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Concepts and Components of Household Disaster Preparedness: A Qualitative Study

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Original Article

Abstract

INTRODUCTION: Despite the prevalent use of "household disaster preparedness", there is no consensus over a single and clear definition in this regard. The present study aimed to identify and explain the concept of household disaster preparedness and its components.

METHODS: The present study was conducted based on a qualitative design. After reviewing the concept and components of household disaster preparedness in previous studies, the subjects were selected via purposive sampling from disaster risk reduction managers and experts, as well as the heads of families. The data were collected through semi-structured interviews. The collected data were then analyzed by the thematic analysis method and the main and sub-components of household disaster preparedness were identified.

FINDINGS: The classification of the components of household disaster preparedness revealed that this concept encompassed cognitive, physical-operational, financial, social, and psychological dimensions. Household disaster preparedness was defined based on these dimensions.

CONCLUSION: Household disaster preparedness consists of different dimensions which require an appropriate instrument to be assessed.

Keywords: Disasters; Household disaster preparedness; Preparedness index

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Introduction

In recent years, the term "household disaster preparedness" has gained assiduous attention in disaster risk reduction; nonetheless, there is no consensus over a single understanding and definition of this concept, complicating its assessment. Previous studies have put a great emphasis on the importance of household preparedness in emergencies. Families involved in the measures implemented for disaster preparedness have been found to be more resilient; therefore, many efforts have been made to increase family preparedness. Nevertheless, based on the studies, household preparedness levels are still low and unsatisfactory (1-3).

In various studies on household disaster preparedness, this concept has meant differently to various experts. For example, Kim and Kang (4) referred to preparedness as "measures taken to anticipate, prevent, or reduce the adverse effects of disasters. That is to say, to respond to disasters and adapt to their consequences", Ardalan and Sohrabizadeh also defined preparedness as the activities and measures taken in advance to ensure effective responses to the destructive impacts of disasters (5). For some researchers, such as Murti et al., preparedness signifies first aid training for people at the community level (6). Moreover, Onuma et al. defined disaster preparedness as citizens' contribution to self-protection by taking protective measures and avoiding danger (7).

Yagoub also regards preparedness as those measures implemented to potentially save lives; reduce property damage, and increase individual and social control in response to disasters (8). Hoffmann and Muttarak also stated that household disaster preparedness signifies peoples'

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self-sufficiency for at least three days following a disaster. According to them, preparedness measures, such as storing food and water, as well as the availability of a first aid kit at home, can ensure an appropriate response to natural disasters (9). Dzialek et al. believe that preparedness means measures taken to reduce the risk presented to families at risk at each stage of the disaster (10).

In addition, DeBastiani et al. pointed out that household preparedness includes behaviors that are thought to improve people's ability to cope with disasters due to adaptation (11). Kurkjian et al. (12) and Strine et al. (13) believe that household disaster preparedness includes some parameters, such as access to food, water, and medical supplies for three days, as well as a family emergency evacuation plan. Some authors have used Maslow's hierarchy of needs to explain the concept of household disaster preparedness. According to them, when a disaster strikes, physiological needs should be given the highest priority, followed by safety and social needs (14). Among the physiological needs, we can refer to water, food, and shelter. The need for safety includes the measures we take to keep our family members safe and secure. Among the social needs, we can refer to the need for friendship and intimacy.

Bradley has developed a model that encompasses eight basic needs that must be met during or after disaster survival. In addition, six secondary needs are related to survival directly or indirectly. In this model, the basic needs are food, water, shelter, lighting, heating and cooling, sleep, health, and environmental rehabilitation. Secondary needs include medicine, first aid, communications, electricity, money, and protection. Bradley believes that all these 14 factors should be part of a comprehensive family preparation program (15).

Washburn and Saunders (16), as well as Kim and Kang (4), confirmed the three-stage model developed by American Red Cross (ARC) and Federal Emergency Management Agency (FEMA) for preparedness, which includes getting informed, making a plan, and assembling a disaster supplies kit. Over the past decades, the Emergency Preparedness Campaign has encouraged families to become familiar with preparedness criteria, such as having a family evacuation plan in disaster, as well as emergency storage of water, medicine, food, and first aid kits (12).

