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Psychological resilience and initial reactions to the February 6, 2023, Earthquakes in Türkiye: A mixed-methods approach[1]

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ABSTRACT

This study aimed to examine the psychological resilience and behavioral responses of individuals during and after the February 6, 2023, Kahramanmaraş-centered earthquakes in Turkiye, using a convergent parallel mixed-methods design guided by resilience and disaster coping theories. Quantitative data were collected from 252 participants using the Brief Resilience Scale and a form capturing demographic information, trauma exposure, and earthquake preparedness. Qualitative data were obtained through semi-structured open-ended questions. Non-parametric tests (Mann-Whitney U, Kruskal-Wallis, and Fisher's Exact Test) were used for quantitative analysis, while inductive content analysis was conducted. Integration was achieved through triangulation and joint interpretation of findings. Results showed that male participants and those with prior earthquake preparedness had significantly higher psychological resilience levels ($p < .01$). However, 94.8% of participants had no prior preparation, and 64.3% had received no training. Qualitative findings revealed common emotional reactions such as fear and shock, as well as unprotective behaviors during the tremor. While some attempted protective strategies like "Drop-Cover-Hold," most sought shelter in cars or tents due to cold conditions. The integrated results indicated that psychological resilience was associated with gender and prior preparedness. These findings offer insights for developing inclusive disaster training and mental health support systems aimed at enhancing resilience in future emergencies. Given the association between pre-earthquake preparedness and psychological resilience, disaster education programs should be strengthened-particularly targeting women and other vulnerable groups.

KEYWORDS

Mixed-methods, preparedness, earthquake, psychological resilience, emotional responses.

Türkiye'de 6 Şubat 2023 Depremlerine psikolojik dayanıklılık ve ilk tepkiler: Karma yöntemli bir yaklaşım

ÖZET

Bu çalışma, Türkiye'de 6 Şubat 2023'te meydana gelen Kahramanmaraş merkezli depremler sırasında ve sonrasında bireylerin psikolojik dayanıklılıklarını ve davranışsal tepkilerini, dayanıklılık ve afet ile başa çıkma teorilerinden yola çıkılarak yakınsak paralel karma yöntem tasarımı kullanılarak incelemeyi amaçlamaktadır. Nicel veriler, 252 katılımcıdan Kısa Süreli Dayanıklılık Ölçeği ve demografik bilgileri, travma maruziyetini ve depreme hazırlığı içeren bir form kullanılarak toplanmıştır. Nitel veriler ise yarı yapılandırılmış açık uçlu sorular aracılığıyla elde edilmiştir. Nicel analiz için parametrik olmayan testler (Mann-Whitney U, Kruskal-Wallis ve Fisher'ın Kesin Testi) kullanılırken, tümevarımsal içerik analizi yapılmıştır. Bütünleştirme, üçgenleme ve bulguların ortak yorumlanması yoluyla sağlanmıştır. Sonuçlar, erkek katılımcıların ve daha önce depreme hazır olanların anlamlı derecede daha yüksek psikolojik dayanıklılık seviyelerine sahip olduğunu göstermiştir ($p < .01$). Ancak, katılımcıların %94,8'inin önceden bir hazırlığı yoktu ve %64,3'ü herhangi bir eğitim almamıştı. Nitel bulgular, deprem

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sırasında korku ve şok gibi yaygın duygusal tepkilerin yanı sıra korunmasız davranışlar ortaya koydu. Bazıları "Çök-Korun-Tutun" gibi koruyucu stratejiler denerken, çoğu soğuk hava koşulları nedeniyle arabalara veya çadırlara sığındı. Bütünleşik sonuçlar, psikolojik dayanıklılığın cinsiyet ve önceki hazırlıkla ilişkili olduğunu gösterdi. Bu bulgular, gelecekteki acil durumlarda dayanıklılığı artırmayı amaçlayan kapsayıcı afet eğitimi ve ruh sağlığı destek sistemlerinin geliştirilmesi için fikirler sunmaktadır. Deprem öncesi hazırlık ile psikolojik dayanıklılık arasındaki ilişki göz önüne alındığında, özellikle kadınları ve diğer savunmasız grupları hedefleyen afet eğitim programları güçlendirilmelidir.

ANAHTAR KELİMELER

Karma yöntemler, hazırlık, deprem, psikolojik dayanıklılık, duygusal tepkiler.

Introduction

Earthquakes are sudden natural disasters that can cause widespread physical destruction and psychological trauma. Their impact on individuals is shaped by various factors, including the intensity, duration, and geographical location of the event, as well as the level of preparedness and socio-economic conditions of the affected population. The physical injuries and emotional responses that follow such disasters vary significantly, depending on both the nature of the hazard and the vulnerability of the community (Zakian & Paveh, 2023). For instance, Tang et al. (2017) reported that the types of injuries sustained during earthquakes differ based on a country's development level and the magnitude of the quake. Similarly, the broader disaster literature suggests that the extent of destruction is not solely determined by natural forces but also by the interaction of social vulnerability, governance capacity, and urban infrastructure (Gaillard, 2021; Wisner et al., 2004).

In this context, the earthquakes that struck southeastern Turkey on February 6, 2023, serve as a stark example. Two powerful quakes, with magnitudes of 7.7 and 7.6, struck the Pazarcık and Elbistan districts of Kahramanmaraş just hours apart. These events caused massive devastation across 11 provinces, making it one of the deadliest disasters in the history of the country. More than 53,000 lives were lost, and millions were forced to leave their homes due to infrastructure collapse, severe winter conditions, and disruptions in basic services. National and international emergency response teams were mobilized to the region. In addition, formal education was suspended in the affected provinces, and distance education practices were implemented as an alternative (Cumhuriyet Newspaper, 2023; The Ministry of Interior of the Republic of Turkey, 2024).

However, the effects of earthquakes are not limited to the physical domain; psychological stress and trauma are also prevalent. Humans have an innate ability to cope with adversity, and through this capacity, they can adapt to traumatic events, recover, and maintain psychological balance (Özgölet & Utkucu, 2021). Stress and coping have formed the basis of resilience in the psychological literature, as it has been observed that individuals cope better than anticipated and improve due to the difficulties they experience. However, resilience has its roots in these two literatures, where "psychological aspects of coping" and "physiological aspects of stress" are integrated as common elements of an individual's experiences (Tusaie & Dyer, 2004).

Meanwhile, Okuyama et al. (2018), on the other hand, explain resilience as an important factor to be considered when examining the mental health of individuals and society, defining it as the ability to cope with disasters and critical challenges in life. These researchers assessed the ability of 760 high school students in Natori City to cope with the challenges following the Great East Japan Earthquake in 2011. This pioneering research suggests that resilience is a highly variable component of mental health among individuals who have faced challenges.

Following earthquakes, individuals may experience mental health problems such as post-traumatic stress disorder (PTSD), anxiety, and other psychological symptoms (Kerkez & Şanli, 2024; Zhou et al., 2019). However, individual responses to trauma vary. Factors such as previous trauma history, personality traits, coping strategies, belief systems, social support, the meaning

attributed to the loss, and level of preparedness all play a crucial role in how individuals respond and recover (Nasır et al., 2025; Ozkan, 2024a; Sönmez, 2022). Lindell et al. (2016) found that people react with varying degrees of fear during earthquakes, but this emotion does not always predict behavior. Some individuals with high levels of fear and shock were still able to engage in protective actions, whereas others with lower fear levels were not.

