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6 February 2023 Türkiye earthquakes: Trauma response and recovery

6 Şubat 2023 Türkiye depremleri: Travma tepkisi ve iyileşme

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Abstract: The present study examines the experiences of individuals affected by the 2023 earthquake in Türkiye, covering the two years following the disaster. The present study employed narrative inquiry, a qualitative research design. In-depth interviews were conducted with 16 participants (*M*=32.62, *SD*=10.9) whose ages ranged from 22 to 68 and who resided in the designated earthquake zone during the 6 February 2023 Kahramanmaraş earthquake. The narrative analysis method was utilised in the subsequent analysis of the interviews. The findings demonstrate that, in the aftermath of the earthquake, individuals experienced a multitude of non-normative life events in succession. In this regard, the earthquake survivors experienced hyperarousal and re-experiencing, from the acute phase of the disaster until two years later. The most frequently employed coping mechanism in the acute phase following the earthquake was 'solidarity'. The relocation of many individuals whose residences were destroyed to containers or areas outside the disaster zone has affected their sense of community belonging. While some participants continued to exhibit symptoms of post-traumatic stress, they also demonstrated post-traumatic growth. The findings were discussed within the framework of the relevant literature, and recommendations were made for researchers, school psychological counselors, and policymakers.

Keywords: *Disaster mental health, Trauma, Coping, Solidarity, Narrative inquiry, Post-traumatic growth*

Özet: Bu çalışma, 2023 Türkiye depreminden etkilenen bireylerin, afetin ardından geçen iki yıl boyunca yaşadıkları deneyimleri incelemektedir. Çalışmada, nitel bir araştırma tasarımı olan anlatı araştırması yöntemi kullanılmıştır. 6 Şubat 2023 Kahramanmaraş depremi sırasında deprem bölgesinde yaşayan, yaşları 22 ile 68 arasında değişen 16 katılımcı (*Ort*=32,62, *SS*=10,9) ile derinlemesine görüşmeler yapılmıştır. Görüşmelerin analizinde anlatı analizi yöntemi kullanılmıştır. Bulgular, depremin ardından bireylerin art arda çok sayıda normal olmayanyaşam olayı deneyimlediğini ve bu bağlamda, depremzedelerin, afetin akut aşamasından iki yıl sonrasına kadar aşırı uyarılma ve yeniden deneyimleme belirtileri gösterdiğini saptamıştır. Depremin akut aşamasında en sık kullanılan başa çıkma mekanizması "dayanışma" olmuştur. Evleri yıkılan birçok bireyin konteynerlere veya afet bölgesi dışındaki alanlara taşınması, topluluk aidiyet duygularını etkilemiştir. Bazı katılımcılar travma sonrası stres belirtileri göstermeye devam ederken, aynı zamanda travma sonrası büyüme de sergilemişlerdir. Bulgular, ilgili literatür çerçevesinde tartışılmış ve araştırmacılar, okul psikolojik danışmanları ve politika yapıcılar için öneriler sunulmuştur.

Anahtar Kelimeler: *Afet ruh sağlığı, Travma, Başa çıkma, Dayanışma, Anlatı araştırması, Travma sonrası büyüme*

1. Introduction

After natural disasters, individuals lose their sense of living in a safe world, and their hopes for the future fade (Liberto et al., 2020). They face severe external stressors related to loss, such as the death of loved ones, job loss, losing their homes, and losing their social environment (Steinbrecher et al., 2020). Due to these factors, increases in mental health issues like depression, anxiety, and post-traumatic stress disorder (Nolen-Hoeksema & Morrow, 1991; North et al., 2004) have been observed. Given that natural disasters threaten community mental health, developing strategies for adaptation and recovery after a disaster has become crucial to promoting community resilience. The present study, therefore, examines people's psychological responses to disasters and the social recovery processes that ensue, based on the earthquake in Türkiye in 2023.

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1.1. Post-Disaster Mental Health

Stressors have been shown to disrupt balance and affect one's well-being (Grant et al., 2013; Klainin-Yobas et al., 2021). For instance, natural disasters are frequently considered to be traumatic experiences, which often have a detrimental effect on psychological health (Benevolenza & DeRigne, 2019). In the DSM-5, stress and trauma-related disorders are categorised under the heading 'Trauma and Stress-Related Disorders' and are distinguished as acute stress disorder (ASD) and post-traumatic stress disorder (PTSD). The initial psychological reaction to an unexpected stressor that exceeds an individual's coping capacity is ASD. The time during which these symptoms typically persist is the first month following the stressful event. PTSD is characterised by the persistence of symptoms beyond the initial 4-week period (American Psychiatric Association, 2013). A substantial number of the symptoms of these two stress and trauma-related disorders in adults are similar (Center for Behavioral Health Statistics and Quality, 2016; Substance Abuse and Mental Health Services Administration, 2014): "intrusion symptoms (intrusive distressing memories or dreams, flashbacks, marked physiological reactions), negative mood (inability to experience positive emotions such as happiness, satisfaction, or loving feelings), dissociative symptoms (an altered sense of the reality of one's surroundings or oneself or inability to remember an important aspect of the traumatic event), avodiance (efforts to avoid distressing thoughts, feelings about or external stressors closely associated with the traumatic event), arousal (hyperarousal, sleep disturbance, concentration problems, angry outbursts)".

