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DOI: 10.5336/jgeront.2024-106867

# Earthquake Perceptions of the Older Adults and Suggestions for Crisis Management Based on the İzmir Earthquake Experience: Qualitative Case Study

## İzmir Deprem Deneyimiyle Yaşlı Erişkinlerin Deprem Algıları ve Kriz Yönetimine Yönelik Önerileri: Nitel Durum Çalışması

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*This study is an extended version of the study oral presented at the 7th International Congress on Health Sciences and Life, 7-9 March, 2024, Burdur, Türkiye.*

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**ABSTRACT Objective:** This study aims to determine the earthquake perceptions of older adults who experienced İzmir earthquake and their suggestions on what to do before, during, and after the earthquake. **Material and Methods:** The study was conducted with aged 65 and over individuals who applied to the Geriatrics Outpatient Clinic of Ege University Faculty of Medicine Hospital, and experienced the İzmir earthquake on October 30, 2020. The research is an explanatory/descriptive case study from qualitative research designs. The study group was determined using convenience sampling and criterion sampling methods. Data were obtained using a personal information form and a semi-structured interview form. Descriptive analysis and content analysis methods were used to analyze the data obtained in this study. The codes related to the findings were grouped under the relevant themes, visualized, interpreted, and exemplified with direct quotations. **Results:** The majority of the 25 participants (36%) were between the ages of 71-76 and 56% were women. As a result of the research, it was determined that the most fear and panic were experienced during and after the earthquake, earthquake news caused the most sadness, and the most anxiety about the earthquake was the anxiety of experiencing a more severe earthquake. In this study, it was determined that the participants concentrated on the suggestions that earthquake kits should be prepared before the earthquake, life triangle should be sheltered during the earthquake and economic problems should be solved after the earthquake. **Conclusion:** Identifying older adults' experiences, concerns, and suggestions regarding earthquakes can help develop age-appropriate strategies to better address their needs in future disasters.

**Keywords:** Earthquakes; disasters; earthquake perception; older adult, case study; qualitative research

**ÖZET Amaç:** Bu çalışmanın amacı, İzmir depremini yaşamış yaşlı erişkinlerin deprem algılarını ve deprem öncesi, sırası ve sonrasında yapılması gerekenlere ilişkin önerilerini belirlemektir. **Gereç ve Yöntemler:** Bu araştırma, Ege Üniversitesi Tıp Fakültesi Hastanesi Geriatri Polikliniğine başvuran, 30 Ekim 2020 İzmir depremini yaşamış 65 yaş ve üstü bireylerle yapılmıştır. Araştırma, nitel araştırma desenlerinden açıklayıcı/tanımlayıcı durum çalışmasıdır. Bu araştırmada, elde edilen verileri analiz etmek için betimsel analiz ve içerik analizi yöntemlerinden yararlanılmıştır. Elde edilen bulgulara ilişkin kodlar, ilgili temalar altında toplanarak görselleştirilmiş ve doğrudan alıntılarla desteklenerek yorumlanmıştır. **Bulgular:** Çalışmaya dâhil edilen 25 katılımcının çoğunluğu (%36), 71-76 yaşları arasında olup, %56'sı kadındır. Araştırma sonucunda, deprem sırasında ve sonrasında en fazla korku ve panik durumunun yaşandığı, deprem haberlerinin en fazla üzüntüye neden olduğu, deprem ile ilgili en fazla kaygının ise daha şiddetli bir deprem yaşama kaygısı olduğu saptanmıştır. Araştırmaya katılan katılımcıların, deprem öncesine yönelik deprem çantası hazırlanmalı, deprem sırasına yönelik yaşam üçgenine sığınılmalı, deprem sonrasına ilişkin olarak ise ekonomik problemler çözülmeli önerilerinde yoğunlaştığı belirlenmiştir. **Sonuç:** Yaşlı erişkinlerin depremlerle ilgili deneyimlerini, endişelerini ve önerilerini belirlemek, gelecekteki afetlerde ihtiyaçlarını daha iyi karşılamak için yaşa uygun stratejiler geliştirmeye yardımcı olabilir.