In this context, individuals' immediate reactions during an earthquake, their behaviors during the shaking, and their sheltering and protection strategies afterward are critical factors that influence both physical safety and psychological resilience. Protective behaviors such as "Drop, Cover, and Hold On," which have been promoted through international education campaigns since 2008, are widely recommended, especially in developed countries (Southern California Earthquake Center- SCEC, 2024). Despite this, many people experience intense fear, panic, shock, and freezing responses during earthquakes, which may impair logical thinking and reaction capabilities (Goltz et al., 2020).

This study employs a convergent parallel mixed-methods design (Creswell & Clark, 2020) to achieve triangulation and complementarity. The quantitative strand identifies general patterns and relationships among variables such as resilience and preparedness, while the qualitative strand provides contextual depth and meaning to these patterns by exploring lived experiences. Integration of both strands enhances the validity of the findings and provides a more comprehensive understanding of individuals' responses to disaster.

Although several studies have explored factors affecting psychological resilience in earthquake survivors, most have focused on specific variables. For instance, previous research has examined the relationship between adult attachment styles and resilience (Karaırmak & Güloğlu, 2014), PTSD symptom clusters and resilience components (Sakarya & Güneş, 2013), resilience in relation to personality traits and coping styles (Campbell-Sills et al., 2006), the psychological impact of earthquakes on children (Aral, 2023), and sociocultural perspectives on earthquake disasters (Erdoğan, 2023). Other studies have focused on the health of vulnerable populations (İpekçi, 2023) and the effects of disasters on children and adolescents (Karabulut & Bekler, 2019).

While previous studies have explored various aspects of psychological resilience following earthquakes, they have often focused on individual factors such as attachment styles, PTSD symptoms, or coping strategies. However, studies that comprehensively examine psychological resilience by integrating multiple variables -such as personal characteristics (e.g., age, gender, education level, trauma history), earthquake preparedness, immediate reactions during an earthquake, and post-disaster sheltering and protection behaviors-remain limited.

This study investigates the psychological resilience of youth and adults by examining their personal and socio-demographic characteristics, preparedness levels, reactions during the earthquake, and post-earthquake sheltering behaviors. Given Turkey's high seismic risk and the severe psychological impacts of recent disasters, especially the 2023 Kahramanmaraş earthquakes, understanding how individuals cope has become critically important. By shedding light on the psychological and behavioral responses of those affected, this study aims to guide future psychosocial support strategies and improve disaster preparedness policies.

1. The study seeks to answer the following research questions:
2. What are the psychological resilience levels of individuals affected by the earthquake?
3. Is there a significant relationship between the socio-demographic characteristics of participants and their psychological resilience levels?
4. Is there a relationship between participants' earthquake preparedness and their socio-demographic characteristics?
5. How do individuals describe their emotional and behavioral reactions during the earthquake?
6. What are the protection and sheltering behaviors after leaving the home?

7. How do the qualitative insights into individuals' reactions during and after the earthquake help explain the quantitative patterns in psychological resilience?
8. In what ways do participants' narratives about preparedness and response complement or contrast with the quantitative findings based on demographic variables?

Method

Research design

A mixed-methods approach was used to determine the psychological resilience levels of individuals exposed to earthquakes, to reveal the impact of demographic characteristics on their psychological resilience, and to determine the initial and subsequent reactions of the participants to their earthquake experiences.

Research model

This mixed method study was conducted with a convergent parallel design. In this design, quantitative and qualitative data are obtained in parallel, analyzed separately, and then brought together in the interpretation (Creswell & Clark, 2020, pp. 80, 169).

Universe and sample

Parallel mixed method sampling was used to obtain quantitative and qualitative data simultaneously. Random sampling, a probability sampling technique, was used to obtain quantitative data, while snowball sampling, a purposeful sampling technique, was used for qualitative data (Creswell et al., 2003; Creswell & Clark, 2020). Families and relatives who experienced the earthquake were reached through students.

The study population comprised the region where the February 6, 2023 earthquakes occurred across 11 provinces. The study group consists of participants from 9 cities where students of a university college and their relatives resided. Individuals aged 16 and over who experienced the earthquake met the inclusion criteria for the study. In total, 252 youth and adults participated in the study. The potential participant pool was limited to those who lived in the February 6 Kahramanmaraş earthquake region and the provinces affected by the earthquake. Participants were selected based on demographic information. The participant group was asked to provide information about their age, gender, marital status, place of residence, who they were with during the earthquake, whether they had received training on what to do in case of an earthquake, and their preparedness before the earthquake.

Data collection tools

Personal information form, earthquake moment, and preparedness

The personal information form was developed by the researchers based on the literature review. The form included questions regarding the demographic characteristics of the study group and the earthquake experience. The questions address, age, gender, marital status, place of residence, who they were with during the earthquake, earthquake training, and pre-earthquake preparedness. The participants were asked semi-structured questions about the moment of the earthquake and the aftermath.

Brief resilience scale

The Brief Resilience Scale was developed by Smith et al. (2008) to measure the psychological resilience levels of individuals. The Brief Resilience Scale focuses on measuring individuals' ability to recover, return to their former active state, and adapt again. The scale was adapted to Turkish by Dogan (2015) and is a unidimensional 1-5-point Likert-type scale with six items. Scoring ranges between 1 and 5 for each item, with items 2, 4, and 6 reverse-coded, and others positively coded. High scores indicate a high level of psychological resilience. The internal

consistency reliability coefficient was .83 in the adaptation study, while it was found to be .88 for the present study.

Data collection

In the quantitative phase of the study, participants were recruited using a convenience and snowball sampling strategy. Data for the study were collected via an online Google Forms between April 5, 2023, and May 15, 2023. A virtual survey was designed using Google Forms, and participating students were reached via social media platforms such as WhatsApp. The students who participated in the study voluntarily completed the form themselves and then reached out to their families and relatives in similar situations to encourage those who volunteered to complete the survey. As part of the online data collection process, all 252 participants were asked two open-ended questions to understand their emotional, cognitive, and behavioral reactions during and after the earthquake (1. *What are your feelings and first reactions during an earthquake*?", 2. *Where did you take refuge after you left the house*?"). For coding and thematic analysis, the responses of all 252 participants were included in the qualitative analysis process.

Within the scope of this study, no theoretical saturation assessment was made. Qualitative data were collected as part of a larger survey study, and in this context, the purpose of the qualitative component was not to achieve inductive saturation, but to enrich and contextualize quantitative findings. This approach aligns with the basic principles of the convergent parallel mixed methods design adopted in the study.

Semi-structured open-ended questions were prepared by the research team based on a literature review of individual post-disaster reactions and psychological resilience. The questions were reviewed by two faculty members who are experts in qualitative research, and a pre-test (pilot) was conducted with a small group of five people.

