design

The current study is qualitative research using conventional content analysis to extract codes, subcategories, and categories. This research followed the standards established in the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist. The study was conducted between September 2025 and June 2025.

Setting

The current research was conducted in Iran, placed in the Middle East and known for its diverse culture, rich history and important geopolitical situation. Iran is home to various landscapes such as mountains, deserts, and coastal regions as well as the Persian Gulf and the Caspian Sea. Its 80-million population includes diverse ethnic groups and languages (18). Iran is also highly prone to natural hazards such as earthquakes, floods and droughts which have destructed and negatively affected the cities for the long term.

Participants

The participants were selected using the purposeful sampling method. Accordingly, 11 participants were chosen including the experts and key informants. Inclusion criteria were considered as having at least 1 year of research or educational experience in the fields of health in disasters and emergencies, disaster sociology, disaster psychology, climate change, disaster risk communication, crisis management and health education and promotion, public communication, disaster epidemiology and public health. The number of participants was determined based on the principle of data saturation which was achieved after 11 interviews.

Data collection

Data were collected using in-depth semi-structured interviews. Initially, three unstructured interviews were conducted to obtain general concepts. Then, applying the interview guide, 8 semi-structured face-to-face interviews were carried out. The interviews were performed in a comfortable place to ensure the participant felt calm. Any interview began with open questions was followed by probing questions for asking more details. For instance, the participants were asked “based on your experiences, what are the properties of impressive short messages to encourage people for following disaster risk and preparedness measures for themselves?” A well-trained member of the research team conducted the interviews. The location of each interview was selected according to the participants’ preferences and all the interviews were planned in advance. The interviews were recorded and transcribed promptly to improve the accuracy of data; each interview was transcribed immediately. The interviews conducted lasted between 30 and 45 *min* (averagely 37 *min*).

Data analysis

Data analysis and data collection were done concurrently. Data analysis was conducted using the content analysis approach of Graneheim and Lundman (19). Initially, each interview was transcribed verbatim and the written text was read and reviewed several times to identify the meaning units. At the next step, all the meaning units were condensed and abstracted into codes. The codes were subsequently classified into subcategories based on their similarities and differences. Ultimately, the main categories were made by categorizing the subcategories. This iterative process was used to all interviews until the categories were organized. Data handling was done by manual methods and no software was applied for the analysis. Direct quotes were mentioned in the results part to

elucidate the data analysis process. Word software was used for writing and highlighting the interview data.

Trustworthiness

The trustworthiness of the results was achieved using the strategies of credibility, dependability, confirmability, and transferability (20). To ensure the data credibility, the prolonged engagement of the researchers, triangulation and peer check were employed. For triangulation, the participants with various expertise and experiences were interviewed to provide diverse perspectives as well as maximum variation sampling. Peer check offered researchers the possibility of addressing challenging issues during data collection and analysis. Data dependability was achieved through code-recode strategies, and peer review. Considering the researchers background and interests in the topic as well as maintaining neutral during data collection and documenting the findings were applied for ensuring confirmability. To achieve data transferability, a comprehensive description of all the research stages, including the design, setting, participant, data collection, and analysis was provided by the authors.

Results

The age of the participants was between 30 and 70 years, mostly between 30 and 50 years old. Of all the participants, 63.6% were male and the remaining 36.4% were female. Majority of the participants held PhD and just one participant had MSc (Table 1).

Four categories as well as 14 subcategories, were extracted from the data. The categories include message content (subcategories of frequent and prevalent hazards, mitigation and prevention, preparedness, response and recovery, sustainability and resilience), message appearance (subcategories of simplicity and clarity, easily perceivable, short and precise), sharing message (subcategories of social media, highly traffic location and mass media) and context-based message (subcategories based on the socio-cultural context, respect to social groups and diversities, vulnerable group's needs) (Table 2). All the categories and subcategories are explained as follows:

Table 1. Demographic characteristics of the participants

Variables		N	%
Gender	Male	7	63.6
	Female	4	36.4
Age (year)	30-50	6	54.5
	51-60	4	36.4
	61-70	1	9.1
Work experience (year)	5-10	1	9.1
	11-20	3	27.3
	21-25	2	18.1
	>26	5	45.5
University position	Full professor	4	36.4
	Associate professor	2	18.1
	Assistant professor	4	36.4
	Instructor	1	9.1

Message content

The content of messages needs to highlight the frequent hazards, pre- and post-disaster phases as well as the importance of long-term development and resilience. The public may not know about the terms of disaster management. Thus, the content of such short-messages can cause them to notice and get familiar with the important actions in this field.