ASD and PTSD can be considered individual outcomes of stressful or traumatic events. However, their prevalence after natural disasters (e.g., 23%, Basoglu et al., 2004; 26–29%, Norris et al., 1999) presents a serious public health concern. These disorders are linked to various negative consequences, including suicide (Kessler et al., 2008), divorce (Foran et al., 2013), substance use (Brown et al., 1999), and gambling addiction (Grubbs & Chapman, 2019). Additionally, impaired functioning can lead to unemployment, affecting individuals personally and socially, creating risks for workplaces that lose skilled labour and the national economy (Galea et al., 2008). Studies also highlight the psychological effects of disasters, which can persist long after physical reconstruction, hindering individuals' ability to rebuild their lives (Salzer & Bickman, 2013; Smid et al., 2012). Therefore, addressing mental health in disaster settings might require a comprehensive approach, combining individual therapy and policy measures within the broader scope of disaster management.

1.2. Post-Disaster Mental Health: Society

It should be noted that not all individuals exposed to a natural disaster will subsequently develop PTSD. Individual and background factors have been demonstrated to play a significant role in determining an individual's response to trauma (Neria et al., 2008). For instance, a coping style grounded in meaning, such as the belief that one's experience of a natural disaster stems from personal strength, has the potential to engender positive emotions and effects. These, in turn, can act as a protective buffer against negative stress responses (Palgi et al., 2020). Furthermore, the literature indicates that among the determinants of PTSD are relational and contextual factors, such as the strength of a person's social support system and the way the community responds to traumatic events (Neria et al., 2008; Parnell, 2010). Their respective cultural contexts influence individuals' meanings attributed to natural disasters. In certain cultural contexts, natural disasters are regarded as a divine trial, fostering an accepting disposition. Conversely, these events may be interpreted in other cultural settings through socio-political or environmental frameworks (Rahiem et al., 2021). It is therefore vital to understand culturally unique coping strategies and adjust disaster management strategies accordingly. For instance, in the aftermath of the 2004 tsunami in Aceh, Indonesia, numerous international non-governmental

organisations (NGOs) endeavoured to provide psychosocial support in the affected regions. Nevertheless, the efficacy of these efforts was constrained by a lack of consideration for the local cultural frameworks in place (Pelupessy et al., 2015).

Initiatives focusing on mental health after disasters should have a comprehensive understanding that includes the systemic dimensions, such as the culture of the recovery process. This phenomenon can be attributed to the fact that individuals are not only exposed to stressors during traumatic experiences, but may also be exposed to multiple traumatic events and secondary stressors (Mandavia & Bonanno, 2019; Williams et al., 2021). While the geological factors that precipitate natural disasters remain beyond human control, effective disaster management can be significantly influenced by human interventions, including the implementation of psychological first aid, the provision of psychoeducation regarding traumatic symptoms that may affect individuals or those under their care (such as children and the elderly), ensuring access to accurate information, mitigating uncertainties for affected populations, and conducting long-term psychological monitoring to foster resilience and recovery.In this context, approaches addressing mental health issues should be based on a comprehensive framework that ensures psychological recovery is aligned with social recovery processes.

Some systemic structures can negatively impact or play a crucial role in the social recovery process after natural disasters by creating a structured environment that promotes stability, normalcy, and emotional support for affected communities. For example, Seyle et al. (2013) found that after the Indonesia earthquake, there was a significant relationship between teachers' depression and self-reported negative classroom behavior, as well as between teachers' posttraumatic distress and their general beliefs about teacher efficacy. They also highlighted the potential role of teachers in helping students cope with chronic stress within their communities. Additionally, educators trained in trauma-informed practices can identify signs of distress in students, provide psychological first aid, and facilitate peer support activities that enhance resilience and help mitigate uncertainties and secondary stressors. For instance, Fletcher and Nicholas (2015) reported that during the New Zealand Christchurch earthquakes, in a school, leadership teams adapted the types of digital technologies used to communicate with the school community in response to rapidly changing circumstances. The principals demonstrated moral courage and actively worked to improve learning conditions for students. They supported students and teachers displaying symptoms of post-traumatic effects (Fletcher & Nicholas, 2015). By integrating culturally sensitive mental health resources and collaborating with community organizations such as NGOs, health services, and schools, it can bridge the gap between individual recovery and broader social rebuilding, ensuring a comprehensive approach to healing.

1.3. Present Study

On 6 February 2023 at 04:17 am, two earthquakes measuring 7.8 Mw and 7.6 Mw respectively struck Türkiye, centred in the province of Kahramanmaraş. In the 11 months following 6 February 2023, 52 aftershocks with magnitudes ranging from 5.0 to 6.5 Mw occurred (Regional Earthquake and Tsunami Monitoring Centre, 2024). In the aftermath of the earthquake, the region witnessed significant destruction of buildings, with 662.891 houses being destroyed or severely or moderately damaged (Presidency of Strategy and Budget, 2025). As of January 2024, 675,291 individuals were found to be residing within 211,000 containers that had been erected in 11 provinces (Presidency of Strategy and Budget, 2024).

Interventions following natural disasters have historically concentrated on the provision of emergency aid, such as food and shelter, while the mental health requirements of affected populations have received comparatively less attention (Smith et al., 2022). This situation underscores the necessity for empirical research that addresses the experiences of disaster victims and contributes to the development of more comprehensive, culturally sensitive disaster management strategies (Rowe & Nadkarni, 2024). For instance, following the 6 February 2023 earthquake, which affected a large number of people and had multiple stress factors, Gökkaya et al. (2025) found that individuals had high PTSD levels. The objective of this study is to explore trauma-related experiences and coping mechanisms through narrative inquiry, with a specific focus on the context of Turkish culture during the two years following a natural disaster. The following research questions have been identified in this context:

a) How do individuals respond during the acute phase and over the two years following an earthquake?

b) What coping mechanisms for trauma are employed at the individual and community levels during the acute phase and over the two years following an earthquake?