Data analysis

The quantitative data collected in the study were transferred to a computer and analyzed using the SPSS 21.0 statistical software. Descriptive statistics such as frequency, percentage, and mean were used to summarize the data. Since the normality assumption was not met (as assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests), non-parametric tests were used for inferential analyses. Specifically, the Mann-Whitney U test and Kruskal-Wallis test were used to compare psychological resilience scores across socio-demographic groups and earthquake preparedness levels. These tests were selected to evaluate differences between independent groups, as appropriate for non-normally distributed data.

Fisher's Exact Test was employed to examine the association between participants' earthquake preparedness status and their categorical socio-demographic variables. Although this test does not compare means across groups, it is suitable for analyzing the relationship between two categorical variables, especially when expected frequencies in contingency tables are small. Assumptions for the use of Fisher's Exact Test-such as small sample size and expected frequencies less than five-were checked and met. A significance level of .05 was adopted for all statistical tests.

The qualitative data were analyzed using content analysis. The purpose of this method was to systematically identify and interpret meaningful patterns, concepts, and themes from participants' open-ended responses. Initially, the transcripts were independently coded by two researchers who had expertise in qualitative research and disaster psychology. A third researcher, experienced in qualitative methodology, reviewed and validated the coding to ensure consistency and reliability.

The coding process followed an inductive approach: participants' responses were read multiple times by two different researchers, and codes were generated directly from the data. These

codes were then grouped into categories and themes based on similarities and conceptual relationships (Yıldırım & Şimşek, 2021). For disagreements, a third evaluator was consulted to reach consensus among the researchers. Triangulation and researcher validation were applied to increase the reliability and rigor of qualitative analysis (Patton, 1999). The inter-rater reliability for data coding demonstrated high agreement, with a consensus rate of 92% (Miles & Huberman, 1994; Patton, 2018).

Ethical issues

Ethical approval was obtained from the Ethics Committee for noninvasive exploration at Burdur Mehmet Akif Ersoy University with the decision numbered NE 2023-200, dated April, 05, 2023.

Results

In this study, the psychological resilience levels of individuals who experienced the February 6 Pazarcık and Elbistan earthquakes, their earthquake preparations, and their reactions during and after the earthquake were examined based on individuals' self- reports and opinions. The quantitative findings of the research are presented first, followed by the qualitative findings. Table 1 presents the analysis of responses regarding demographic characteristics, earthquake moment, and earthquake preparedness of the 252 individuals in the study.

Table 1 Distribution of demographic characteristics of the participants (n= 252)

Variable	n	%
Age ($\bar{X}$±SS)	30,82 ±11.03	
< 25 years	102	40.5
26-40 years	92	36.5
> 41 years	58	23.0
Gender		
female	179	71.0
male	73	29.0
Education Status		
Primary Education	51	20.2
High School	86	34.1
University and Above	115	45.6
Marital status		
Married	130	51.6
Single	122	48.4
Having children		
Yes	130	51.6
No	122	48.4
City of residence		
Hatay	41	16.3
Kahramanmaraş	121	48.0
Şanlıurfa	23	9.1
Mardin	10	4.0
Osmaniye	11	4.4
Adana	10	4.0
Gaziantep	30	11.9
Batman	2	.8
Malatya	4	1.6
The house she/he lives in		
Private	89	35.3
Apartment	163	64.7
Living floor		
Ground floor	31	12.3
1	40	15.9
2	51	20.2
3	38	15.1
3 and above	92	36.5
Who was home at the time of the earthquake		

I was alone	16	6.3
My spouse and children	134	53.2
My wife and children	102	40.5
Loss of first degree relative		
Yes	48	19.0
No	204	81.0
Status of receiving training on what to do during an earthquake		
Yes	90	35.7
No	162	64.3
Earthquake preparedness status		
Yes	13	5.2
No	239	94.8

According to Table 1, the average age of the individuals participating in the study was 30.82±11.03, 71% were female, 26% were male, 45.6% had a university degree or higher, 51.6% were married, 51.6% had children, 48% lived in Kahramanmaraş, 64.7% lived in an apartment, 36.5% lived on the 3rd floor or higher, 53.2% were with their spouses and children at the time of the earthquake, 81% did not experience any loss among their first-degree relatives, 64.3% did not receive any training on what to do during an earthquake, and 94.8% did not have any earthquake preparations. The mean, standard deviation, and Cronbach's Alpha values for the Psychological Resilience Scale in the study are given in Table 2.

Table 2 Mean score, standard deviation, and cronbach's alpha value of the psychological resilience scale

Scale	Total Items	Score Intervals	$\bar{X}$	SS	Cronbach Alfa
Total	6	6-30	16,73	6,04	0.88

According to Table 2, the mean score of psychological resilience among participants was 16.73 (SD = 6.04) on a scale ranging from 6 to 30, indicating a moderate level of resilience overall. The internal consistency of the scale was high (Cronbach's Alpha = 0.88), supporting the reliability of the findings.

Table 3 Mean Scores of Participants on The Psychological Resilience Scale According to Their Demographic Characteristics (n= 252)

Demographic variable	Psychological Resilience Level	
Age		
< 25	16.20±5.12	KW: 1,378
25-40	17.43±6.97	p: 0.502
> 40	16.56±5.95	
Gender		
Female	15.87±5.84	Z: -3.514
Male	18.86±6.03	p: 0.000
Education Status		
Primary Education	15.52±6.92	KW: 2.990
High School	16.63±5.58	p: 0.224
University and Above	17.34±5.92	
Marital status		
Married	16.53±6.63	Z: -0.615
Single	16.95±5.35	p: 0.539
Having children		
Yes	16.53±6.63	Z: -0,615
No	16.95±5.35	p: 0.539
The house she/he lives in		
Private	16.64±5.26	Z: -0.213
Apartment	16.79±6.44	p: 0.831
Living floor		
Ground floor	16.70±4.82	
1	17.22±5.43	KW: 0.755
2	16.84±5.41	p: 0.860
3	16.07±7.26	

3 and above	16.75±6.51	
Who was home at the time of the earthquake		
I was alone	17.62±5.17	KW: 0,407 p: 0.816
My spouse and children	16.55±6.54	
My mother and father	16.83±5.50	
Loss of first degree relative		
Yes	15.37±6.28	Z: -1.032
No	17.05±5.95	p: 0.302
Status of receiving training on what to do during an earthquake		
Yes	17.13±5.69	Z: -0.553
No	16.51±6.23	p: 0.581
Earthquake preparedness status		
Yes	23.23±5.81	Z: -3.213
No	16.38±5.86	p: 0.001

According to Table 3, when the relationship between the demographic characteristics of the participants and the psychological resilience scale was evaluated, a statistically significant relationship was found between gender (Z= -3.514, $p< 0.01$) and pre-earthquake preparedness (Z= -3.213, $p< 0.01$), while no statistically significant relationship was found between other variables including age, education level, marital status, having children, the type of residence, the floor of residence, who was in the house at the time of the earthquake, whether they experienced a loss of a first-degree relative, or whether they received training on what to do during an earthquake and the psychological resilience scale score averages ($p>0.05$) (Table 3). In this context, male participants reported higher resilience scores compared to female participants. This may suggest that men in the study sample demonstrated greater emotional and psychological adaptability in the aftermath of the earthquake. Similarly, participants who reported being prepared for an earthquake (e.g., through prior planning or having emergency kits) scored significantly higher on psychological resilience than those who were unprepared. This finding underlines the potential protective role of preparedness in coping with traumatic events like earthquakes.