**Anahtar Kelimeler:** Depremler; afetler; deprem algısı; yaşlı erişkin; durum çalışması; nitel araştırma

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Peer review under responsibility of Turkiye Klinikleri Journal of Gerontology.

***Received:*** 19 Nov 2024 ***Received in revised form:*** 26 Feb 2025 ***Accepted:*** 13 Jun 2025 ***Available online:*** 10 Sep 2025

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The United Nations Office for Disaster Risk Reduction has defined disaster as "A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts".[1] Earthquakes are one of the most common natural disasters in the world. Although earthquakes cannot be predicted or prevented, it is possible to prepare people, places, and society to be more earthquake-resilient. Every year, many people worldwide suffer injuries or death due to disasters. Türkiye experiences severe earthquakes, and İzmir is one of the provinces with the highest earthquake risk. In the earthquake of magnitude 6.6 that occurred in İzmir on October 30, 2020, 117 people died.[2]

In the literature on disaster management, the term "vulnerable group" is used for individuals who need the support of other individuals and are exposed to high risk because they cannot protect themselves during a disaster.[3] Vulnerable groups comprise children, older adults, people with disabilities, and people who cannot adequately use the language of the country in which they are temporarily or permanently residing.[4-6] Older adults are often described as vulnerable to disasters due to the weakening of their mobility, physical condition, and sensory functions.[7] Research has shown that older adults experience problems such as being unaware of the impact of natural disasters occurring in their region and being unable to seek help during such disasters, with the reasons for this including lack of communication, lack of access to information, and a sense of social isolation.[8] These individuals are severely injured during disasters, their hospital stays are prolonged, their quality of life decreases, their psychological states deteriorate, their recovery slows down, and their mortality rates increase.[5]

To reduce the losses, joint action plans for the aftermath of disasters, prepared by caregivers of vulnerable individuals, local governments, and state institutions, can be effective. Considering the deficiencies in disaster education in Türkiye and the fact that older adults are among the vulnerable groups in disasters, it is of great importance to determine the disaster experiences of older adults and to fill the gaps in this field of research. This study aims to determine the perceptions of individuals aged 65 years and older who experienced the earthquake in İzmir on October 30, 2020, and to compile their suggestions on what actions should be taken before, during, and after an earthquake.

## MATERIAL AND METHODS

This is a qualitative study with a survey model aimed at evaluating the existing situation in depth and detail. The case study design, which is a qualitative research designs, has been adopted.

### ETHICS COMMITTEE APPROVAL

Ethics committee approval for this research was received from the Ege University Medical Research Ethics Committee (date: September 21, 2023; no: 23-9.1T/33). In addition, the necessary official permissions were obtained from the department under which the research was conducted. The research was carried out in accordance with the Declaration of Helsinki. Furthermore, informed consent was obtained from all participants.

### STUDY SAMPLE

In qualitative research, which is more effective for understanding people's beliefs, life experiences, attitudes, behaviors and interaction patterns, the depth and quality of data are prioritized instead of the number of participants; hence, samples selected for this purpose are preferred.[9,10] Since the aim of qualitative research is not to represent a wider population, it is more appropriate to determine the participants purposively instead of using random sampling methods.[11,12] Therefore, the convenience and criterion sampling methods were employed to form the study group of this research. The convenience sampling method offers speed and practicality to the researcher. In qualitative research, the size of a study group varies depending on the purpose, problem, sources and preferred design of the research.[13] To facilitate transferability, the sample size should be large enough to capture a wide range of experiences but small enough to ensure that the data collected from the participants are not repetitive. There is no con-

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sensus in the literature on how to determine the sample size in qualitative research, with different researchers proposing different suggestions.[14] Although there is no precise mathematical formula for determining sample size, the concept of data saturation is usually taken as a basis.[15] Data saturation is defined as the termination of data collection at the point where sufficient information is provided for the research and no new themes emerge.[16,17] Although this stage indicates that a sufficient sample size has been reached, determining the saturation point depends on the conceptual competence of the researcher.[18] In this method, the researcher selects a study group that is easy to access due to the limitations in terms of time, money, and labor force.[12,19] The population of the current study consisted of patients who visited the Geriatrics Outpatient Clinic of Ege University Faculty of Medicine Hospital between October 2023-January 2024. In the criterion sampling method, the individuals to be included in the sample are determined according to certain criteria.[19,20] Accordingly, in the current study, the inclusion criteria were being 65 years of age and older, having experienced the İzmir earthquake on October 30, 2020 and volunteering to participate in the study data saturation was considered to be achieved with the data obtained from 25 participants.