In another study, household disaster preparedness included information on potential disasters, geographical area, evacuation and sheltering plans, family emergency communication plans, as well as the preparation and maintenance of an emergency kit (17). In a study by Thomas et al., household disaster preparedness was defined as having and maintaining an emergency kit and a written plan for emergencies (18). In the study by Onuma et al. in Japan, preparedness is defined in three domains: basic preparation which includes five subdomains (food, water, battery, radio, and first aid kit), energy/heating preparation comprising two subdomains (fuel and heating equipment), and preparation for evacuation encompassing two subdomains (helmet and special clothing) (7). It seems that in defining the concept of disaster family preparedness, various factors should be considered, some of which have been mentioned in previous studies.

Methods

The present study was conducted based on a qualitative design. In this study, the thematic analysis method was used to identify the main and secondary components of household disaster preparedness. The main research question was "What are the components of household disaster preparedness" Participants in this study were selected via purposive sampling from disaster risk reduction managers and experts, as well as the heads of families. In this sampling, the individuals who were experienced in the main study phenomenon (household disaster preparedness) or related basic concepts were selected.

In order to access different views on the main phenomenon and related concepts, sampling was performed with maximum variety and attempts were made to select subjects with different views on the phenomenon or concepts. For this purpose, five different people were initially selected via purposive sampling, and the number of samples was increased by snowball sampling. The interviews were conducted in a semi-structured in-depth format, each lasting an average of one hour. Interviews were recorded and transcribed at the earliest opportunity with the permission of the participants.

Interviews continued until data saturation. That is to say, to the point when new information and findings are not added to the data.

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Table 1. Characteristics of participants

	Participant		Age (years)			Work experience of specialists (Year)			education			
Personal Characteristics	Related specialist	Other people in the community	25-30	35-50	>50	>10	10-20	>20	Under diploma and diploma	Bachelor's degree	MA degree	PhD and above
Frequency	13	8	4	8	9	3	4	6	4	6	5	6

A total of 21 subjects participated in this phase. (Table 1). In this study, the thematic analysis method was used to identify the components of family disaster preparedness.

After data collection, the theme analysis was performed in several stages. In the first stage (familiarizing with data), to become immersed in the data, the researchers were engaged in the repeated reading of the data and recorded their general perception of the interviews.

In the second stage (generating initial codes), the important points in participants' statements were assigned codes. The next stage of analysis began after the extraction of all the codes related to the concept of family disaster preparedness. In the third stage (searching for themes), the researchers tried to place the initial codes in the potential and initial elementary themes (themes) and name each of them. In the fourth stage (reviewing themes), a set of proposed themes was prepared and those without a sufficient information load were deleted. For this purpose, two criteria of internal homogeneity and external homogeneity were considered. That is to say, the data within each theme must have adequate commonality and coherence; moreover, they need to be distinct from the data within other themes.

In the fifth step (defining and numbering themes), the essences of each theme were identified, and overarching themes were named. The sub-themes were also revised and their relevance to the overarching themes was carefully examined. In order to confirm the credibility of the extracted contents, they were discussed in a meeting comprising 10 subjects, and their final opinion was summarized. To ensure that researchers' personal views have the least involvement in the development of themes, some quotes from the participants are provided in accordance with the themes. The dependability of the data was confirmed by peer check and the research team. Data transferability was obtained through a review of findings by five experts who were not present in the research process. To achieve trustworthiness, the two criteria of applicability and neutrality were considered.

Ethical considerations

All participants were provided with the objectives of the study. The interviews were recorded with their consent, and they were assured that all information would remain confidential. Moreover, the participants were allowed to withdraw from the study at any stage.

Findings

Upon the completion of the research stages, overarching themes and sub-themes were extracted (Table 2). The findings of the present study are described in detail below.

Components of household disaster preparedness

Based on the findings of this study, we have regarded the overarching themes in this study as the main components of disaster family preparedness and the sub-themes as sub-components of family disaster preparedness.

1. Main component: Cognitive preparedness

Cognitive preparedness refers to the issues that family members need to know about.

1.1. Subcomponent: Identification of the hazards threatening the family

One of the factors in family disaster preparedness is the recognition of the hazards threatening the family. Participants believed that in order to be prepared, the family had to recognize the hazards and prioritize them.

"Preparedness has a prerequisite, which is the assessment of the hazards posed to our family environment," said one participant.