Additionally, Fisher's Exact Test was used to investigate the association between socio-demographic variables and pre-earthquake preparedness. The Fisher's Exact Test results are presented in Table 4 below.

Table 4 Relationship between participants' pre-earthquake preparedness and demographic characteristics (n= 252)

Variables	Pre-Earthquake Preparedness Status		p
	Yes	No	
Age			
< 25	4 3.9%	98 96.1%	0.717
25-40	6 6.5%	86 93.5%	
> 40	3 5.2%	55 94.8%	
Gender			
Female	6 3.4%	173 96.6%	0.048
Female	7 9.6%	66 90.4%	
Marital status			
Married	3 2.3%	127 97.7%	0.032
Marital status	10 8.2%	112 91.8%	
Having children			
Yes	3 2.3%	127 97.7%	0.032

No	10 8.2%	112 91.8%	
Education Status			
Primary Education	2 3.9%	49 96.1%	0.218
High School	2 2.3%	84 97.7%	
University and Above	9 7.8%	106 92.2%	
The house she/he lives in			
Private	4 4.5%	85 95.5%	0.489
Apartment	9 5.5%	154 94.5%	
Who was home at the time of the earthquake			
I was alone	0 0.0%	16 100.0%	0.030
My spouse and children	3 2.2%	131 97.8%	
My mother and father	10 9.8%	92 90.2%	
Earthquake Trained Status			
Yes	11 12.2%	79 87.8%	0.000
No	2 1.2%	160 98.8%	

Based Table 4, regarding the association between sociodemographic variables and pre-earthquake preparedness among participants in the study, statistically significant relationships were found between pre-earthquake preparedness and gender (p<0.05), marital status (p<0.05), presence of children (p<0.05), who was at home at the time of the earthquake (p<0.05) and earthquake training status (p<0.01).

Qualitative findings of the research

The qualitative component of this research aimed to determine, first, the emotions and physical reactions of individuals who experienced the earthquake at the time of the shaking, and second, to determine where they took shelter after leaving their homes and what they did to protect themselves.

The themes, categories, and subcategories derived from the analysis of participants' reactions during and after the earthquake are presented in Table 5.

Table 5 The themes, categories, and sub-categories obtained in the analysis of the qualitative data of the research

Theme	Category	Sub category	Code number
Participants' Emotions and Actions During the Earthquake	First Reactions	Action	77
		Feeling	54
		Unprotected waiting	48
		Protective action	38
		Emotion-action	16
		Shock-disaster	4
Total:	1	6	237
Protection and sheltering behaviors after leaving home	Mobile Shelter	Private car	140
		Temporary shelter	10
	Unprotected area	Open area environments	59
	A Shelter Different from Your Own Home	Someone else's house	20
		Out-of-home shelter	11
	Out of the Region	Temporary settlement	15
	Intact/ Damaged House	Staying in place	5

Total:	6	7	260

In Table 5, the responses of the participants exposed to the earthquake regarding their reactions and behaviors during and after the shaking were grouped under two themes, six categories, and 13 subcategories. The analyses of the responses of the participants regarding their reactions during the earthquake and after the shaking stopped are presented in Tables 6 and 7.

Table 6 Participants' emotions and actions during the earthquake

Theme: Reactions during tremors			
Category	Sub Category	Codes	f
First Reactions (237 Codes)	Action (77 codes)	We went out, we left the house immediately (P29, P31, P65, P94, P120, P124, P137, P152, P153, P224, P233, P12, P47, P141, P142, P157, P159, P226, P237, P239, P172, P144, P134, P135, P72)	25
		My spouse and I ran to the kids, then we went outside (P4, P160, P8, P227, P9,P12,P72,P83,P87,P130,P164,P168,P172, P248, P251,P155,P164,P235,P247)	19
		I ran to my children, (P33, P68, P71, P76, P79, P104, P148, P185, P196, P198, P203, P206, P213, P229)	14
		We ran away from home with my family (P172, P24, P37, P49, P107, P113, P123, P126, P 152, P190, P214, P219, P232)	13
		I ran to my brother's room (P127, P133)	2
		I was awake, when the shaking stopped. We went out with the kids (P246, P250)	2
		I woke up my family and asked them to take precautions (P220)	1
		When the earthquake subsided, we all went out together (P145)	1
	Feeling (54 codes)	I panicked and screamed (P10, P23, P32, P35, P45, P146, P62, P100, P116, P118, P130, P146, P170, P187, P221, P223, P228, P64)	18
		I was so scared, I thought I was going to die (P25 ,P43, P50, P56, P57, P70, P81, P85, P103, P111, P121, P138, P197, P207, P218, P225, P146)	17
		My brain stopped, I couldn't move, I was in shock (P44, P55, P69, P102, P110, P112, P128, P132, P139, P217)	10
		We stood struck in fear and astonishment, and when the shaking stopped, we got out (P9, P166, P7, P2, P112, P150, P243, P128, P144)	9
	Unprotected Waiting (48 codes)	We took the kids and waited for the tremors to pass. (P1, P5, P16, P17, P161, P165, P176, P241, P161, P245, P177, P249, P251, P177)	14
		I just waited for it to end, for it to stop (P41, P74, P63, P194, P200, P201, P73, P38, P98, P106, P193)	11
		We waited for it to end together as a family (P51, P52, P101, P58, P109, P119, P54, P125, P191, P216)	10
		I knelt on the children and waited for it to be over (P178, P19, P188, P158, P179, P18, P36)	7
		When waiting for the earthquake to end didn't work, they went outside (P90, P210)	2
		I prayed and waited for it to pass (P96, P211)	2
		I was praying, and I fell into prostration and made a racket. I didn't know what to do (P11, P171)	2
	Protective action (38 codes)	I collapsed next to my bed, sat, took refuge, and waited for the triangle of life to pass. (P212, P30, P99, P147, P105, P48, P14, P75, P174, P189, P202, P215, P108, P42)	14
		I did duck, cover, hold on (P46, P3, P27, P151, P88, P117, P163, P183, P222, P208)	10
		Crouch, cover, trap move (P34, P186, P28, P184)	4
		We took shelter next to the couch and armchairs (P195, P66, P15, P175 ,P40)	5
		I collapsed next to my wardrobe and took shelter (P114, P174)	2
		When I felt the tremor, I stopped where I was, and when the tremor stopped I went out (P173, P13).	2
		In front of the door, I kneel, cover up, and hold on (P140)	1
	Emotion-action (16	We were scared, we panicked, we threw ourselves out (P7, P143, P92, P242, P93, P167)	6