2. Methodology

Qualitative approaches have been shown to facilitate understanding of individual and community recovery, thanks to their flexibility (Holloway & Todres, 2003; Spector-Mercel & Knaifer, 2018). For this reason, narrative inquiry was utilised in this study to explore the experiences of adults following the earthquake. Narrative inquiry is a research design that explores experiences and the plot and reinterpreted aspects of these experiences, linking the questions of ‘what' and ‘why’ to ‘how’ (Spector-Mercel & Knaifer, 2018). Furthermore, it facilitates a retrospective examination of human experiences, thereby contributing to a more profound comprehension of how individuals structure their narratives and the personal and collective facilitators and barriers that influence this process (Kargillis et al., 2014).

2.1. Participants

The inclusion criteria for participation in the study were determined as follows: a) being over 18 years of age and b) having experienced the 2023 Türkiye earthquakes in the eleven provinces declared disaster areas. Following preliminary interviews with participants who met these criteria, the remaining participants who met the same criteria were selected using snowball sampling (Noy, 2008). The present study was conducted with 16 participants aged between 22 and 68 (M=32.62, SD=10.9). The participants’ educational levels ranged from primary school graduates to doctoral degree holders. At least one participant from each province designated as an earthquake zone was reached. The target population comprised individuals from diverse occupational backgrounds, including textile workers, housewives, academics, and students. Most participants are from educational settings, including teachers, academics, school counselors, and students. Furthermore, 43.75% of participants relocated to different locations after the earthquake, away from the city where they resided during the earthquake.

Table 1

Participants’ Demographics

Pseudonym	Gender	Age	Occupation	Education Level
Aynisefa	Woman	28	English Teacher	Master’s
Alidagarcigi	Woman	28	Service Employee	Bachelor’s
Berfan	Man	26	School Psychological Counselor	Master’s

Mercan	Woman	33	Research Assistant	Doctorate
Kaplanotu	Woman	23	Public Relations	Bachelor's
Ladayi	Man	30	Textile Worker	Bachelor's
Salba	Woman	40	Housewife	High School
Kavgalaz	Man	39	Research Assistant	Doctorate
Kirpiotu	Woman	24	Student	Master's
Borcak	Woman	38	Textile Teacher	High School
Milleyha	Man	68	Retired	Primary School
Ayvadana	Woman	22	Student	Bachelor's
Guddeme	Woman	31	Housewife	Bachelor's
Zarcicegi	Woman	27	School Psychological Counselor	Bachelor's
Sigirkuyrugu	Man	33	Dentist	Master's
Zarcicegi	Woman	32	School Psychological Counselor	Bachelor's

Note. *In Table 1, the participants were identified by pseudonyms to protect the confidentiality of the subjects involved*.

2.2. Procedure

The participants were requested to complete an application form containing informed consent for the research. Following this, face-to-face and online interviews were organised with those participants who had consented to take part. Participants were informed that the use of audio or video recordings would be limited to transcription purposes and that these recordings would be destroyed following the conclusion of the research. Due to the sensitive nature of the subject and the fact that a person-centred approach is best placed to (re)build social capital and psychological resilience in relation to disaster, in-depth individual interviews were preferred (Kargillis et al., 2014). The first researcher conducted all interviews, and the goal was to lower the risk of secondary traumatization by supervising the second researcher during the interviews conducted by the first researcher. Additionally, conducting interviews about traumatic experiences carries risks such as re-traumatisation of participants, indirect traumatisation of the researcher, or survivor's guilt (Alessi & Kahn, 2023). Consequently, a trauma-sensitive approach was adopted during the data collection phase. Prior to the commencement of the interview, the participants were informed that they were at liberty to discontinue responding to the questions should they feel uncomfortable, and that they were at liberty to discuss their feelings at that particular moment. Furthermore, they were informed that they could terminate the interview if they found it difficult to continue. The study commenced with an enquiry regarding the earthquake and the subsequent events, and participants were prompted with specific questions to elucidate their statements. In order to comprehend the narratives in their entirety, follow-up questions such as 'What happened before/after/then...?' (Bauer, 1996, p. 7) were employed to facilitate the continuation of the interview. In the subsequent questions, those pertaining to 'coping' were employed to imbue participants with a sense of empowerment, consistent with the overarching objective of the research. Following the interview, participants were invited to provide a subjective evaluation of their experience and were furnished with contact information for institutions that offer complimentary psychological support for trauma. On average, interviews lasted for an hour.

2.3. Data Analysis

Coding was performed using the MAXQDA 2020 qualitative data analysis software. The data were analysed using narrative analysis methods (Riessman, 2008). In the narrative analysis, two researchers independently analysed 37.5% (n = 6) of the interview transcripts and created codes from the data using open coding techniques. The coders then came together, combined similar codes, and developed a standard coding framework. The remaining data set was recoded by researchers using this standard framework. The narrative analysis method aims to preserve the holistic

structure of participants' stories (Clandinin & Connelly, 2012). The analysis was designed to systematically address the reflections of trauma responses and coping mechanisms in the narratives (Spector-Mersel, 2018).