## DATA COLLECTION

The participants were interviewed 3 years after the earthquake. A personal information form and an interview form developed by the researchers were used to collect data for the purpose of this study. The personal information form consisted of questions related to sociodemographic characteristics (i.e., age, gender, education level, marital status, people the participant lives with, and income status), medical data (i.e., diagnosed chronic diseases, movement limitations, visual impairment, hearing impairment, and need for assistance in performing activities of daily living) and earthquake-related questions (i.e., who the participant was with during the İzmir earthquake and where the participant was during the İzmir earthquake). The participants' perceptions about the earthquake and their suggestions on what actions to take before, during, and after the earthquake were obtained via face-to-face interviews. Semi-structured interviewing offers the interviewer considerable flexibility. Although questions are generally predetermined, new questions can be added or changed according to the flow of the interview. Depending on the purpose of the research, this method is seen as one of the most appropriate options since the interview process and environment cannot be fully predicted in advance.[11]

Considering the characteristics of the current research, the interviews conducted were categorized as individual interviews and semi-structured interviews. When creating the interview forms, the questions to be included in the forms were determined first. The first version of the interview form was submitted to experts to ensure content validity, and necessary corrections were made according to experts' opinions. The researchers piloted the interview form 3 times before the actual interview. This not only allowed the researchers to gain experience for the real application, but it also tested whether the questions were understood correctly by the interviewees. A semi-structured interview form consisting of 7 questions was created by making the necessary corrections based on the pilot interviews. The questions in the interview form are given below:

1. What are the difficulties you experienced during the earthquake?

2. What were the difficulties you experienced after the İzmir earthquake? Were these difficulties solved? If so, how were they solved?

3. How did the news you watched from different media channels about the earthquake affect you after the İzmir earthquake? How did you feel?

4. What are your concerns about a possible earthquake?

5. What are your suggestions on what to do before a possible earthquake?

6. What are your suggestions on what to do during a possible earthquake?

7. What are your suggestions on what to do after a possible earthquake (under rubble or indoors, outdoors, etc.)?

The interviews were conducted in outpatient clinic settings for approximately 30-40 minutes, and

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the interviewers took care to foster a friendly and comfortable atmosphere. The audio recordings of the interviews were transcribed, edited, and analyzed by the interviewer on the same day. Thus, in the analysis phase measures were taken to prevent any negative effects that might arise due to the time effect.

### DATA ANALYSIS

In this study, descriptive analysis and content analysis methods were used to analyze the data obtained using interview forms. The data for current study were collected and analyzed between October 2023-January 2024. The data analysis involved the following stages: developing the conceptual framework, coding the data, presenting the data, and interpreting the data within the conceptual framework. The findings were supported by direct quotations using the numbering system (P1, P2 ... P25) representing the order of the participants (P) in the analysis process. The findings obtained as a result of the analysis and visualized in the tables were interpreted by considering the themes and the opinions with the highest intensity.

#### Validity and Reliability

To ensure the internal validity of the study, the findings are presented with frequent direct quotations to support them. In addition, the findings presented in the discussion section are discussed holistically. To increase the credibility of the research, consistency was ensured in the processes of data collection, analysis and interpretation. Furthermore, to ensure external validity, the research methods and designs employed, and the reasons for their use, the sampling techniques used for determining the study group, the characteristics of the study group, and the data collection and analysis process are explained in detail. The necessary explanations for testing the research findings in other settings are also included in the research report.

To ensure the internal reliability of the research, the results were presented in line with the findings. The research questions were asked in the same style to all participants, confirming that these questions were clearly stated.