	I prayed. When the shaking stopped, I went outside (P9, P22, P169)	3
	I acted cool and rational (P67, P78)	2
	I was thrown around by the tremor, trying to understand what had happened (P61, P86)	2
	I prayed and tried to protect my child (P59).	1
	We started running around in a daze, but later we all gathered in the living room of the house (P122)	1
	First, I was shocked, I thought it was a small tremor, then the building shook so much that I tried to throw myself out (K150)	1
Shock-disaster (4 codes)	I was trapped under the wardrobe (P84)	1
	We were trapped under the rubble, and they pulled us out immediately (P2)	1
	I was left standing on the bed (P149)	1
	I couldn't talk, my brother and I just stood there (P129).	1

Participants' statements regarding their feelings and actions during the earthquake were organized into six subcategories under the category of "Initial reactions." The three most frequently coded subcategories were Action (77 codes), Emotion (54 codes), and Unprotective behavior (48 codes). A significant number of participants also reported Protective actions (38 codes). Emotion-Action (16 codes) represents the category in which participants expressed two reactions simultaneously. The least frequent category was Shock-Catastrophe (4 codes). Sample statements for the subcategories are presented below.

Example sentences from subcategories

Action

In the movement category, participants' responses indicated that when they felt the shaking, they ran to their children and ran out together. *"I woke up and gathered my children together, and then we went out anyway."* (P155: 40 years old, female). "*I ran straight to my children*." (P196: 45 years old, female). Some of the younger participants also said that they immediately went to other family members in the house. "*We went out with my family*." (P144: 19 years old, young girl). "*I took my phone and went to my brother's room immediately to wake him up*." (P133: 21 years old, male) said.

Some participants reported the severity of the shaking, "*We were awake, we went out immediately when we felt the slight shaking. When we got to the last corridor while going out, the shaking got faster, and the stairs collapsed behind us. My cousin was on the stairs when they collapsed.*" (P20: 42 years old, female) he expressed it as. A participant described the moment as follows: "*Without thinking about anyone, what can I do, bro? Is that even a question*?" (P91: 16 years old, young girl). İ One participant who experienced both earthquakes described two different behaviors; *"During the Pazarcık earthquake, I sat up in bed and waited, it never stopped, I called out to my mother. During the Elbistan earthquake, I tried to escape, we hesitated, and we somehow got out of the building.*" (P87: 17 years old, young girl), he explained.

Feeling

Participants who experienced the Kahramanmaraş earthquakes reported that they had unusual emotional reactions to the extraordinary situation they experienced. Most participants stated that they primarly experienced fear, shock, panic, and fear of death at similar rates, as illustrated by the following statements: *"I was scared, I thought I was dead, I felt like I was going to die. After the second earthquake, my perspective on life changed"* (P43: 17 years old, young girl). "*I was shocked, at first I thought it was a small tremor, then when the building shook so much I tried to throw myself out. Because the house was new, there was nothing to protect with furniture*." (P112: 21 years old, young girl). "*I didn't know what to do, I was so shocked, my hands and feet went limp. My brother took me out of the house, because I still couldn't understand what had happened*." (F128: 21 years old, young girl). "*I panicked and was very scared*" (P116: 57 years old, male).

One participant who experienced paralysis due to fear and shock and prayed to die or be saved as soon as possible described the experience as follows: "*My brain stopped, I didn't know what to do. I stood up, he threw me to the ground, I got back up. I said, 'God, either take my life quickly*

or take me out of this house."' (P102: 17 years old, male). "*Fear, anxiety, and running away*" (P92: 19, male). A mother said: "*I was very scared and went to my daughter as soon as possible. When the shaking slowed down a bit, I immediately went out with my family*" (P143: 28-year-old female). Another mother said her husband woke her up and the aftermath; "*At first I didn't hear the noises in the house, I couldn't move. Then I went up the stairs to the terrace. The kids were there. We waited for the concussion to pass*" (P166: 40-year-old female).

One participant who struggled to describe the intense emotions experienced stated, "*It's a very different feeling, it can't be described in words, I just felt scared inside, I ran outside*" (P121: 21 years old, young girl) said.

Protective action

One participant, who remained next to the bed during the shaking and communicated with family members, expressed that moment with the following words: "*I took my own safety by kneeling next to the bed and told my wife to calm down, you should kneel down too. I told the children to calm down, it will pass, don't move. We were talking to each other from where I was*" (P99: 48 years old, female). Another parent described his reactions during the concussion: "*We immediately went to the doorstep with the children. We hugged each other there and waited for the shaking to pass. I learned later that you shouldn't stand in doorways. We were afraid and didn't know*." (P1: 51 years old, female).

One participant who attempted to implement the "triangle of life" protective strategy described the moment as "*We did the kneel-hold-grab move*" (P183: 45 years old, female), while a young man who showed a similar reaction described it as "*I knelt between my desk and my bed*" (P105: 19 years old, young girl). An adult who reflexively showed protective behavior also described her fear as "*I knelt next to the couch and didn't get up until the shaking stopped*" (P195: 38 years old, male).

Waiting without protection

Sample statements from participants who remained unprotected during the shaking indicated that they simply waited for the tremor to stop. One participant who couldn't even think of protection expressed his astonishment: "*I fell on my son on the bed. I couldn't even think of getting down on the edge of the bed. We waited for the tremor to pass*" (P178: 35 years old, female).

One participant described the reactions of a couple who reflexively took the baby and waited as follows: "*My husband immediately took the baby in his arms and we waited for the tremor to pass. I was frozen. My husband was also very scared*" (P245: 34 years old, female).

Another participant who rushed to her daughter's room with the instinct to protect her, but was also waiting unprotected, said, "*I immediately went to my daughter's room at the time of the shaking. I leaned against the bed to protect my daughter. I waited for the shaking to pass. I didn't even think about going down to the edge of the bed because of that fear*" (P179: 33-year-old female).

Emotion-action

Under this heading, participants' traumatic emotions and behaviors are revealed. All of them reported experiencing intense fear and panic. One participant who experienced two major earthquakes described those moments as follows: "*We were scared and ran outside. We came back two hours later in the evening. We were caught in the second earthquake. We ran outside again*" (P167: 33-year-old female), while another participant described her first thought and action during the tremor as: "*I panicked and tried to leave quickly*" (P130: 22-year-old female).

One participant who tried to run away with her children in panic and fear, but could not coordinate, described the moments she experienced as follows: "*I was so scared, I panicked. I immediately thought of taking my children out. I started running inside the house in panic, and finally we left the house*" (P146: 53 years old, female). Similarly, another participant that they

acted unconsciously in the first moments, "*We started running around in a daze, but later we all gathered in the living room of the house."* (P150: 22 years old, young girl).

One participant who prayed desperately and took refuge in God said, "*I was praying, prostrating, I said, 'My God, all power and might is in you.' I didn't know what to do*" (P171: 70 years old, female) expressing her effort to calm herself.

Shock- disaster

The statements of participants gathered under this heading indicate how the disaster was experienced. "*We were trapped under the debris, we were pulled out with help in 3-4 minutes,*" (P2: 27 years old, female), said one participant.