First, each participant's story was structured chronologically (during and after the earthquake) and thematically (trauma responses, individual/social coping) through transcripts. In this step, the temporal and contextual elements of the stories were classified. In the second step, recurring motifs in the narratives (e.g., loss of trust, solidarity) and their relationship to the cultural/systemic context were coded. Coding was systematically applied to identify traces of trauma responses and coping mechanisms in the narratives. Finally, the stories were analysed in terms of how participants organised their trauma responses and coping mechanisms. This step was added to reveal how the stories incorporated individual and social dynamics.

2.4. Trustworthiness

Triangulation (Denzin, 1978) involves the diversification of data sources, collection methods, underlying theories, or researchers in order to enhance the internal validity of qualitative research and achieve a more profound understanding. In this regard, inter-coder reliability was ensured as part of the researcher triangulation process. The inter-coder reliability was assessed using Cohen's kappa coefficient, which yielded a level of agreement of $\kappa = 0.80$, thereby exceeding the threshold value of 0.41 (Gisev et al., 2013; McHugh, 2012). The resolution of discrepancies in coding was achieved through the facilitation of discussion and consensus sessions.

Furthermore, participants were granted the opportunity to review and amend their transcriptions prior to the commencement of data analysis. In order to satisfy the criteria for member-checking, the interview report was made available to participants upon request (Bailey, 2007), with a request that they confirm whether it accurately represented their opinions. Two participants requested to review their transcripts, but did not make any changes to them. Peer debriefing was conducted to increase the research's confirmability (Streuber & Carpenter, 2011). In this regard, feedback was obtained from two associate professors specialising in qualitative research during the data analysis and findings stages, and necessary corrections were made accordingly. To increase the study's transferability (Streuber & Carpenter, 2011), which means that it can be applied to similar environments and situations, the participants' experiences were described in detail using thick descriptions.

3. Results

The narratives of participants from 11 provinces classified as first-degree earthquake zones are organised around four temporal phases: the pre-earthquake period, the earthquake and the acute aftermath, the subsequent period, and the future. The narratives focus on symptoms of ASD and PTSD (hyperarousal, re-experiencing, avoidance, cognitive/emotional disturbance or stress), the disaster context, post-traumatic growth, and coping mechanisms.

3.1. Past: Before the Earthquake

Participants' living conditions before the earthquake may shape their responses to the trauma of the earthquake and their experiences after the earthquake. Aynisefa (28, woman) worked as an English teacher and had experienced trauma from a traffic accident in the past. Alidagarcigi (28, woman) was six months pregnant and worked at a care centre for people with disabilities. Berfan (26, man) was a single psychological counsellor with a history of war trauma. Mercan (33, woman), who had previously experienced an earthquake. Kaplanotu (23, woman) is currently working as a public relations specialist, but was a university student at the time of the earthquake. Ladayi (30, man) was working as a textile

worker with a university degree. Salba (40, woman) was a housewife and mother of three children who had experienced an earthquake in her childhood. Kirpiotu (24, woman) was a single student living with her family and had lost friends in the earthquake. Borcak (38, woman) was a mother of two children and had experienced an earthquake in the past. Milleyha (68, man) was retired and had six children. Ayvadana (22, woman) had recently been in a traffic accident and had limited mobility. Guddeme (31, woman) was a mother of two and worked as a housewife, although her profession was preschool teacher. Kantaron (27, woman) was married and lived with her sister in a different city from her family. Sigirkuyrugu (32, man) was a dentist and lived with his mother-in-law. Zarcicegi (32, woman) was a school counsellor and mother of two children injured in the earthquake.

3.2. Earthquake and Acute Phase

Participants' symptoms of acute stress disorder, with the disaster environment intensifying the impact of these symptoms. The Earthquake and Acute Phase theme encompasses the thirty-day period following the earthquake. For example, Zarcicegi stated, *"We weren't aware of what we were going through. I couldn't cry, we couldn't even make a sound. I was just watching like I was on a movie set, unable to react in any other way. I wish I could erase that day and what I saw from my life forever. Those people's arms, legs, screams, collapsing buildings, children…"* describing the shock and dissociative symptoms characteristic of acute stress disorder. Kirpiotu expressed, *"My mom and dad went into shock, and my sibling was alone there; someone had to be the rescuer. I ran, grabbed my sibling, who could barely stand. By the time I got them to the bedroom, it felt like months had passed. And such ignorance—we acted like we'd never learned what to do during an earthquake in elementary school, like we'd never participated in drills. As a family, we just waited to die under a doorframe,"* articulating feelings of helplessness and fear responses. Guddeme shared, *"I slept in that funeral tent with the kids for three days in that cold. My aunt and others begged me to go inside at night, saying the kids would get sick. In fact, my daughter caught pneumonia during that time, while we were staying in that tent. They pleaded and begged, but I said I couldn't go in, I just couldn't,"* indicating self-harming behaviors driven by the trauma's impact. Additionally, Mercan noted, *"I gained a lot of weight from stress…"* Borcak said, *"I was constantly exhausted because I was always on edge,"* and Berfan stated, *"While staying in communal living areas, we all caught an eye infection virus,"* describing somatic reactions.