1.2. Sub-component: Understanding the family plan to face hazards

The family must be aware of possible plans. The development of plans based on prioritized hazards and discussing them in family meetings can improve family preparedness. This knowledge makes family members more familiar with the dimensions of hazard and enhances their preparedness.

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Table 2. Classification of overarching and sub-themes of family disaster preparedness

Overarching theme (main components)	Sub-theme (sub-components)
Cognitive preparedness	Identification of the hazards threatening the family Understanding the family plan to face hazards Recognition of the roles of family members during disasters Identification of safety issues in choosing a house Identification of safe places in the house Identification of safe places in the neighborhood Knowledge of how to shut off gas, water, and electricity at the main switches Identification of emergency escape routes Deciding on a meeting place outside the house Understanding the family communication plan
Physical-operational preparedness	Implementation of structural safety measures in the house Performing non-structural safety measures at home Assembling a disaster supplies kit Provision of special equipment according to special local hazards Acquisition of first aid skills Preparedness exercises
Financial preparedness	Emergency fund Property insurance
Social preparedness	Communication with neighbors Participation in local disaster preparedness activities Participation in the activities of organizations or institutions involved in disaster preparedness
Psychological preparedness	An ability to recognize one's feelings and possible reactions, as well as those of other family members An ability to control family stress and emotions

In this regard, one of the participants said *"Family members should hold meetings with each other and develop a plan for each event. That is, for example, if something happened, what should they do ..."*

1.3. Sub-component: Recognition of the roles of family members during disasters

One of the most important cognitive aspects of family preparedness is the recognition of roles during events. If family members are not aware of their plans, as well as their duties and responsibilities at the time of the disaster, they will not be prepared to deal with the disaster.

According to one participant: *"... family members should know what to do if a disaster occurs ..."*

1.4. Sub-component: Identification of safety issues in choosing a house

Knowledge of safety issues in choosing a house (when buying or renting) was identified as one of the sub-components of cognitive preparedness. Participants believed that if families are familiar with vulnerable areas when choosing a house and consider structural safety factors, they can choose a more suitable place to live.

"Choosing a house is also very important. For example, it should not be near a fault line, it should have a strong structure, and it should withstand earthquake ..."

1.5. Sub-component: Identification of safe places in the house

Knowing the safe places to take refuge was one of the issues referred to by participants: "*If family members already know which places in the house are safe during an earthquake, they will not panic ...*"

1.6. Identification of safe places in the neighborhood

Neighborhood safe places are the areas where people can gather when they leave home in case a

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disaster strikes. Knowledge of these places was also identified as one of the sub-components of cognitive preparedness.

According to one of the participants: *"... Families should know the safe gathering places in their neighborhood to refer to in times of disasters ..."*

1.7. Sub-component: Knowledge of how to shut off gas, water, and electricity at the main switches

The knowledge of how to shut off the utilities, such as gas, water, and electricity in times of disaster has received less attention, while it is of particular importance in disaster management.

As stated by one participant: "*Many of us do not even know where the main switches of water, electricity, and gas are to shut off if necessary...*"

1.8. Sub-component: Identification of emergency escape routes

Another component of family disaster preparedness is the identification of emergency escape routes. Some homes are located in apartment complexes and may have different exits.

" *When a disaster strikes, everyone is shocked*," said one participant. "*If they do not know in advance how to get out of the building, they may face more danger*."

1.9. Sub-component: Deciding on a meeting place outside the house

Deciding on a place where family members will meet in case of a disaster was another component that was identified for family disaster preparedness.

One participant said: "*For example, family members should decide on a place where they can go and meet each other, they may lose each other...*"

1.10. Sub-component: Understanding the family communication plan

It should be clear in advance how family members can communicate with each other after a disaster. In many cases, telecommunication systems are damaged and communication is impaired.

"*In the family, we have to know how to get in touch if a disaster strikes*," said one participant.

2. Main component: physical-operational preparedness

Physical-operational preparedness refers to the measures that require knowledge and cognition, as well as the use of physical instruments or physical activity.

2.1. Sub-component: Implementation of structural safety measures for the house

For family disaster preparedness, families need to take structural measures. The assessment of the safety of residential structures and retrofitting the building (if necessary) are some of the issues mentioned by participants in the field of structures.