Frequent and prevalent hazards: Based on the participants' experiences, the message content needs to design based on the frequent hazards in Iran including earthquake, flood, droughts, climate change, epidemics and road traffic injuries. For instance, droughts are reported as one of the important natural hazards which have widely affected the populations in Iran and this hazard should be considered in the messages' content. One of the participants stated:

"In every community, the hazards that threaten it should be identified and what actions should be taken to reduce vulnerability should be reflected in the formulation of messages" (P2).

Mitigation and prevention: Disaster mitigation measures require to be included in the messages as the key necessary information for improving public awareness. Mitigation efforts are categorized in structural, non-structural and behavior modification

Table 2. Categories, sub-categories and selected codes extracted from the interviews

Category	Sub-categories	Selected codes
Message content	Frequent and prevalent hazards	Flood occurrence–drought occurrence–earthquake occurrence–road traffic traumas–epidemiology of disasters
	Mitigation and prevention	Public awareness on hazard–public awareness on vulnerabilities–prioritizing vulnerabilities–available human resources–available facilities–pro-active approach to disasters
	Preparedness	Preparation of emergency kits–identification of safe area–educational programs–medical first aid–extinguishing the fire–evacuation plans
	Response and recovery	Psyche-social supports–physical rehabilitation–psychological rehabilitation–livelihood rehabilitation–social rehabilitation–basic needs of people–temporary settlements
	Sustainable development and resilience	Sustainable development goals–public awareness about development–health system resilience–multi-sectoral partnership with communities–involving communities in development–community resilience
Message appearance	Simplicity and clarity	Effective messages–encouraging messages–simple format–motivating messages–appropriate for public education–avoiding specialized terms
	Easily perceivable	Understandable messages–avoiding boring messages–avoiding imperative messages–avoiding connotations in messages–avoiding judgmental messages–avoiding complicated terms
	Short and precise	Short messages–highlighting the keywords of messages–to-the-point messages–more photos/images–symbolism of messages–no contradiction with educational objectives
Sharing message	Social media	Mobile applications–linkedIn–instagram–discussion forums–social networks–Telegram–WhatsApp–blogs
	Highly traffic locations	Bus stations–subway stations–highly traffic highways–billboards–health centers–highly crowded organizations–airports–taxi/cabs
	Mass media	Radio–TV–newspapers–podcasts–video games–magazine–online advertising–broadcasting
Context-based message	Socio-cultural context	Using common language–following the culture of communities–following the perspective of communities–addressing people viewpoints–following the social norms–message audience properties
	Respect to social groups and diversities	The absence of insults to ethnic groups–the absence of desecration of social groups–avoiding racism–considering the religious beliefs–respecting the socio–cultural diversities
	Vulnerable groups need	Messages for helping vulnerable groups–using the potential of vulnerable groups–messages in terms of vulnerable group's needs–considering people with special needs

measures which need to be mentioned in the messages. Mitigation actions are the most cost-effective ones in disaster and emergency management efforts and people should be aware about it in their everyday lives.

"Legislation and public awareness regarding the implementation of structural and non-structural safety at various levels of society, such as the workplace, living, and educational environments, are important to mitigate disaster impacts" (P1).

Preparedness: Preparedness actions are the closest ones to disaster response and considered as the low-cost measure comparing mitigation. At the preparedness phase, the communities are prepared

to effectively respond to disasters through planning, early warning, emergency kit, first medical aid, hazard map, evacuation route and other measures that are necessary for saving lives at the time of disasters. Such important activities need to be highlighted in the messages content.