Miles and Huberman's formula for percentage agreement, namely "P (Percentage Agreement %)=[Na (Agreement)/Na (Agreement)+Nd (Disagreement)]×100" was used to evaluate the reliability of the research, and the percentage agreement in the coding was thus calculated as 86%.[21] According to Yıldırım and Şimşek, when the percent agreement is 70%, the reliability percentage is reached.[19]

Furthermore, to ensure external reliability in the research, the research method and research process, the data collection and analysis process, and findings and interpretations are explained clearly and in detail. The interviews were recorded with a voice recorder to prevent data loss. All kinds of data collected have been preserved.

## RESULTS

The 25 participants were between 66 and 85 years, and 56% were women. Most of the participants stated that they had been alone (44%) and at home (72%) at the time of the earthquake. The sociodemographic and medical data of the participants are presented in Table 1.

Upon reviewing the interviewed older adults' opinions about the difficulties they experienced during the earthquake, it can be seen that they primarily felt fear and panic as well as worry and anxiety (Table 2). Sample expressions related to the codes obtained within the scope of this theme are listed below:

"... at the time of the earthquake, I immediately unlocked the door in fear and panic and I was left standing..." (P19)

"... at that moment, I panicked and I didn't know what to do because I had balance and movement limitations..." (P22)

"... that day was the peak of the worry and anxiety I have experienced in my life..." (P23)

Upon examining the older adults' opinions regarding the difficulties they experienced after the İzmir earthquake as well as their suggested solutions, it can be seen that the older adults felt fear and panic and that their suggested solutions mainly included staying away from home, praying, and staying calm (Table 3). Sample expressions related to the codes obtained within the scope of this theme are presented below:

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**TABLE 1:** Sociodemographic and medical data of participants

| Personal information | | n | % |
|---|---|---|---|
| Age (years) | 65-70 | 5 | 20 |
| | 71-76 | 9 | 36 |
| | 77-82 | 7 | 28 |
| | 83 and above | 4 | 16 |
| Gender | Female | 14 | 56 |
| | Male | 11 | 44 |
| Education level | Primary school graduate | 8 | 32 |
| | Secondary school graduate | 5 | 20 |
| | High school graduate | 1 | 4 |
| | University and above | 11 | 44 |
| Marital status | Married | 12 | 48 |
| | Single | 1 | 4 |
| | Widow | 11 | 44 |
| | Divorced | 1 | 4 |
| People he/she lives with | Alone | 9 | 36 |
| | Wife/husband | 10 | 40 |
| | Children | 3 | 12 |
| | Wife and children | 2 | 8 |
| | Grandchild | 1 | 4 |
| Who she/he was with during the İzmir earthquake | Alone | 11 | 44 |
| | Wife/husband | 8 | 32 |
| | Children | 1 | 4 |
| | Public place | 2 | 8 |
| | Grandchild | 2 | 8 |
| | Relative | 1 | 4 |
| Where she/he was during the İzmir earthquake | Home | 18 | 72 |
| | Public place | 2 | 8 |
| | Market | 2 | 8 |
| | Cafe | 1 | 4 |
| | Garden | 1 | 4 |
| | Restaurant | 1 | 4 |
| Income level | Income less than expenditure | 8 | 32 |
| | Income equal to expenditure | 15 | 60 |
| | Income more than expenditure | 2 | 8 |
| Diagnosed chronic diseases (more than one checked) | No | 2 | 8 |
| | Heart disease | 7 | 28 |
| | Hypertension | 16 | 64 |
| | Diabetes | 6 | 24 |
| | Parkinson's disease | 2 | 8 |
| | Stroke | 1 | 4 |
| | Lung disease | 5 | 20 |
| | Rheumatic disease | 2 | 8 |
| | Other | 3 | 12 |
| Movement limitation | Yes | 8 | 32 |
| Visual impairment | Yes | 15 | 60 |
| Hearing impairment | Yes | 2 | 8 |
| Need for assistance in performing ADLs | Yes | 2 | 8 |

ADLs: Activities of daily living

**TABLE 2:** Challenges experienced by participants during the earthquake

| Theme | Code and frequency |
|---|---|
| Difficulties experienced during the earthquake | Fear and panic (7) |
| | Worry and anxiety (3) |
| | Fear of being trapped in debris (2) |
| | Shock and surprise (1) |
| | Communication and transportation difficulties (1) |
| | Staying on the street (1) |
| | Fainting (1) |
| | Triggering chronic diseases (1) |
| | Balance and movement difficulties (1) |