Aynisefa, Guddeme, and Kantaron, after experiencing the 04:17 earthquake in the morning, set out toward their families and encountered the second 7.6 Mw earthquake at 13:24 on the same day in Hatay and Kahramanmaraş, the epicenters of the disaster. For instance, Kantaron said, *"When I entered the city, it was terrible: everything was destroyed, walls were gone, curtains were fluttering, you could see refrigerators, kitchen cabinets. Everything was covered in mud,"* conveying the impact of the scene they witnessed. Alidagarcigi recounted, *"Thinking my relative might be in a hospital, we started visiting hospitals in central Maraş. We went to every hospital, looked at the faces of all the injured. It was as horrifying as an earthquake itself because, until that day, I had never seen a dead body, never attended a funeral. But in that search, I must have looked at the faces of maybe 10,000 dead or injured people,"* describing repeated exposure to traumatic events. Participants faced sudden losses (Alidagarcigi's friend and their spouse's sister, Sigirkuyrugu's brother-in-law) and physical injuries:

> Zarcicegi: *"All I remember is that while leaving the hallway, the wall exploded, and I had a small child in my arms. I pushed a brick away with my hand. I only noticed nine days later that my entire foot was covered*

in blood and that glass shards had embedded in it. Probably the chandeliers had shattered, and I only realized this on the ninth day when I took a shower for the first time, with debris falling out of my hair."

Participants continuing to live in the earthquake-affected region reported temporary accommodations due to hyperarousal. For example, Aynisefa: *"When I was alone here, I couldn't go into my house for a while. I couldn't overcome that fear; I didn't enter my home for a month. I stayed in the car for a bit, with friends and relatives who had single-story homes, or in hotels, to take a shower. I lived like this for about six months,"* emphasizing a nomadic state.

In the acute phase following the earthquake, most participants reported engaging in aid efforts such as food and supply distribution and needs assessments after meeting their own basic needs:

Berfan: *"You didn't feel like staying at home during that time. We knew there were things happening in nearby areas, that people had significant needs. Since my family had a certain network there, we could organize quickly. During that period, you can't think of anything else; it becomes the priority. People had much more serious needs."*

Ladayi: *"I was involved in those aid efforts too; I didn't stop. I helped a lot with food distribution, trying to keep my mind occupied in some way."*

Kavgalaz: *"We volunteered, collected aid during that time. The university also had a solidarity event, and we started collecting from our surroundings to help earthquake survivors."*

3.3. Present: From Acute Phase to Two Years Later

From the acute phase of the earthquake to the two years when interviews were conducted, participants exhibited various PTSD symptoms. Hyperarousal and reactivity constituted the most prevalent group of PTSD symptoms. Mercan stated, *"I don't clearly remember an event or the names of people I meet. Normally, my memory for names is excellent; I never forget any of my students. This year, when I ran into my students, I couldn't recall their names either,"* describing cognitive difficulties. Ayvadana expressed, *"I started flinching at sudden touches. For example, when my boyfriend puts his arm on my shoulder from the chair, I feel like the chair is shaking, and I suddenly stand up,"* indicating an exaggerated startle response. Hyperarousal was frequently observed among individuals who did not migrate and continued living in the disaster-affected region. The ongoing earthquake risk appears to exacerbate the severity of this symptom. For instance, Milleyha emphasized, *"Even while talking, I keep glancing at the lamp. Will it shake or not? We're constantly on edge, ready to rush outside if something sudden happens,"* highlighting a state of hyperarousal. Zarcicegi described preparedness behaviors, saying, *"Out of fear, we always keep a bag with blankets, clothes, and a backpack in our car, with our wallets inside. Every evening, we pack it, place the keys by the door, so we can grab it and leave if something happens."* Borcak noted, *"I've started getting irritated more quickly,"* and Alidagarcigi said, *"My tolerance level has dropped significantly,"* expressing aggressive behaviors. Sleep disturbances were common; Zarcicegi stated, *"After the earthquake, neither my spouse nor I could sleep for at least three or four nights—we just didn't sleep. If I saw 4 a.m., I couldn't sleep at all. 4:17 is a time etched in my life forever. When it hits 4, I feel restless inside… Our sleep routine completely vanished after the earthquake, it's gone,"* emphasizing PTSD-related sleep disorders.

Symptoms in the re-experiencing category of PTSD were frequently encountered in the post-earthquake period. Alidagarcigi shared, *"I see a mother-daughter video on social media, and I think, 'What did mothers who lost their daughters in the earthquake do?' Throughout the day, everything connects back to the earthquake,"* describing psychological stress residues. Mercan recounted, *"They demolished the building next door… the house was shaking, I couldn't stay inside,"* highlighting physical triggers. Zarcicegi emphasized intrusive memories, saying, *"Two things never leave my mind. One is telling my spouse during the earthquake to hold the kids so we could die together. I don't think that will ever go away. The other is searching for toys for my kids when aid packages arrived."* Guddeme noted, *"When a car passes, it feels like the buildings or the house are shaking, my heart races so fast, I think I'm having a heart attack, I can't breathe,"* and Alidagarcigi described, *"Any noise or slight tremor gives me the feeling that moment is happening again. For example, I feel tingling in my body, my heart races, my hands and feet tremble, I freeze…"* expressing physiological responses. Ayvadana recounted, *"We can't sleep, we have nightmares out of nowhere. For example, there were days when my sibling screamed, 'I'm trapped in the rubble, beams are falling on me,'"* describing stress-inducing dreams.

Avoidance was a prominent PTSD symptom during both the acute and subsequent phases. For example, Kirpiotu stated, *"I can't enter the room where I was during the earthquake. I was caught in the kids' room here, I can't go in there, or the bedroom where we waited to die under that doorframe. It's like when kids believe monsters are chasing them—I run through there because I don't want to feel that again,"* emphasizing avoidance of external stimuli. Ladayi noted, *"I try not to remember too much… I try to shift my focus,"* highlighting avoidance of memories and emotions.