"It is necessary to have a risk plan and identify safe spots, and take early warning messages seriously to prepare households" (P7).

Response and recovery: The community members are the main responders during the first 72 *hr* after disasters. People should know what are vital affairs in short, medium and long-term after disasters and how to act to reduce disaster risk in the future. It is important to focus on the priority of saving people' lives and also informing the public, more especially volunteers, about the importance of following ICS in the disaster scene. Furthermore, inserting the disaster risk reduction measure in all efforts of recovery phase should be mentioned in the messages.

"Through short messages, people should know that everyone has a duty and that not everyone should spontaneously come to the scene to respond to disasters and create chaos" (P5).

Sustainable development and resilience: Disasters provide the opportunity of development and "build-back better" in the affected regions or regression to pre-disaster status and re-occurrence of all destructions due to the current hazards and vulnerabilities. The messages need to improve the public awareness and sensibility about the lessons that should be learnt from the previous disasters. The messages require to mention the importance of post-disaster development and achieving a resilient community in order to not experiencing the destructive disasters again.

"In the area of resilience, we have provided the necessary training to health personnel and provided intervention packages to strengthen resilience" (P4).

Message appearance

The appearance and form of messages can significantly affect the public attraction of them. Messages appearance should be impressive enough to attract the community's attention Simplicity and clarity, easily perceivable messages as well as being short and precise have been extracted as the sub-categories that can be addressed for the message's appearance.

Simplicity and clarity: The messages need to be simple enough to be considered by the public. Using specialized terms and abbreviations which are not clear can make the people confused and distracted.

"The manner and method of expressing the message is very important, as it should be simple and concise, and promote behavior" (P11).

Easily perceivable: The message should be easily understood by the community members and anyone knows what the concept of the message is. In other words, the question of "what does it mean, then?" should not be asked by the people.

"Educational messages should be short, clear, and reach the audience in the shortest amount of time. A message is effective when it is symbolic" (P6).

Short and precise: Since long messages are not read by most of the people, the messages are preferred to be designed using a few words or terms. However, the messages need to be precise enough to show the exact meaning of the words to the target population.

"The message should be short, understandable, and targeted. Long sentences should not be used, and keywords should be in a different color..." (P10).

Sharing (displaying) messages

One of the important issues for messages attraction has been extracted as the way of sharing the messages with the public. Although the messages content and forms are designed properly, effective platforms or channels need to be chosen for sharing the messages to the target population. Accordingly, social media, highly traffic locations and mass media have been extracted as the ways of exposing messages to the communities.

Social media: Based on the participants' experiences, social media can be used as the most widespread platform for sharing the messages with various communities. The examples are Instagram, LinkedIn, YouTube, Telegram and other platforms that are currently used to create and share the information and facilitate the online network and communications. Thus, using such social media platform for sharing the designed messages can improve people awareness about disaster risk management measures.

"National and international social networks can have a special place in transmitting short and concise

educational messages as quickly as possible" (P7).

Highly traffic location: Displaying messages in the crowded places where the messages can be exposed to a lot of people was considered as a popular way of sharing the messages. For instance, the public transportation such as subways, buses, airports as well as billboards and other similar tools can be selected for displaying messages.

"Signs, banners, and billboards can be used in large squares. Highways, main streets, and toll plazas are suitable for conveying messages" (P3).

Mass media: The other way for sharing the messages is mass media which collectively provide information for a lot of people. The examples are TV, Radio, newspapers and other similar tools that can reach audience through mass communications. Accordingly, the disaster risk management messages can be widely shared with populations using mass media platforms.

"Using the capacity of television and radio to transmit messages will spread education. Captioning messages increases the speed of their transmission" (P8).

Context-based messages

All messages need to be designed and develop based on the context where the messages will be used for the public awareness. Thus, the socio-cultural context and respect to all social groups and diversities as well as vulnerable groups should be considered at the time of developing and sharing messages.

Based on the socio-cultural context: The cultural issues are different in any region or country and thus, socio-cultural considerations should be addressed in the content and form of messages as well as sharing platforms. Successful messages are definitely designed according to the socio-cultural factors which are followed by the target populations.