Another participant who was trying to figure out what was happening because they were asleep described the experience by saying: *"I was surprised because it was night, I froze as if my hands and feet were tied, I realized what happened when the wardrobe fell on me*" (P84: 17 years old, male).

One participant described her shock and vulnerability as follows: "*I felt like I lost my ability to speak, I hugged my brother, and we couldn't hide anywhere*" (P129: 22 years old, female). "*I was left lying on the bed; if the house had collapsed they wouldn't have even bothered to search, we were on the middle floo*r" (P149: 27 years old, female), said another participant who remained in bed and expressed despair even though her house was not destroyed.

Table 7 Shelter and protection behaviors of earthquake survivors after going out

Theme: Protection and sheltering behaviors after leaving home			
Category	Sub category	Codes	f
Mobile Shelter (150 codes)	Private car	We stayed in the car (P1-6, P11, P14, P19-20, P24, P26-28, P31, P34, P37, P39-41, P45-46, P51, P53-K55, P58, P63, P66-70 ,P74, P78-79, P82-88, P92, P94, P96-97, P99-100, P102, P105-106, P108-111, P114, P116, P118, K120-121 P124, P129-131, P134-137, P140-142, P144, P146, P148-149, P154-159, P161-162, P164-166, P171, P174, P178-180, P182-184, P186, P191, P194-197, P201-206, P208, P211-212,P215-218, P221,P223-224, P226,P228-230, P234-239, P241, P243, P245-249, P3, P21, P181, P73, P200, P115, P220)	140
	Temporar shelter	We set up a tent, we stayed in the tent (P32, P52, P62, P89, P93, P123, P209, P242, P250, P51)	10
Unprotected area (59 codes)	Open area environments (59 codes)	We were left on the street. (P22, P23, P36, P167, P188, P9, P13, P61, P127, P132, P133, P138, P169, P173, P225)	15
		We waited in the empty garden near the house. (P3, P19, P20, P8, P42, P168, P178, P179, P180, P103, P56, P57)	12
		We were left out (P10, P60, P126, P170, P193, P7, P12, P251, P232, P152)	10
		Vacant land, wasteland (P25, P33, P90, P185, P210, P44, P80, P113, P172, P219)	10
		Safe alan and gathering place (P30, P76, P203, P64, P112, P117, P222)	7
		In the park (K29, P43, P59, P139, P192)	5
A shelter different from our own home (30 codes)	Someone else's house (20 codes)	To the houses of relatives and friends (P125, P128, P198, P150, P231, P71, P244, P40)	9
		To a single-storey house (P176, P16, P17, P69, P50, P177)	6
		Mom, to my dad's house (P175, P213, P104, P15, P101)	5
	Out-of-home shelter codes)	My wife's workplace (P143, P160, P227, P240)	4
		Woodshed (P107, P214)	2
		Container (P49, P190)	2
		Dorm (P48, P189)	2

		School (P91)	1
Out of the region	Temporary settlement (15 codes)	To the village house (P75, P95, P65, P35, P187, P202, 119, P151, P153, P233, P47, P147)	12
		To another city (P77, P249, P122)	3
Intact/ Damaged house	Staying in place (5 codes)	I didn't leave the house, I stayed at home (P38, P81, P98, P207, P252)	5

The shelter and protection behaviors of participants after leaving home were organized under one theme, five categories, and seven subcategories. The three most frequently coded categories were Mobile shelter (150 codes), Unprotected area (59 codes), and Shelter different from participant's own home (31 codes). The remaining two categories were Out of Region (15 codes) and Intact/Damaged house (5 codes).

The Mobile shelter category included the subcategories of Private vehicle (140 codes) and Temporary shelter (10 codes). The Unprotected area category included the subcategory of Open area environments (59 codes), and the Shelter different from own home category included the subcategories of Someone else's home (20 codes) and Out-of-home space (11 codes). The remaining categories included Out of Region with the subcategory of Temporary settlement (14 codes), and Intact/Damaged house with the subcategory of Staying in Place (5 codes).

In terms of frequency, the three most common subcategories were Private vehicle (140 codes), Open area environments (59 codes), and Someone else's home (20 codes). The subcategory with the fewest codes was Staying in Place (5 codes).

Example sentences from subcategories

In this section, statements from participants about their protection and shelter behaviors following the earthquakes are presented. These behaviors occurred during ongoing aftershocks as well as adverse weather conditions including cold, rain, and snowfall. Participants primarily sought refuge with family members, relatives, and acquaintances, and their experiences are presented according to subcategories.

Private car

One participant who spent the night outside their home described the experience: "*When the shaking passed, we immediately took the car keys and left. We spent that night in the car*." (P161: 51 years old, female).

Another participant described how they had to change their shelter one after the other, despite going out: "*We ran away from home. We went to an empty lot and held on to the cars to avoid falling. There was a small greenhouse in the garden, we took shelter to avoid getting wet from the rain. When the houses next door seemed like they might collapse towards the greenhouse, we left. We have a minibus-style car, we broke the window and took shelter in it*," he said. (P180: 42-year-old female). One participant said they had broken into someone else's vehicle to take shelter, saying, "*We broke the window of the van and took shelter inside*." (P181: 45 years old, male).

Another participant described having to wait in the rain as the aftershocks continued: "*We stayed in the empty lot across from the apartment building in the rain for a while. When the shaking subsided, we went home, took the keys, and spent the night in the car*." (P179: 33 years old, female). Another participant who experienced a similar situation said: "*At first, we waited for the aftershocks to completely stop in front of the apartment. When we calmed down a bit, we went back to the house and got the key. We stayed in the car,*" he said. (P178: 35 years old, male).

One participant who went to another district but was caught in the second major earthquake there said: "*We got in the cars and went to the neighboring district where the apartments were,*

unfortunately, we were caught there at noon. Again, we took shelter in our cars for a long time." (P212:48 years old, female).

Temporary shelter

Participants explained that the aftershocks were very severe and lasted for a long time, and the weather was very cold and rainy, causing people to look for any place to take shelter after evacuating their homes: "*There was a straw tent, we stayed there for a couple of hours. Then we stayed in the prefabricated school*." (P242:33 years old, female). "*We set up tents, then we went to Sincik and took shelter in the gym*." (P250:37 years old, female). *"We set up tents in our garden and slept in the cars." (P51:19 years old, female).*

Open area environments

Participants who experienced the earthquakes stated that they waited in the rain with their families or relatives and spent the night outside with the following sentences: "*We stayed outside in a safe, empty area*." (P12: 23 years old, male). "We stayed on the street." (P13:50 years old, female). "*We waited outside, in the rain*." (P251: 41 years old, female). "*We spent the night outside*." (P126: 20 years old, male).

After staying outside for a while, one participant described the place where they took refuge as follows: "*At first there was no place to take shelter, we were on the street. Then we stayed at school for a few days*." (P132: 22 years old, female). Another participant experiencing a similar situation said, *"We stayed on the street, then we went to the house in the village because it was a single floor." (P133:21 years old, male)* he told.