Cognitive and mood disturbances were among the long-term effects of PTSD persisting from the earthquake to the present. Berfan expressed, *"Out of nowhere during the day, my eyes well up. I feel like crying for no reason, and I'm not someone who cries easily,"* indicating a persistent inability to experience positive emotions. Borcak said, *"I used to hang out with friends, but now it feels like a waste of time; I don't want to make extra time for anyone,"* describing social withdrawal. Ayvadana noted, *"Compared to before, I've become someone who gets angry more quickly, reacts more strongly to things, and is constantly afraid of everything,"* articulating persistent negative emotions. Ayvadana further stated, *"So many people died there, why did I survive? I could have helped more people, but I didn't help anyone, I did nothing. So sometimes I forbid myself from feeling happiness,"* emphasizing distorted thoughts leading to self-blame. Kirpiotu expressed, *"I don't remember how we got into the car or left that site,"* indicating an inability to recall significant aspects of the event.

The emotions experienced reflect the emotional burden of the trauma and the recovery process post-trauma. Berfan stated, *"We started losing our sense of trust. Unlike previous experiences, this time there was no guarantee, no idea when it would end because it wasn't a human-made event,"* describing a loss of security. Kantaron noted, *"I developed a fear of losing loved ones and started calling them constantly,"* and "*This matters most during the day. For example, I get very anxious in class; 'I ask myself, how can I protect my students, what can I do?' I live my life constantly thinking about this*" expressing fear. Alidagarcigi shared, *"In this process, not a single person asked me, 'What did you go through, how did you cope, or are you coping? What did you feel emotionally?' I never cried, and no one ever said, 'You actually need to cry, it's okay to cry,'"* describing loneliness. Aynisefa shared, *"Once, an elderly woman came up to me in a restaurant, hugged me, and started crying. I started crying too, for no reason. Her house had collapsed in the earthquake, and only she and one son survived. She hugged me, cried, and told her story. After that, I developed this awareness:*

'What's their story?'" describing compassion. The vast majority of participants emphasized a persistent sense of anger from the acute phase of the earthquake to its second year:

> Sigirkuyrugu: *"Because of what we went through after the earthquake, we naturally have uncontrollable anger. There's a constant state of irritability over us. Anxiety and irritability, given what we've experienced as a country."*

Temporary and permanent migrations deepened the trauma. A significant portion of those whose homes were destroyed migrated to non-disaster areas. This weakened community ties for both those who migrated and those who stayed. Migrants faced new social and work environments, requiring adaptation even for basic daily tasks like finding a destination. They also had to adjust to differences between their original culture and the culture of their new location, leading to alienation and social withdrawal. Those who stayed felt isolated as their loved ones migrated. Guddeme described, *"The hospital changed, the work environment changed, and now with the earthquake. It was a bad experience for her. The work environment changed too. The earthquake already caused trauma, and then your city changes, your hospital, your colleagues, everything changes,"* highlighting this transformation. Kirpiotu emphasized the challenges of temporary accommodation, saying, *"We went to my aunt's in Mersin, but when you don't have your own home, you don't fit anywhere, and they don't make you feel like you do. With my grandmother and sibling, we stayed at one aunt's, then another, moving from city to city. When I returned home, I was so happy because for three months, we truly didn't fit anywhere. Even with my aunts, I was on edge."* Zarcicegi described the emotional toll of being away from home, stating, *"I was so sad. Everywhere I looked, I said, 'Look, we went there, we sat there first, I used to go there with friends, this happened, that happened.'"*

Social support, maintaining routines, and cognitive and self-expression techniques played critical roles in the recovery process. Milleyha stated, *"There must be something I'm supposed to learn from this,"* and Zarcicegi said, *"We didn't lose any family members. Yes, our savings, our home, everything was gone, we started from scratch. But I say, I saved my kids from that house—because my house was completely in ruins—and I got out too. In our family photos, not a single face is missing, they're all with me,"* reflecting reframing and positive thinking. Berfan noted, *"I wanted to do something, like work more intensely on my job. I wanted life to return to normal. So I went back to work, and that process was healing, helping me overcome the shock and that destructive effect,"* describing the return to routine. Guddeme shared, *"I said, 'Auntie, I'll pay all your bills, and I'll bring two cleaners, we stayed at your house for 25 days, please forgive us.' My aunt said, 'Never, if I take money from you today, may God take my life right now, how could I take money in a time like this?'"* emphasizing social support. Salba expressed using spiritual methods, stating, *"After the earthquake, I turned to religion. I made an effort to pray. I had stopped reading the Quran, but I turned to it again,"* while Berfan noted, *"I continued with breathing exercises,"* referring to psychological techniques. Mercan described self-soothing and self-expression methods, saying, *"I wrote things to myself, tore up the papers, and threw them away. I listened to loud music, sang along loudly. I read books I loved. I used to watch subtitled series a lot, so I started watching at least one episode at night, trying to create space for myself to remember who I am."* Zarcicegi stated, *"Yes, we experienced the earthquake too, but we need to help these people. I've been working at the same school for eight years, a village school. I could have requested a transfer if I wanted, but I said no, I was here before the earthquake, and now is when they need me the most. So, in fact, I still have fears in my own life, but in the lives of my children, my students, and their parents, I appear to be much better and stronger than I actually am"* and Berfan said, *"I worked for a long time in the organization of psychosocial support there. It was an advantage for me because I felt useful. It was both a healing experience and made*

me feel better conscience-wise," emphasizing solidarity. Guddeme exemplified rationalization, saying, *"I tell myself, safe apartment, solid foundation."*

Participants' perceptions also contributed to the recovery process and reflected the social dimension of the trauma. Aynisefa expressed, *"When everyone around us was going through the same thing, sharing the pain got us used to it. I think we were all the same, all experiencing the same fears, the same experiences. Everyone we talked to on the phone had the same story: they lost people. That's how I think we got used to it,"* describing a sense of universality. Zarcicegi noted, *"The people in Hatay are in so much pain… This pain… Everyone you see on the street has surely lost a loved one. It's such immense pain. So we said, yes, we went through this too, but we need to help these people. There are people who need me now,"* expressing that empathizing with others' pain alleviated their own.