" *If an expert determines that a building does not have the necessary resistance to earthquakes, that building should be retrofitted*," said one participant.

2.2. Sub-component: Performing non-structural safety measures at home

Fixing equipment, placing heavier items on the lower shelves, arranging home furniture, and equipping the house with fire extinguishing systems were some of the non-structural safety measures mentioned by the participants.

According to one of them: "*Families should arrange their appliances in such a way not to cause injury to family members in times of disasters."*

2.3. Sub-component: Assembling a disaster supplies kit

Another important measure emphasized by participants was assembling a disaster supplies kit and periodic review of its contents. One participant said:" The family should *have access to an emergency bag or so-called rescue bag that contains equipment, water, and food to meet the needs of the family for at least the first 72 hours after the disaster, and regularly check and replace these materials and equipment".*

2.4. Sub-component: Provision of special equipment according to special local hazards

Preparation of equipment according to each hazard was one of the issues mentioned by the participants:

Families must have special equipment for special events. For example, fire extinguishers or special face masks in areas where there is a possibility of chemical contamination ..."

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2.5. Sub-component: Acquisition of first aid skills

One of the most important aspects of family disaster preparedness emphasized by participants was the acquisition of first aid skills and the ability to perform CPR. According to one of them: "*At least some family members should be able to perform first aid and CPR in case of emergency* ".

2.6. Sub-component: Preparedness exercises

To increase their level of preparedness, families must perform tabletop or operational exercises related to known hazards. Tabletop exercise can be performed periodically and at shorter intervals. In these exercises, family members express their plans and responsibilities in times of disaster. Moreover, practical exercises will be of great help in discovering the strengths and weaknesses of the family. One participant said: "*For example, you may have plans or training in your family, but you cannot increase your ability for disaster time until you practice what you have learned ...*"

3. Main component: Financial preparedness

Financial preparedness was another major component identified in family disaster preparedness. Financial preparedness actually enables the family to maintain some financial independence after disasters and compensate for the losses to some extent.

3.1. Sub-component: Emergency fund

Having an emergency fund was one of the issues referred to by some participants: "*If the family has a bank account for impending possible disasters, it can be of great help in the future*".

3.2. Sub-component: Property insurance

Many insurance companies have provided insurance cover for family property and assets against possible disasters. "*Unfortunately, less attention is paid to property and building insurance, although it is very important to compensate*," said one participant.

4. Main component: Social preparedness

Another major component identified in this study for household disaster preparedness was families' social preparedness which includes the following sub-components.

4.1. Sub-component: Communication with neighbors

Communication with neighbors, apart from the development of a local social network, allows neighbors to help each other in disasters. One participant said "*Unfortunately, in today's life, many people who live in a residential complex or neighborhood do not know their neighbors. This makes it impossible for them to help each other when disasters occur....*"

4.2. Sub-component: Participation in local disaster preparedness activities

In some neighborhoods, people may engage in disaster preparedness activities spontaneously or with the guidance of some nongovernmental organization. Participation in these social activities can increase household disaster preparedness. One participant said: "In some cities, such as Tehran, some volunteer groups in the neighborhoods increase people's preparedness."Participating in these groups helps people to learn and increases their motivation to prepare their families."

4.3. Sub-component: Participation in the activities of organizations or institutions involved in disaster preparedness

Some government agencies or public institutions, depending on their responsibilities, perform some disaster preparedness activities. Voluntary participation in the activities of these organizations and institutions can increase family disaster preparedness. According to one of the subjects: "*Participating in the activities of organizations, such as the Red Crescent or the municipality, in addition to being a social and humanitarian activity, can also help the family to prepare for various events ...*"

5. Main Component: Psychological preparedness

Psychological preparedness refers to an ability to manage emotional responses and adapt during disasters in an attempt to have a better cognitive and behavioral response (19).