"They should be given training and risk reduction instructions based on understanding the location and the community we are working with" (P6).

Respect to social groups and diversities: The messages should be designed and shared in regard to respecting all diversities and social groups. In other words, messages need to be developed without any bias and prejudice that make some people upset and inconvenient. For instance, the migrants, religion, ethnic and gender minorities and other similar groups can be mentioned as the populations who should be respectfully considered at the time of message forming and sharing.

"In my opinion, a common language and verbal communication are necessary to educate and communicate with a diverse range of people in society" (P4).

Vulnerable groups' need: The messages should include the needs of people with special needs who are both vulnerable and capable in disasters. For example, children, the elderly, disabled people, pregnant women and other vulnerable groups who require to become aware of disaster risk reduction management information.

"The form of education for children, women, the elderly, and the disabled is different, and cultural and social factors must be considered in order to localize it" (P1).

Discussion

The current research was conducted to identify how community-based messages for disaster risk management can be developed to encourage people for improving their disaster risk reduction knowledge and practice. Accordingly, the content and form of messages as well as sharing messages based on the context need to be considered. Message content should include the topics of disaster mitigation, preparedness, response and recovery, frequent hazards and sustainable development. The message appearance needs to be easily perceivable, short and precise and shared through mass and social media and in highly traffic locations. All messages should be developed and shared based on the socio-cultural context and considered the information needs of vulnerable groups.

Based on the findings, the content of messages should be related to the prevalent hazards and all concepts of disaster management and resilience that can promote disaster risk reduction and preparedness perceptions in highly disaster-prone communities. However, even all messages are understood, achieving related measure is challenging since the effective message content is just a part of risk reduction picture, especially when people capacities are not built or community members are not motivated enough. Hence, community

members need to act as both sources and recipients of the messages (12). On the other hand, involving community in developing and sharing the disaster risk management and development messages can ensure to be socio-culturally accepted and understood by the target communities (8). Similarly, a review article showed different approach for community-based disaster management including localizing community participation, strengthening social networks and focusing on empowering specific community groups (21). Thus, designing and sharing community-based messages can promote public awareness and help with more community participations and effective social networks. Similarly, Sendai Framework for Disaster Risk Reduction (SFDRR) emphasized the main role of communities as the active participants of disaster risk reduction and resilience efforts. The community involvement in all stages of disaster risk management has been encouraged in SFDRR in term of focusing on "people-centered" approach (4).

The findings reported different methods for sharing the messages with the public including mass and social media as well as highly traffic locations. Similarly, research suggests applying various communication and visualization method to ensure that the messages are understood. However, people prefer to receive information about frequent and prevalent hazards and all these messages need to be shared through sets of media that complement each other including newspapers, TV, radio, interpersonal communication and social media (12).

According to the findings, suitable messages need to be simple, short, precise and perceivable to get understood by the community members and shared by media and other related sectors. In addition, messages should be designed and developed based on the socio-cultural context or setting. Similarly, the literature explained that a good message should be understandable, address public concern, provide accurate and timely information, apply examples and stories, contain what people want to know and follow the local context and customs (7). Thus, more efforts are needed to integrate all these principles in disaster risk reduction and development strategies.

The results confirmed that the messages should be designed and shared based on the socio-cultural context in which people live and work. Furthermore, the messages need to include the special condition of vulnerable groups and respect all the diversities. Accordingly, the characteristics of people which can influence their attention to community-based affairs as well as considering the community priorities were recommended by a research that explored the challenges of community-based disaster management in Iran (22). In addition, the social environment and cultural contexts were mentioned as the effective factors that can improve the impact of messages in disaster risk communication. This research emphasized that communication with people can be promoted through understanding their communication settings such as socio-cultural and religious beliefs and conventions (23). Vulnerable groups conditions and needs are important at the time of messages development and sharing. For instance, in Australia, migrants and culturally diverse populations are especially vulnerable to disasters and emergencies due to the insufficient established network, inexperience with disasters, unfamiliarity with the new contexts, low income and physical/social isolation (24). Thus, the disaster risk management messages need to be designed and displayed based on the special conditions of vulnerable groups.