**TABLE 3:** Participants' difficulties and solution suggestions after the İzmir earthquake

| | Code | |
|---|---|---|
| Theme | Difficulty (frequency) | Solution (frequency) |
| Difficulties experienced during the earthquakes | Fear and panic (13) | Staying away from home (5) |
| | | Praying (3) |
| | | Stay calm (2) |
| | | Being with relatives (1) |
| | | Communicating with relatives (1) |
| | | Taking precautions (1) |
| | Communication difficulties (3) | Avoiding unnecessary occupation of the lines (3) |
| | Psychological difficulty (1) | Moving (1) |
| | | Avoiding social media (1) |
| | Trauma (1) | Moving (1) |
| | Concern (1) | Moving (1) |
| | Earthquake traces in the house (1) | Repairing (1) |

"... I couldn't enter my house after the earthquake because of fear..." (P19)

"... I prayed that God would never let such a disaster happen again..." (P20)

"... after the earthquake, in fear and panic, I tried to find the phone to call my relatives..." (P5)

"... for a while after the earthquake, I didn't hear from my children and relatives because the phone lines didn't work..." (P15)

Furthermore, it can be seen that the older adults felt sadness and shock the most as a result of the news they watched on different channels after the İzmir earthquake (Table 4). Sample expressions related to

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the codes obtained within the scope of this theme are as follows:

"... when I watched the news and saw people staying in tents, I felt very sad..." (P20)

"... I watched it on social media, but I felt sad that I couldn't help those who were trapped in the debris and I wonder what I would do if I were them..." (P22)

"... when I watched the news and saw those trapped under the debris, I cried for days out of sadness..." (P12)

It can be seen that the older adults' most common concerns regarding a possible earthquake were experiencing a more severe earthquake, experiencing the same feelings again, and staying on the street after an earthquake (Table 4). Sample expressions related to the codes obtained within the scope of this theme are presented below:

"... I worry that if there is another earthquake, my house will collapse and I will be trapped under it ..." (P20)

"... I worry that I can't leave the house because of mobility limitations..." (P22)

"... I lose sleep wondering if I will experience more severe earthquakes after this..." (P25)

"... I am worried that if there is an earthquake after this and my house collapses, I will be left on the street..." (P13)

The older adults' suggestions regarding what actions to take before a possible earthquake comprised preparing an earthquake kit, calling for urban renewal, preparing an earthquake plan, and ensuring houses are earthquake-resistant (Table 4). Sample expressions related to the codes obtained within the scope of this theme are given below:

"... first of all, I prepared an earthquake bag and placed all the materials I would need both during and after the earthquake, including my valuables and important documents..." (P24)

"... if our house is not earthquake resistant, we should apply to the necessary authorities for the renewal..." (P24)

"... we should leave everything and first check whether our house is earthquake resistant..." (P6)

**TABLE 4:** The effects of the news about the earthquake watched by participants from different media channels, their concerns and suggestions about a possible earthquake

| Theme | Code (frequency) |
|---|---|
| Media effect after the earthquake | Sadness (6) |
| | Shock (5) |
| | Fear (3) |
| | Empathy (2) |
| | Rage (2) |
| | Concern (2) |
| | Anger (1) |
| | Insomnia (1) |
| | Stress (1) |
| | Anxiety (1) |
| Concern | Experiencing more severe earthquakes (5) |
| | Experiencing the same feelings again (3) |
| | Staying on the streets after the earthquake (3) |
| | Inability to leave the house (2) |
| | Relatives' trapping in the debris (1) |
| | Insecurity (1) |
| | Failure to deliver aid (1) |
| | Inability to find shelter after an earthquake (1) |
| | Inability to reach relatives (1) |
| Suggestions | Preparing an earthquake kit (8) |
| | Urban renewal (6) |
| | Earthquake plan preparation (5) |
| | Earthquake control of the house (5) |
| | Cooperation with municipalities (4) |
| | Preparation of living spaces for the older adults (4) |
| | Increasing the number of tents and containers by the government (4) |
| | ID, money, phone, and charger (4) |
| | Gathering areas (4) |
| | Whistle and flashlight (4) |
| | Earthquake education (2) |
| | Earthquake insurance (2) |
| | Earthquake cage (1) |
| | Earthquake organization from one place (1) |
| | Keeping calm (1) |
| | Securing furniture (1) |
| | Trusting in God (1) |
| | Provision of building security (1) |