Some participants exhibited PTSD symptoms post-earthquake but also experienced post-traumatic growth (PTG). The following quotes illustrate reduced interpersonal conflict, developing a positive self-perception, increased focus on social relationships, and a shift in the meaning attributed to material possessions as indicators of post-traumatic growth.

> Zarcicegi: *"I don't hold back any words anymore because I know I might not see the person I meet today tomorrow. There's no resentment either. If someone hurt me, I say fine, that's their choice, so be it. But I don't have a single negative word for anyone anymore. There's no need for any of that, I realized."*
>
> Mercan: *"During the earthquake, there was no food you could cook at home. Whatever was left in the fridge, that's it. I realized something: I said to myself, my mind works. Entering data for statistics isn't what it means to be smart. Just surviving daily life is a powerful thing too, and I could do that. I remember loving myself for that, saying, 'Good job, girl!' to myself."*
>
> Berfan: *"I used to be very lazy: I wouldn't sleep anywhere but my house, wouldn't go anywhere else. Now I'm more inclined to spend time with friends, trying to make it quality time. I try to go wherever I'm invited because it might be the last time."*
>
> Zarcicegi: *"None of my possessions have any value to me now. A 1,000-lira fridge cools just like a 50,000-lira fridge. And they can all disappear in an instant, everything can be taken from me. In reality, nothing is truly mine. I have no attachment to objects anymore; they have no importance as long as they serve a function. I used to be obsessed with brands, 'This one, that one, the best one.' That's gone, it's not in my life anymore. I don't even have unused items in my life now."*

3.4. Future

Participants expressed both hope and anxiety regarding the future. Alidagarcigi noted, *"During my master's applications, I applied to many places, but the only thing I considered was the earthquake. I didn't go to places I was accepted to if they were in earthquake zones. I chose Central Anatolia because it felt safer,"* and Sigirkuyrugu said, *"I don't feel ready to be in that region. I didn't even request a transfer despite qualifying. I just don't feel like I can live in that region anymore,"* indicating changes in career plans. Zarcicegi expressed, *"The earthquake was a turning point in my life. Before, I was a very different person; afterward, I emerged as someone else entirely. I don't make long-term plans anymore. I know there's a power beyond me, and anything can happen. So I have no plans; I just do what I feel like doing each day,"* describing a shift away from long-term planning. These hopes and anxieties reflect a transformation process shaped by Türkiye's cultural context, supported by family- and community-oriented values.

4. Discussion and Conclusion

Following the earthquake, participants encountered various non-normative life events that accumulated over time. Notable changes observed in affected individuals include mood swings that are hard to manage, a decline in quality of life, such as losses of home, job, and car, changes in neighborhood and regional conditions, and lower-quality food brands, as well as shifts in social and work environments. Additionally, individuals faced challenges countering institutional attitudes, adapting daily routines, and social life in a devastated city. They also took on increased responsibilities caring for relatives who were amputated after the earthquake. The earthquake, being the main stressor that triggered ASD and PTSD symptoms, activated psychological responses like dissociation, rumination, and cognitive distortions.

DeWolfe (2000) hypothesises that the effects of natural disaster trauma are expected to diminish significantly within 18 months. However, the findings of this study indicate that there are certain factors that make it difficult to complete the disaster phases healthily. The aforementioned factors pertain to repeated traumatic exposure and disaster reconstruction problems. For instance, while the establishment of tent cities and container cities has led to a reduction in life-threatening risks, the ambiguity surrounding compliance with earthquake regulations in residential areas contributes to the perpetuation of PTSD. Furthermore, the occurrence of aftershocks has been demonstrated to exert an impact on cognitive processes in the aftermath of a disaster, giving rise to cognitive distortions that are often associated with symptoms of PTSD, including the perception that the world is not a safe place (Palgi et al., 2020). Moreover, the migration experience has been demonstrated to have a detrimental effect on community cohesion among disaster survivors, resulting in increased feelings of loneliness, social isolation, and loss of trust. Bonanno et al. (2010) observed that the dissolution of social bonds has been demonstrated to heighten the risk of developing PTSD. Following the Kahramanmaraş earthquake, migration, the separation of individuals from their country of origin, and the uncertainty experienced in new environments have been shown to exacerbate this risk.

Social support and community involvement, such as the cultivation of human relationships and participation in aid activities, have been demonstrated to serve as a significant buffer against stress. These findings are supported by studies suggesting that social support and solidarity mitigate the psychological effects of trauma following natural disasters (Kaniasty, 2012; Kaniasty & Norris, 2013). Furthermore, Türkiye's collective culture may have accentuated the efficacy of solidarity and altruistic behaviour in post-disaster recovery. Indeed, in collective cultures, the strength of community bonds and the existence of shared coping strategies have been demonstrated to increase the capacity of individuals to recover from collective trauma (Saul, 2022). Furthermore, post-traumatic growth was exhibited by many participants. The manifestations of PTG, such as the reduction of interpersonal conflicts and the shift towards social relationships, as well as the reduction of material concerns, are consistent with Tedeschi and Calhoun's (2014) framework, which links post-traumatic personal growth to the redefinition of priorities and the strengthening of relationships. The family- and community-oriented cultural context of Türkiye (Bakır & Haskan-Avcı, 2023; Bakir & Haskan-Avci, 2025) may have facilitated PTG through participants' efforts to support others despite their pain. Post-traumatic growth does not signify the eradication of PTSD symptoms; as Calhoun and Tedeschi (2014) observe, while it may be observed in areas such as philosophical understanding, deepening interpersonal relationships, and changes in life priorities, PTSD symptoms may persist.