Conclusion

This study highlights the content, appearance and sharing methods of the disaster risk management messages that need to be designed and developed based on the socio-cultural context. Accordingly, the messages include disaster mitigation, preparedness, response, recovery and development content focusing on the frequent disasters that people have experienced. In addition, the message format should be simple, short and perceivable for all community members including the people with special needs. All messages need to be shared with or displayed on the suitable social and mass media and highly crowded locations to be notified regularly. Policy-making and planning for designing and developing disaster risk management for promoting the disaster risk communication at local, regional and national levels are suggested. In addition, investment on community risk awareness and perception about the prevalent hazards and emergencies is recommended.

Implications for the health system

One of the important sectors that can be applied for sharing and displaying the disaster risk management messages is the health system. Health systems play key roles in disaster risk management and reducing the effects of disasters on communities, especially through protecting people's health from disasters. In Iran, Primary Health Care network has been established as the main structure for providing healthcare services in rural and urban regions. Thus, decentralized structure of the health system in Iran can facilitate and help with sharing the messages with populations in highly disaster-prone settings. The following implications have been suggested based on the potential, resources and conditions of the health system for improving the messages impacts in communities.

- Healthcare centers can play a critical role in sharing and displaying disaster risk management messages with the public at rural and urban regions since these centers receive numerous people who need healthcare services.
- Disaster risk management messages can be considered as the initial step of public education and training since these messages can sensitize people about the disaster risk reduction and preparedness. The healthcare centers are suitable places for establishing the needed educational courses or programs. On the other hand, healthcare providers/staff should receive education and training on disaster risk management to hold such educational programs for the public.
- Incentives can be defined for the people who follow the messages and ask for more explanations or education. Partial discount on their healthcare costs can be considered as a considerable encouragement.
- Health centers are usually hosted by the patients and people with disabilities who are identified as the vulnerable groups with special needs in disasters. Thus, the healthcare centers can be suggested as the most suitable settings for improving the awareness and practice of the vulnerable groups about disaster risk management in terms of the written and visualized messages.
- One of the important basic messages that need to be shared widely is "disasters are not natural" message which shows the people responsibilities in disaster risk management and development of their own regions. This message can be displayed and shared with rural and urban communities through health systems and can make people frequently see this message and think about the ways for reducing their vulnerabilities to disasters.

Further research is needed to investigate the impact of sharing disaster risk management messages with target populations. Furthermore, designing and running a mobile application (app) or a web-application for sharing the collection of disaster risk management messages and the related educational courses or packages can be suggested for the future studies.

Ethical approval

This research received approval from the Ethics Committee of the School of Public Health and Safety, Shahid Beheshti University of Medical Sciences (IR.SBMU.PHNS.REC.1402.097), and consent to proceed was secured. The participants were informed about the research goals, methods, and confidentiality. Oral consent was obtained for participation and audio recording. Interviews were arranged per participants' preferences, assuring data privacy and withdrawal rights. Researchers remained accessible for any questions or concerns.

Funding

This study was financially supported by Air Quality and Climate Change Research Center at Research Institute for Health Sciences and Environment in Shahid Beheshti University of Medical Sciences, Tehran, Iran (Grant no.43007276).

Acknowledgement

The authors acknowledge the contributions of all the participants during interviews.

Conflict of Interest

There was no conflict of interest in this manuscript.

References

1. Nekoei-Moghadam M, Moradi SM, Tavan A. How can the Sendai framework be implemented for disaster risk reduction and sustainable development? A qualitative study in Iran. Global Health 2024 Mar 21;20(1):23.

2. ReliefWeb. East Asia Summit (EAS) statement on Rapid Disaster Response. 2014. Available from: https://reliefweb.int/report/world/east-asia-summit-eas-statement-rapid-disaster-response.

3. Räsänen A, Lein H, Bird D, Setten G. Conceptualizing community in disaster risk management. Int J Disast Risk Reduct 2020 May 1;45:101485.

4. UNDRR. Sendai Framework for Disaster Risk Reduction 2015-2030. 2015. Available from: https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030.