The older adults' suggestions regarding what actions to take during a possible earthquake were focused on positioning oneself in the triangle of life and following a previously determined earthquake plan (Table 5). Sample expressions related to the codes obtained within the scope of this theme are presented below:

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**TABLE 5:** Suggestions of older adults for a possible earthquake moment and after the earthquake

| Theme | Code and frequency |
|---|---|
| Suggestions for a possible earthquake | Positioning in the triangle of life (15) |
| | Following earthquake plans (10) |
| | Positioning in the fetal position (7) |
| | Not using stairs (5) |
| | Calming down (5) |
| | Going to an assembly area (4) |
| | Not using the elevator (4) |
| | Trying to make people hear our voices (3) |
| | Getting out of the house (3) |
| | Standing away from windows (3) |
| | Praying (2) |
| | Not going out on the balcony (2) |
| | Not walking (2) |
| | Securing things (1) |
| | Helping others (1) |
| | Establishing communication (1) |
| | Psychological preparation (1) |
| Suggestions for the aftermath of a possible earthquake | Addressing economic problems (6) |
| | Helping debris removal (4) |
| | Gathering in an assembly area (4) |
| | Giving moral support to the earthquake victims (2) |
| | Providing psychological support (2) |
| | Trying to make people hear our voices (2) |
| | Solving housing problems (2) |
| | Paying earthquake insurance (2) |
| | Maintaining communication (2) |
| | Moving to a safe zone (1) |
| | Supporting relocation (1) |
| | Establishing an elderly residence system (1) |
| | Shutting off electricity, water, and gas (1) |
| | Providing a place to get medicines (1) |
| | Helping dogs (1) |
| | Sharing earthquake precautions (1) |
| | Institutional support (1) |

"... a triangle of life should be designated next to the fixed cabinets in case of an earthquake..." (P20)

"... we should stay calm during the earthquake and act in accordance with the earthquake plan we have previously determined..." (P24)

"... first of all, we need to protect our head and I identified a triangle of life next to the consumer durables..." (P16)

Furthermore, the older adults' suggestions regarding what actions to take after a possible earthquake were focused on the issues of eliminating economic problems, helping clear the debris, and gathering in assembly areas (Table 5). Sample expressions related to the codes obtained within the scope of this theme are listed below:

"... those trapped in the debris should be helped until emergency aid arrives..." (P17)

"... since I am retired, it is very important for me to eliminate the economic problem..." (P18)

"... municipalities have organized assembly areas for after the earthquake and if I survive the earthquake, I will try to go to this assembly area..." (P3)

## DISCUSSION

A previous study has shown that past experiences do not always increase individuals' disaster preparedness.[22] Although past disaster-related experiences do not necessarily affect disaster preparedness directly, they may be indirectly effective and have been shown to be one of the determinants of disaster preparedness.[23] Since the older adults included in this study had experienced earthquakes, they offered several suggestions regarding disaster preparedness. Upon evaluating the themes obtained as a result of this study, it was determined that the most common feelings were fear and panic during and after the earthquake; furthermore, earthquake news caused the most sadness. The most common earthquake-related concern was worry about experiencing a more severe earthquake. In this study the participants' main suggestions comprised the following: earthquake bags should be prepared before the earthquake, the triangle of life should be used during the earthquake, and economic problems should be solved after the earthquake.

Fear is an emotional response to perceived risk and danger. In a study conducted in Türkiye, the fear of earthquakes was found to be above average.[24] Consistent with this finding, in the current study, the participants experienced fear and panic the most during and after the earthquake. In a study conducted by Cvetković et al. in Türkiye, Serbia, and Macedonia, it was determined that the fear of disasters ~~is~~ was significantly above average. Furthermore, among dif-

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ferent disaster types, earthquakes were found to be the type with the highest fear average and the type that Turks feared the most.[25] The above-average earthquake fear detected in this study and other similar studies may be due to the high earthquake risk present in Türkiye and İzmir as well as the participants' previous earthquake experiences. In addition, the fear of earthquakes may explain why worries about experiencing a more severe earthquake were the most common earthquake-related concern.