One participant who had moved more than once seeking shelter described her experience: "*Since we were in the village, we first ran to the garden and then to the street. There was a straw tent, we stayed in the tent for an hour or two. Then we stayed in the prefabricated school for 4-5 days. Then we came here*." (P7: 33 years old, female) she told his experiences with his words.

Someone else's house

Participants who took refuge in the homes of acquaintances or relatives who had single-story and solid houses sought safety. One participant stated: "*We went to an acquaintance who had a one-story house. Nothing will happen to those houses*." (P17:35 years old, male) while another participant said: "*I went to my relative who had a house and then to the hospital to work*." (P198:43 years old, female) said. Another participant described their refuge:"To the car and to my aunts' house, who has one house." (P40:17 years old, female) he explained the place where he took refuge.

Out-of-home shelter

Participants who could not find a house to shelter in sought alternative locations: "We took shelter at my husband's workplace." (P143:34 years old, female), "Dormitory" (P48:24 years old, female).

To the village house

Participants who took refuge in village houses for protection and safety described their destinations: "Village house then out of town." (P95: 20 years old, female), "*Village*" (P151:18 years old, male), "To our garden house" (P147: 17 years old, female), "*To the village house*" (P202: 33 years old, female).

To another city

One participant who said that they changed cities when they could not find a shelter explained: "*We stayed at my cousin's garden house for the first day. Then the crowd there made us nervous because there were 50 people in the house. We decided to come to Burdur, to my student house. We spent 10 days there, then we returned home when we learned that our house was only slightly*

damaged. Despite everything, the happiness of being alive and not losing any of my relatives gave me the strength to recover more quickly." (P122:20 years old, female) she explained. Another participant described her relocation efforts as: "*I changed the province*." (P77:20 years old, female).

Discussion

Earthquakes exert profound physical and psychological effects on individuals. Understanding their lived experiences during and after such traumatic events is vital for developing effective interventions that facilitate recovery. This study explores the responses of individuals exposed to earthquakes and examines the relationship between traumatic experiences, psychological resilience, and disaster preparedness.

The average age of participants was 30.82 ± 11.03 years, and 71% were female. One key finding was that psychological resilience levels were significantly lower among female participants compared to males. This aligns with previous studies reporting that men tend to exhibit higher psychological resilience (Canlı & Yılmaz, 2024; Enarson et al., 2018). International literature further supports this observation, indicating that women exposed to disasters such as earthquakes often report higher levels of depression and anxiety than men (Gao et al., 2019; Erdoğan & Aksoy, 2020). Köse et al. (2023) similarly found higher resilience levels among male teachers. However, some research suggests no significant gender differences in resilience (Karaırmak & Güloğlu, 2014), highlighting the potential influence of cultural, social, or contextual factors. One possible explanation for the lower resilience among women may be related to gender-based roles and expectations, increased caregiving responsibilities, and disparities in access to coping resources. Sociocultural pressures and the burden of emotional labor may also contribute to the differences observed.

According to the findings, participants demonstrated moderate levels of psychological resilience. This may reflect both the impact of the earthquake and inadequate preparedness and support systems. According to Lazarus & Folkman's (1984) coping theory, resilience depends on how individuals handle stress and the support resources they have available. The findings suggest that while some individuals managed the situation emotionally, many struggled due to limited training and support. Research by Doğulu et al. (2016) demonstrates that despite pre-disaster vulnerabilities, the perception of available aid and support from community members and the mobilization of resources can improve resilience after disasters.

A concerning finding was that 94.8% of participants had no prior earthquake preparedness, and 64.3% had not received any training. Nevertheless, participants who had prepared in advance demonstrated significantly higher psychological resilience. Preparedness enhances an individual's ability to act decisively during disasters and cope more effectively with trauma (Buldu, 2024; Ozkan &Toker Gökce, 2024).

Training in earthquake preparedness emerged as another key factor. Those who received training exhibited significantly better preparation. Similar studies confirm that education directly influences preparedness (Erkin et al., 2023; Martono et al., 2019; Ozkan, 2024) and enhances resilience by improving individuals' confidence and problem-solving capacity during crises (Campbell-Sills et al., 2006; Paton & McClure, 2017).

The qualitative findings reveal that most participants engaged in immediate action and evacuated during the earthquake. Participants reported that parents initially ran to their children before evacuating together, while others immediately fled with their families. Similarly, Alexander (1990) found that fleeing behavior during an earthquake is a common first reaction to tremors, often resulting in injuries among affected populations. The literature (Angell, 1915) indicates that in the face of sudden life-threatening events such as earthquakes, the human brain instantly activates the fight or flight response. Research by Bernardini, Lovreglio &

Quagliarini (2019) identified safe emergency behavior strategies, noting that individuals should avoid running to open areas and instead implement the drop-cover-hold technique while waiting for shaking to subside.

The findings showed that participants engaged in unprotective behaviors during the earthquake. Participants reported various responses: some gathered their children and waited for the shaking to subside, others simply waited for it to end, and some waited together as families. A smaller number reported shielding their children while waiting, and a few indicated that when the earthquake continued, they ran outside, prayed, and waited for it to pass. These findings are supported by similar research (Bödvarsdottir & Elklit, 2004; Kerkez & Şanlı, 2024) and the broader literature (Sönmez, 2022; Karabulut & Bekler, 2019; Erdoğan, 2023). Mass behavioral responses, such as fear of being indoors, have also been observed in previous earthquakes (Alexander, 1990). Sakarya & Güneş (2013) suggest that psychological resilience may protect against post-traumatic stress disorder. Vulnerable groups, including women, children, and the elderly, often exhibit heightened reactions due to sociocultural and demographic factors (Goodman, 2016; Varol & Kırıkkaya, 2017). Bödvarsdottir & Elklit (2004) reported significant psychological effects in 92% of participants (n=150) who experienced an earthquake. Research by Sönmez (2022) emphasizes that the destructive and overwhelming effects of earthquakes primarily cause reactions such as fear, helplessness, and horror among survivors, while Karabulut & Bekler (2019) note that especially adolescents are significantly affected by natural disasters. Additionally, similar research (Kerkez & Şanlı, 2024) and literature (Erdoğan, 2023) have found that spirituality has a positive effect on communities' ability to make sense of natural disasters and resilience by reducing depression, anxiety, and stress.

The emotional and behavioral reactions during the tremors varied- some ran outside in fear, while others remained calm and took rational action. Goltz et al. (2020) showed that the intensity of fear and ground shaking influences behavioral responses. Alexander (1990; 1995) found that extreme fear commonly leads to immediate escape attempts, often overriding social bonds. Participants who had lower resilience also reported symptoms consistent with post-traumatic stress, a finding supported by Sakarya & Güneş (2013).

A small number of participants described being physically impacted- trapped under debris or immobilized by shock. These severe experiences are linked with increased psychological and physical trauma, as also demonstrated by Tang et al. (2017), who found higher rates of crush injuries in developing regions due to inadequate protective behaviors.

Post-earthquake sheltering patterns revealed that most participants stayed in vehicles due to winter conditions, while others used tents. Literature underscores the importance of meeting basic needs such as shelter, especially in cold climates (Sönmez, 2022; Walsh, 2020). Some participants sheltered in open spaces, gardens, or parks, which aligns with the behavioral patterns observed in prior evacuation studies (Kobes et al., 2010). The disaster's social and economic impacts were also evident, echoing findings by Bödvarsdottir & Elklit (2004).