5.2. Subcomponent: An ability to recognize one's feelings and possible reactions, as well as those of other family members

Some participants emphasized that family members should be aware of the emotions they will experience in a disaster. In addition, they need to know possible responses to those emotions in advance to deal with them properly. One of the participants said, "*Indeed, many*

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families have no prior experience of these disastrous events and their negative mental effects. They should be told about these issues before a disaster strikes so that they can understand their own behavior and that of other family members... "

5.2. Sub-component: An ability to control family stress and emotions

The ability to control stress and emotions after a disaster was another issue highlighted by some participants. According to one participant: "*If family members do not know how to control their stress, they may harm themselves and those around them ...*" Another participant believed: "*Most people get scared in this situation. They should learn to calm themselves and others during these events....*"

In the identification of the main components of household disaster preparedness, the experts participating in the research arrived at a consensus over the following concept:

Family disaster preparedness encompasses cognitive, physical-operational, financial, social, and psychological measures that reduce the risk of human, economic, and environmental damage caused by disasters in the family.

Discussion and Conclusion

In the present study, after interviews with experts and heads of families, the components of household disaster preparedness were identified. One of the main components identified in this study was cognitive preparedness. Families must properly identify the hazards and make plans to deal with the adverse effects of disasters. Moreover, the identification of safe places in the house, identification of safe places in the neighborhood, knowledge of how to shut off gas, water, and electricity at the main switches, identification of emergency escape routes, deciding on a meeting place outside the house, and understanding the family communication plan were the sub-components identified and classified under this main component.

Other researchers, such as Baker et al. (20), Murti et al., and Corwin et al. (6, 21), have emphasized all or some of these categories. The results of this study demonstrated that in order to increase the physical-operational preparedness of families, structural and non-structural safety measures should be taken in the house; moreover, a disaster supplies kit should be prepared and its contents should be checked periodically. Furthermore, due to local hazards, special equipment must be provided. Learning first aid and practicing what has been learned is another component of preparedness in this area.

Other studies have also highlighted the importance of structural and non-structural safety measures. Ardalan and Sohrabizadeh use these two factors to assess family preparedness for earthquakes (5). Nakagawa also asks families about the assessment of buildings for seismic resistance to evaluate their preparedness (22). Hoffman and Muttarak also consider it important to have structural improvement programs to achieve household disaster preparedness (9). Moreover, some other studies have highlighted the importance of disaster supplies kits. For instance, Ardalan and Sohrabizadeh pointed to rescue skills and disaster supplies kit as one of the important factors involved in the enhancement of household disaster preparedness (5).

In a similar vein, Chan et al. referred to the availability of disaster supplies kits as a major step toward disaster preparedness (23). Regarding the provision of resources and equipment according to each hazard, Ahmed et al. pointed to the need for first aid, firefighting, and medical equipment (24). In addition to the disaster supplies kit, Baker considers it necessary to have an outdoor grill for cooking and fuel or charcoal for it, as well as a generator and at least a three-day supply of fuel for it to prepare for the storm (25).

According to Murti et al., 72 hours of food storage per person, one gallon of water per person per day for 72 hours, having a heat source and generator, as well as the availability of a disaster supplies kit, first aid kit, and fire extinguisher are necessary for family disaster preparedness (6). In agreement with other studies, the acquisition of first aid skills was another sub-component identified in physical-operational preparedness in this study. Ejeta et al. and Corwin et al. emphasized the importance of learning first aid (26, 21). Uscher-Pines also assessed the completion of first aid courses in the past two years (27).

Ahmed, Kapucu, and Murti et al. considered first aid protocols, CPR, and access to first aid equipment (having a first aid kit) necessary to prepare families for disaster (6, 24 &28). The last sub-component identified in physical-operational preparedness was exercise and training. The

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results of this study illustrated that unless families engage in disaster preparedness exercises, they cannot be prepared to face disasters. The results of this study also indicated that practice can be tabletop or operational. Ardalan and Sohrabizadeh considered practice one of the essential factors for preparing families (5). In their research, Bodas et al. emphasized the importance of preparing and practicing a family emergency response plan (29). Chaney et al., Kapucu, and Gowan et al. considered exercise to be effective in achieving the desired level of family disaster preparedness (28, 30 & 31).

In terms of financial preparedness, no study has referred to the allocation of special savings account for disasters; nonetheless, the importance of insurance in household disaster preparedness has been assessed in many studies (32-34). Nevertheless, some researchers, such as Kusuma et al., have emphasized that families are less receptive to disaster insurance (35). Regarding social preparedness, Ejeta et al. examined community preparedness for floods in Ethiopia and referred to the particular importance of this preparedness in helping people (26). The component of psychological preparedness has been also addressed in various studies; nonetheless, in general, less attention has been paid to this dimension of family disaster preparedness (36& 37).