Older adults are deprived of psychological services due to various reasons such as focusing more on physical problems after disasters, prioritizing services for young people, and lack of information about existing mental health problems.[26]

The most effective way to reduce disaster-related losses and vulnerabilities is to increase disaster preparedness.[27] In 2 different studies, fear was found to positively affect disaster preparedness.[28,29] In contrast, the study by Qing et al. revealed that there was a negative relationship between the level of disaster preparedness and the level of fear.[30] In the current study, the participants offered 18 different recommendations regarding the precautions to be taken before a possible disaster. This suggests that fear positively affects disaster preparedness in older adults who experience a high level of earthquake fear which is consistent with the findings of the aforementioned studies. Some studies have determined that disaster knowledge or previous disaster education has a significant positive effect on earthquake risk perception and fear.[31,32] Similar to this study, in a study conducted by Ahmadi et al., one of the participants stated that fear, anxiety, and uncertainty, as well as physical problems, were felt by the older adults after an earthquake.[33] Thus, it is extremely important to provide disaster training on this subject to reduce older adults' adults' fear of earthquakes

A previous study found that 56% of the participants had an evacuation plan and 54% had an earthquake kit.[34] In the current study, 8 of the participants suggested preparing an earthquake kit, and 5 suggested preparing an earthquake plan. In addition, 10 participants stated that an earthquake plan should be followed during an earthquake. These findings show that individuals' previous experiences have a direct impact on the processes of disaster preparedness processes. However, when evaluating the impact of previous experiences on disaster preparedness, variables such as individual awareness, access to education, and socioeconomic factors should also be taken into consideration. Moreover, although it seems logical that individuals who have experienced an earthquake would be more aware of disaster preparedness, it is important to consider that this may not have the same effect on every individual. For example, although traumatic experiences may increase some individuals' level of preparedness, such experiences may cause others to experience anxiety and avoid preparing for disasters. Therefore, there should be a focus on not only individual experiences but also community-based education programs and awareness campaigns to promote disaster preparedness. Finally, the findings of this study should be supported and extended with larger samples to facilitate an understanding of how disaster preparedness is shaped in different sociocultural contexts.

In this study, one participant was worried about not being able to find shelter after the earthquake, and 3 participants suggested moving out of their homes as a solution to the post-earthquake-related problems (psychological difficulty, trauma, and anxiety) Ahmadi et al. found that older adults had to change where they lived due to post-earthquake conditions, which disrupted routine care and made it difficult for them to meet their needs.[33] These findings show that earthquakes have not only physical but also psychological and socioeconomic effects. The importance of psychosocial support after a disaster is emphasized by how the participants experienced anxiety about shelter after the earthquake and how some of them considered moving as a solution to cope with the psychological effects. However, the fact that 44% of the respondents in a study conducted in Kuala Lumpur were hesitant to leave their homes reveals the complexity of the evacuation process and the attachment of individuals to their homes.[34] It is evident that post-disaster decisions are shaped not only by physical safety but also by psychological factors, social relations, and economic status. Therefore, it is necessary to plan the post-disaster resettlement process in ac-

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cordance with the needs of individuals and to provide supportive services, especially for older adults. Taking such psychosocial and logistical factors into consideration will play a critical role in enhancing post-disaster recovery and community resilience.

In Mohammed-pajooh and Aziz's study, it was identified that the most common problem among people affected by disasters was communication difficulty and that the majority of people preferred to use the Internet.[34] In the current study, 3 participants stated that they encountered communication difficulties after the earthquake, and as a solution, they suggested that unnecessary outage of telephone lines after disasters should be avoided. These findings emphasize the challenges faced by communication infrastructure during disasters and the impact of this situation on individuals. However, the inaccessibility of communication channels in disaster areas is directly related not only to infrastructure damage but also to power outages. Therefore, in disaster management planning, it is important to both identify alternative communication channels and develop solutions to ensure energy continuity. To improve post-disaster communication processes, a multifaceted communication strategy that takes regional differences into account and covers both internet-based and traditional methods should be adopted.