5. Trogrlić RŠ, Duncan M, Wright G, Van Den Homberg M, Adeloye A, Mwale F. Why does community-based disaster risk reduction fail to learn from local knowledge? Experiences from Malawi. J Disast Risk Reduct 2022 Dec 1;83:103405.

6. Kaur K. Role of community in management of disaster. Int J Multidiscip Res 2024;6:1-5.

7. UNDRR. A guide to community-based disaster risk reduction in Central Asia. 2008. Available from: https://www.undrr.org/publication/guide-community-based-disaster-risk-reduction-central-asia.

8. Panagiotou N, Nikezis I. D 7.3: Assessment of the role of community preparedness and engagement in risk and crisis communication. Eur Union 2024 Sep 30.

9. Patterson O, Weil F, Patel K. The role of community in disaster response: conceptual models. Populat Res Policy Rev 2010 Apr;29(2):127-41.

10. UNDRR. Guidelines for Communicating Disaster Risk Reduction Information. 2014. Available from:https://www.preventionweb.net/files/53901_53901guidelinesforcommunicatingdisa.pdf?startDownload=true.

11. Adella S, Fauzan Nur M, Nisa N, Tirtana Putra A, Rizki Ramadhana F, Maiyani F, *et al*. Disaster risk communication issues and challenges: lessons learned from the disaster management agency of Banda Aceh City. IOP Conf Series: Earth Environment Sci 2019 Jun 1;273(1):012041.

12. Martelli C, Boersma K, Martelli C, Bruinen de Bruin Y, Vetere Arellano AL, Claassen L, *et al*. Science for Disaster Risk Management 2020: acting today, protecting tomorrow. Luxembourg: Publications Office of the European Union; 2020. Communicating risk among all; p. 92-176.

13. Pourghasemi HR, Kariminejad N, Amiri M, Edalat M, Zarafshar M, Blaschke T, *et al*. Assessing and mapping multi-hazard risk susceptibility using a machine learning technique. Sci Rep 2020 Feb 21;10(1):3203.

14. EC. European Commission. INFORM risk country profile. 2025. Available from: https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Risk-Profile.

15. Ardalan A, Yusefi H, Rouhi N, Banar A, Sohrabizadeh S. Household disaster preparedness in the Islamic Republic of Iran: 2015 estimation. East Mediterr Health J 2020 Apr 16;26(4):382-7.

16. Karanci AN, Ikizer G, Doğulu C. Disaster and climate risk education: insights from knowledge to action. Singapore: Springer Nature Singapore; 2024. Community education and preparedness for disaster risk reduction. p. 149-168.

17. Sutton J, Vos SC, Wood MM, Turner M. Designing effective tsunami messages: Examining the role of short messages and fear in warning response. Weather Climate Society 2018 Jan;10(1):75-87.

18. Mehriar M, Masoumi H, Mohino I. Urban sprawl, socioeconomic features, and travel patterns in middle east countries: A case study in Iran. Sustainability 2020 Nov 18;12(22):9620.

19. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 2004 Feb;24(2):105-12.

20. Korstjens I, Moser A. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing.

Eur J Gen Pract 2018 Dec;24(1):120-124.

21. Shafiei Moghaddam P, Sohrabizadeh S, Jahangiri K, Hashemi Nazari SS. Community-based disaster health management approaches: a systematic literature review. J Iran Med Counc 2023 Jan 1;6(1):4-17.

22. Zamani E, Karimi Kivi H. Community-based disaster management in Iran; Strengths, challenges and recommendations. Health Manag Info Sci 2023 Oct 1;10(4):186-93.

23. Fathollahzadeh A, Salmani I, Morowatisharifabad MA, Khajehaminian MR, Babaie J, Fallahzadeh H. Models and components in disaster risk communication: A systematic literature review. J Educ Health Promot 2023 Mar 31;12:87.

24. Ogie R, Castilla Rho J, Clarke RJ, Moore A. Disaster risk communication in culturally and linguistically diverse communities: the role of technology. MDPI 2018 Oct 26;2(19):1256.