In most studies on family disaster preparedness, a great emphasis is placed on physical and financial aspects, while this issue has several other dimensions as well. None of the components identified in this study alone is sufficient for family disaster preparedness. The recognition of hazards, access to sufficient resources to respond, or psychological preparedness alone will not suffice to prepare people for disasters, rather all aspects of family disaster preparedness must be taken into account when assessing this issue.

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Conflict of Interests

The authors declare that there is no conflict of interest in this study.

References

1.Wang Z, Han Z, Liu L, Yu S. Place attachment and household disaster preparedness: Examining the mediation role of self-efficacy. Journal of Environmental Research and Public Health. 2021; 18 (11):5565.

2.Ardalan A, Yousefi H, Rouhi N, Banar A, Sohrabizadeh S. Household disaster preparedness in the Islamic Republic of Iran: 2015 estimation. Eastern Mediterranean health journal. 2020; 26(4):382-7.

3.Lindell MK, Hwang SN. Households' perceived personal risk and responses in a multi hazard environment. Risk Analysis. 2008; 28(2):539-56.

4.Kim YC, Kang J. Communication, neighborhood belonging and household hurricane preparedness. Disasters. 2010; 34(2):470-88.

5.Ardalan A, Sohrabizadeh S. Assessing households' preparedness for earthquakes: An exploratory study in the development of a valid and reliable Persian-version tool. PLoS Currents. 2016.

6.Murti M, Bayleyegn T, Stanbury MM, Bies S, Flanders W, Yard E, et al. Household emergency preparedness by housing type from a Community Assessment for Public Health Emergency Response (CASPER), Michigan. Disaster medicine and public health preparedness. 2014; 8(1):12.

7.Onuma H, Shin KJ, Managi S. Household preparedness for natural disasters: Impact of disaster experience and implications for future disaster risks in Japan. International Journal of Disaster Risk Reduction. 2017; 21:148-58.

8.Yagoub M. Earthquake preparedness: the case of Eastern UAE. Arabian Journal of Geosciences. 2016; 9 (19):721.

9.Hoffmann R, Muttarak R. Learn from the past, prepare for the future: Impacts of education and experience on disaster preparedness in the Philippines and Thailand. World Development. 2017; 96:32-51.

10.Działek J, Biernacki W, Fiedeń Ł, Listwan-Franczak K, Franczak P. Universal or context-specific social vulnerability drivers–Understanding flood preparedness in southern Poland. International Journal of Disaster Risk Reduction. 2016; 19:212-23.

11.DeBastiani SD, Strine TW, Vagi SJ, Barnett DJ, Kahn EB. Preparedness perceptions, socio-demographic characteristics, and level of household preparedness for public health emergencies: Behavioral Risk Factor Surveillance System, 2006-2010. Health security. 2015; 13(5):317-26.

12.Kurkjian KM, Winz M, Yang J, Corvese K,

[DOI: 10.32592/jorar.2022.14.2.1]