Participants also sought shelter in the homes of relatives or in single-story buildings, reflecting efforts to seek safety and social support. Some even reported staying in containers, dormitories, or workplaces. These experiences highlight the need for flexible post-disaster accommodation and community-based support systems (Karaırmak & Güloğlu, 2014; Spurrell & McFarlane, 1993).

The findings show that participants stayed in unprotected outdoor environments during winter conditions. Some reported staying on the street, others waited in empty yards near their homes, while still others remained outside or in open areas. Fewer reported staying in safe areas and gathering places, and the fewest reported staying in parks. A supporting study (Kobes et al., 2010) found that when people move out, they retreat to safe areas, as in other types of evacuations. Bödvarsdottir & Elklit (2004) found that 75% of the victims reported a very high social impact of the earthquake, and 50% reported a high economic impact. Studies (Duruel &

Avşar Arık, 2023; Hitoshi, 1997) have determined that middle-aged and elderly people report higher levels of symptoms after an earthquake. In addition, it has been emphasized that people of all ages react to extraordinary situations if they were normal ones.

The study findings show that after going out, the participants took shelter other houses. Some stated that they stayed in the houses of their relatives and friends, fewer in a single-story house, and a few in the houses of their parents. In a similar study (Bödvarsdottir & Elklit, 2004), it was found that 92% of those who experienced an earthquake felt helpless; 75% left their homes for more than 48 hours, and 83% lived in seriously damaged houses.

Our research findings show that three participants stayed in places outside their homes to protect themselves from the cold weather and snow when they were outside. A few participants stayed at their workplaces, and even fewer stayed in their woodsheds, containers, or dormitories. One participant also took shelter at school. Since earthquake survivors are often caught unprepared, they want to know what will happen after the initial shock. At this point, social support is important for recovery (Sönmez, 2022). The coping process is central to understanding the relationship between stressful life events and psychiatric disorders (Spurrell & McFarlane, 1993).

According to the findings, the participants had to leave their region after the earthquake. Some stated that they went to their village homes and other cities. In a similar study (Sakarya & Gunes, 2013), it was determined that all parents with children (n=18) sent their children to other cities due to the earthquake.

Finally, some participants had to relocate entirely-either to their villages or to other cities. Displacement can carry profound psychological consequences. As emphasized in the literature, social support and proactive coping are essential for resilience and long-term recovery (Sönmez, 2022).

The findings of this study can be better explained by certain psychological and social theories to understand the reactions of individuals during and after disasters. The coping theory of Lazarus and Folkman (1984) explains how individuals evaluate the stressful situations they experience and which coping methods they choose. The fact that the participants exhibited both emotion-oriented coping (e.g., fear, crying) and problem-oriented coping (e.g., evacuation, shelter-seeking) strategies shows that this dual process works effectively in the context of the disasters.

In addition, the differences in resilience between male and female participants can be evaluated within the framework of social roles and identity-based processes. Considering the theory of social identity and the extended social identity model of social resilience (ESIM/SIMCR) (Drury et al., 2009), it can be said that individuals' feelings of belonging to groups such as family, community, and survivors shape their behavior in the event of a disaster. The fact that female participants primarily considered the safety of children and others can be explained by socially internalized caregiving roles and group norms.

The examples of social solidarity and collective action observed in the qualitative data show that individuals develop higher levels of resilience by supporting each other within the group, not just at the personal level. These findings are consistent with the predictions of the SIMCR model, which emphasizes that a sense of shared identity increases solidarity in disasters. When evaluated considering theoretical frameworks, the findings of the study provide a more holistic and in-depth understanding of the psychological and social processes of individuals in the context of disasters.

Limitations

There are some limitations to this study. Data were collected from those who participated in the study voluntarily and had access to the internet. Therefore, the sample size of the study is not large enough to allow for generalizations. The content of the study is limited to the experiences of people who experienced the earthquake disaster, as reported by the participants themselves. Nevertheless, it was observed that the participants' responses were sincere.

Conclusions and recommendations

The purpose of this study was to determine individuals' reactions during and after an earthquake and to examine how their levels of psychological resilience vary depending on demographic characteristics, education, and personal earthquake preparedness. The qualitative findings suggest that individuals exhibit traumatic reactions during and after the earthquake, experiencing exceptionally intense emotions, expressing these emotions in a traumatic manner, and engaging in desperate and panicked sheltering and protection behaviors. A distinctive aspect of this research is that the participants experienced three very large earthquakes that triggered each other on the same day. Another factor that makes the situation extraordinary is that bitter cold and rainy weather persisted during the winter season, accompanied by continuous tremors and their aftermath. The victims experienced incessant tremors, snowfall, and freezing cold weather. Although the tremors occurred in two separate epicenters, they were geographically close, causing two major disasters to be experienced simultaneously. The most tragic situation was that because the earthquake affected a very large region, no help reached the victims for three days. The intensity of earthquakes can have devastating consequences, but structures designed on solid and appropriate ground can minimize this destructiveness. The tragic aspect of the Kahramanmaraş earthquakes was that the structures were not earthquake-resistant and were built on unsuitable ground.

It is evident from the responses given by the participants to the open-ended questions that they were unprepared, did not know what to do, acted reactively with immediate reactions, and were unplanned during and after the shaking. Integrating quantitative and qualitative findings suggests that individuals with prior earthquake preparedness (especially men) exhibit higher psychological resilience. However, the lack of widespread education and preparation among the majority contributes to panic-induced, unprotected behaviors during the earthquake and inadequate sheltering practices afterward. The results of this study are consistent with existing literature, suggesting that psychological resilience varies depending on factors such as demographic characteristics, past experiences with traumatic events, and other variables.

Considering that developing skills to remain calm and safe in the event of an earthquake can help minimize disaster-related damage, training programs that support individuals in improving their emotional management during extraordinary situations should be provided to families and individuals through governmental and non-governmental organizations.

Given that this region is in an earthquake zone that causes significant losses with each occurrence, the implementation of settlement and construction plans based on geographical and seismological data will be crucial for minimizing the social impacts of future disasters.

Given the association between pre-earthquake preparedness and psychological resilience, disaster education programs should be strengthened-particularly those targeting women and other vulnerable groups.

School-based and community-centered disaster preparedness training programs should include practical components that enhance emotional resilience, such as simulations and safe behavior strategies.

Since family and close social support emerged as protective factors, disaster education should incorporate activities that promote intra-family cooperation and emotional support.

Future research should examine long-term changes in psychological resilience after earthquakes and assess the impact of educational interventions on trauma-related outcomes and coping mechanisms.

Author contribution rates

The contributions to the study were as follows: First Author: 55%, Second Author: 45%.

Conflict of interest statement

Our article titled “Earthquake Victims' Experiences During the Earthquake and Level of Psychological Resilience” has no financial conflict of interest with any institution, organization or person. There is also no conflict of interest between the authors.

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