In a previous study, some participants who needed medicines stated that they could not find medicines early in the first week after the earthquake.[33] In the current study, only one participant stated that "there should be a place where we can buy our medicines". This shows that, although most older adults use more than one medicine due to their comorbidities, most of them do not consider or prepare for such an important problem. Therefore, aid organizations must focus on meeting the medication needs of older adults after an earthquake. These findings suggest that the continuity of post-disaster health services is critical, especially for older adults. Difficulties in obtaining medicines after an earthquake may pose serious health risks for individuals with chronic diseases. This situation emphasizes the necessity of pre-disaster awareness raising and planning. In the study by Ahmadi et al., stated it was found that one participant's health worsened after the earthquake.[33] In the current study, a participant similarly stated that his chronic diseases were triggered after the earthquake. These similar findings indicate that disasters can trigger chronic diseases and that health management should be handled carefully in post-disaster processes. Therefore, the supply of medicines and access to health services should be prioritized in disaster management policies. For older adults in particular, planning post-disaster drug distribution, providing mobile health services, and establishing regular follow-up mechanisms are vital in preventing health complications.

An earthquake and the magnitude of the resulting damage cause people to experience fear and panic. While this is expected, this behavior is often exacerbated by the triggering of these emotions through the media. Some news that is used to create mass impact, especially news related to fear and panic due to aftershocks, not only intensifies these emotions but also makes it difficult for people to continue living their daily lives.[35] Similarly, in this study, the news that the participants watched on different media channels after the earthquake mostly caused emotions such as sadness, shock, fear, anger, and concern. As older adults are more psychologically vulnerable after disasters, the content presented by the media should be prepared more carefully. Media organizations must use more balanced and supportive language, include content that increases psychological resilience, and report news in a manner that does not engender unnecessary panic among the public. In addition, it may be useful to increase individuals' media literacy, thereby facilitating conscious media consumption.

## LIMITATIONS

First, the results of this qualitative research conducted with a small sample can't be generalized. Secondly, this study does not provide information on the extent of the earthquake's impact on the participants' environment, e.g. loss of life, property damage or presence of collapsed buildings. In addition, sociodemographic factors that influence both the impact of disasters and perspectives on solutions are not included in the study.

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## CONCLUSION

The most effective way to minimize disaster-related losses and damages is to be prepared for disasters. Considering older adults' concerns about a possible earthquake, it would be beneficial to create a tracking system to locate and identify older adults in advance, in addition to providing training to older adults, caregivers, and workers in disaster-related aid organizations. In Türkiye, the income level during retirement is generally not high. Therefore, considering issues such as losing their homes after the earthquake, experiencing economic difficulties, and suffering from chronic diseases, one of the most important problems faced by older adults in the post-disaster period seems to be housing and access to health services to maintain their quality of life. Thus, it is of great importance to determine possible current situations and structure appropriate environments in public planning.


### *Acknowledgement*

*We thank the participants who voluntarily participated in the study.*

### *Source of Finance*

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*


### *Conflict of Interest*

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### *Authorship Contributions*

***Idea/Concept:*** *Dilek Doruk Kondakcı, Ayşe Gülay Şahan, Aslı Kılavuz;* ***Design:*** *Dilek Doruk Kondakcı, Ayşe Gülay Şahan, Aslı Kılavuz;* ***Control/Supervision:*** *Aslı Kılavuz;* ***Data Collection and/or Processing:*** *Dilek Doruk Kondakcı, Aslı Kılavuz;* ***Analysis and/or Interpretation:*** *Ayşe Gülay Şahan, Aslı Kılavuz;* ***Literature Review:*** *Dilek Doruk Kondakcı, Ayşe Gülay Şahan, Aslı Kılavuz;* ***Writing the Article:*** *Dilek Doruk Kondakcı, Ayşe Gülay Şahan, Aslı Kılavuz;* ***Critical Review:*** *Aslı Kılavuz.*

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