Colón A, Levine SJ, et al. Assessing emergency preparedness and response capacity using community assessment for public health emergency response methodology: Portsmouth, Virginia, 2013. Disaster Medicine and Public Health Preparedness. 2016; 10(2):193-8.
13.Strine TW, Neff LJ, Crawford S. Health-related quality of life domains and household preparedness for public health emergencies: behavioral risk factor surveillance system, 2006-2010. Disaster medicine and public health preparedness. 2013; 7(2):191-200.
14.Korstanje ME. Handbook to practical disaster preparedness for the family. Disaster Prevention and Management: An International Journal. 2013.
15.Bradley AT. Handbook to Practical Disaster Preparedness for the Family. 2010.
16.Washburn C, Saunders K. Extension Disaster Education Network (EDEN): Preparing families for disaster. Journal of Family and Consumer Sciences. 2010; 102(2):61-3.
17.Baker LR, Baker MD. Disaster preparedness among families of children with special health care needs. Disaster medicine and public health preparedness. 2010; 4(3):240-5.
18.Thomas TN, Leander-Griffith M, Harp V, Cioffi JP. Influences of preparedness knowledge and beliefs on household disaster preparedness. MMWR: Morbidity and mortality weekly report. 2015; 64(35):965-71.
19.Reser J, Morrissey S. The crucial role of psychological preparedness for disasters. In Psych: The Bulletin of the Australian Psychological Society Ltd. 2009; 31(2):14.
20.Baker MD, Baker LR, Flagg LA. Preparing Families of Children with Special Health Care Needs for Disasters: An Education Intervention. Social Work in Health Care. 2012; 51(5):417-29.
21.Corwin KA, Brand BD, Hubbard ML, Johnston DM. Household preparedness motivation in lahar hazard zones: assessing the adoption of preparedness behaviors among laypeople and response professionals in communities downstream from Mount Baker and Glacier Peak (USA) volcanoes. Journal of Applied Volcanology. 2017; 6(1):3.
22.Nakagawa Y. Effect of critical thinking disposition on household earthquake preparedness. Natural hazards. 2016; 81(2):807-28.
23.Chan EY, Kim JH, Lin C, Cheung EY, Lee PP. Is previous disaster experience a good predictor for disaster preparedness in extreme poverty households in remote Muslim minority based community in China? Journal of immigrant and minority health. 2014; 16(3):466-72.
24.Ahmed WAM, Salman AO, Arafa KA. Households' preparedness for first aid of burns and falls in Khartoum. African Journal of Emergency Medicine. 2015; 4(4):184-7.
25.Baker EJ. Household preparedness for the Aftermath of Hurricanes in Florida. Applied Geography. 2011; 31(1):46-52.
26.Ejeta LT, Ardalan A, Paton D, Yaseri M. Predictors of community preparedness for flood in Dire-Dawa town, Eastern Ethiopia: Applying adapted version of Health Belief Model. International Journal of Disaster Risk Reduction. 2016; 19:341-54.
27.Uscher-Pines L, Chandra A, Acosta J. Household preparedness is not enough: the challenges and opportunities in assessing community readiness for disasters. Journal of public health management and practice. 2013; 19:S70-S6.
28.Kapucu N. Culture of preparedness: Household disaster preparedness. Disaster Prevention and Management. 2008; 17(4):526-35.
29.Bodas M, Simon-Tov M, Kreitler S, Peleg K. Assessment of Emergency Preparedness of Households in Israel for War-Current Status. Disaster medicine and public health preparedness. 2015; 9(4):382-90.
30.Chaney PL, Weaver GS, Youngblood SA, Pitts K. Household preparedness for Tornado hazards: The 2011 disaster in DeKalb County, Alabama. Weather, Climate, and Society. 2013; 5(4):345-58.
31.Gowan ME, Kirk RC, Sloan JA. Building resiliency: a cross-sectional study examining relationships among health-related quality of life, well-being, and disaster preparedness. Health and quality of life outcomes. 2014; 12(1):85.
32.Seko M. Perceived preparedness and attitude of Japanese households toward risk mitigation activities following the great East Japan earthquake: earthquake insurance purchase and seismic retrofitting. In Housing Markets and Household Behavior in Japan. Springer, Singapore 2019: 231-249.
33.Maruta S, Kitsuki A, Managi S. Perceived arrival time of disaster relief supplies matters for household preparedness for natural disasters. Economics of Disasters and Climate Change. 2020; 4(2):365-84.
34.Martins VN, Nigg J, Louis-Charles HM, Kendra JM. Household preparedness in an imminent disaster threat scenario: The case of super storm

[DOI: 10.32592/jorar.2022.14.2.1]

sandy in New York City. International journal of disaster risk reduction. 2019; 34:316-25.
35.Kusuma A, Nguyen C, Noy I. Insurance for catastrophes: Why are natural hazards underinsured, and does it matter? In Advances in spatial and economic modeling of disaster impacts. Springer, Cham.2019: 43-70.
36.McNeill CC, Alfred D, Mastel-Smith B, Fountain R, McClement J. Changes in self-reported household preparedness levels among a rural population after exposure to emergency preparedness campaign materials. Journal of Homeland Security and Emergency Management. 2016; 13(1):113-35.
37.McLennan J, Marques MD, Every D. Conceptualizing and measuring psychological preparedness for disaster: The Psychological Preparedness for Disaster Threat Scale. Natural Hazards. 2020; 101(1):297-307.

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