The preponderance of education professionals within the study's sample, encompassing teachers, academics, and school psychological counsellors, has yielded significant insights into the manifestation of earthquake experiences within academic communities. For instance, these education professionals are concerned about providing support and stability to their students while also coping with their own trauma. A study conducted with school personnel, including teachers, support staff, counsellors, and administrators, following the Hurricane Katrina event found that the majority of education professionals reported that their homes sustained reparable flood and/or wind damage; however, almost one-quarter of the participants had uninhabitable homes. Furthermore, approximately 25% of the participants exhibited substantial symptoms of PTSD and depression (Costa et al., 2015). The education professionals participating in the present study also reported that their own fears continued to cause traumatic symptoms. Furthermore, concerns were raised regarding student safety and institutional anxiety in the event of a new earthquake. However, it was observed that educators prioritised the well-being of students and parents over their own psychological needs, suggesting that educators may be at increased risk of prolonged stress responses and secondary trauma.

5. Limitations

Notwithstanding the valuable contributions to the existing literature, the present study has its limitations. Firstly, it is important to note that the research is based on interviews conducted 18–20 months after the earthquake. Consequently, the reconstruction phase is ongoing, and the trauma symptoms and perceptions of the earthquake victims will change. The employment of a longitudinal study design would facilitate the observation of the entire process from the moment of the earthquake to the present. Secondly, it is possible that the interview questions or follow-up questions may not have captured certain experiences or symptoms. For instance, although dissociation is a symptom of both ASD and PTSD (Hart et al., 2004), this study exclusively captured participants' dissociation symptoms during the acute phase and did not record their experiences of long-term dissociative symptoms. The absence of any mention of dissociation by earthquake survivors, despite the manifestation of other symptoms consistent with PTSD in the year following the earthquake, may be attributable to an inability to articulate the nature of their experiences, in addition to interview questions and techniques. In subsequent studies, the implementation of a comprehensive questionnaire and techniques that screen for all symptoms, in addition to experiences, will facilitate the acquisition of a more profound understanding of the traumatic stress symptoms revealed by the individual.

6. Implications

School-based actions have been demonstrated to exert a positive impact on the social recovery process following a natural disaster (Fu & Underwood, 2015; Powell & Holleran-Steiker, 2017). Consequently, a series of recommendations have been proposed for school psychological counsellors, educators and policymakers, respectively. Firstly, it is essential to conduct a psychosocial risk assessment as part of natural disaster preparedness. This assessment should be followed by the development of trauma-focused psychological intervention plans, which are to be executed during a disaster. Teachers are uniquely positioned to provide vital support to children after potentially traumatic events and play a key role in identifying those with ongoing psychosocial issues (Le Brocque et al., 2017). School psychological counselors have the ability to facilitate coordination among school administrators, teachers, and support staff in these intervention programs. Secondly, the findings of this study demonstrate that symptoms can persist for a period of up to two years following an earthquake. School psychological counselors are responsible for developing systematic and sustainable programmes to support this long-term recovery process. These programmes may include individual and group

resilience-building activities and peer support systems. Thirdly, as evidenced in this study, teachers confront a dual challenge in the post-earthquake phase, encompassing both the management of their own distressing experiences and the provision of effective assistance to their students. It is recommended that educational institutions consider the implications of natural disasters on educational environments. Therefore, school psychological counsellors can play a pivotal role in this regard by establishing special support groups for teachers and providing practical guidance on trauma-informed education strategies. These strategies should be utilised to facilitate the education and training of students in the aftermath of natural disasters. The present study demonstrates that community-based coping mechanisms, such as solidarity and mutual aid, are employed in Turkish culture from the acute phase of a natural disaster onwards. In order to enhance their capacity for rapid intervention and resource sharing in the post-disaster process, institutions are advised to collaborate with school administrators, local emergency management units, health institutions, and civil society organisations. Finally, policymakers can develop policies that support the establishment of these networks at the national and local levels and make infrastructure investments that enable schools to take on a central role in disaster management based on solidarity.

Declaration of Conflicts of Interest

We have no conflicts of interest to disclose.

Declaration of Generative AI Use

During the writing process of this study, the generative artificial intelligence tool DeepL was used to a limited extent for linguistic editing (grammar checking and expression improvement) only. The scientific content, argumentation, data analysis and results were created entirely by the authors. Any ethical and scientific responsibility arising from the use of generative artificial intelligence lies solely with the authors.

Ethical Statement

This study involves data collection through interviews with human participants. The Hacettepe University Social and Humanities Research Ethics Committee approved the study on February 20, 2024 (Ethical Approval No: 66777842-300-00003399988). Informed consent was obtained online from all participants. The research process was conducted per the 1964 Declaration of Helsinki principles.

Author Contributions

The first author conducted conceptualisation, data curation, formal analysis, methodology, and writing of the original draft, while the second author carried out data analysis and supervision.

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