SOSYAL BİLİMLER ENSTİTÜSÜ DERGİSİ

Journal of Institute of Social Sciences

Sosyal Bilimler Enstitüsü Dergisi- Journal of Institute of Social Sciences
DOI: https://doi.org/ 10.54558/jiss.1436814

Araştırma Makalesi/ Research Article

Psychological Impact of Great Southeast Turkiye 2023 Earthquake: Hatay Phase

Büyük Güneydoğu Türkiye Depreminin Psikolojik Etkileri: Hatay Bölgesi

Metin Çınaroğlu[1]* Müge Zan[2]

[1]*Dr. Öğr. Üyesi, İstanbul Nişantaşı Üniversitesi, İktisadi İdari ve Sosyal Bilimler Fakültesi, Psikoloji Bölümü, İstanbul, Türkiye.

[2]Öğrenci, İstanbul Nişantaşı Üniversitesi, Psikoloji, İstanbul, Türkiye.

***Sorumlu yazar/ Corresponding author:**
metincinaroglu@gmail.com

Başvuru/Submitted: 14.02.2024
Kabul/Accepted: 10.03.2025

Atıf/Cite as:
Çınaroğlu, M.& Zan, M. (2025). Psychological impact of great southeas Turkiye 2023 earthquake: Hatay phase, Çankırı Karatekin Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, *16*(1), 82-94.

Abstract

Aim: *The 2023 Great Southeast Türkiye Earthquake was a disastrous event with profound psychological effects on those who endured it. This study aims to assess the psychological impact of this earthquake on survivors from Hatay, focusing on correlations between anxiety, depression, hopelessness, and perceived stress.*
Method: *Conducted between July 2023 and September 2023, the research involved 384 survivors, using the Beck Anxiety, Depression, Hopelessness, and Perceived Stress Scales for a thorough analysis of correlations among these mental health conditions.*
Results: *The analysis confirmed significant correlations among all examined psychological conditions ($p<0.05$). Stress was especially linked to higher anxiety ($r=0.47$, $p<0.001$) and depression scores ($r=0.53$, $p<0.001$). Traumatic experiences, including witnessing death and losing homes, were associated with increased anxiety and depression.*
Conclusion: *The findings reveal the complex interplay of psychological issues following the earthquake, underscoring the critical need for targeted mental health interventions in Hatay.*
Originality: *This study stands out for its early examination of the psychological aftermath of a regional natural disaster, offering valuable insights for shaping future crisis interventions and highlighting the importance of tailored mental health care in post-disaster recovery planning.*
Key Words: *Psychological effects of earthquake in southeast Türkiye 2023, Anxiety, Depression, Stress, Hopelessness.*

Öz

Amaç: *2023 Büyük Güneydoğu Türkiye Depremi, hayatta kalanlar üzerinde derin psikolojik etkilere neden olan yıkıcı bir olaydı. Bu çalışma, Kahramanmaraş merkezli depremlerin Hatay'daki depremden etkilenenlere olan psikolojik etkilerini, özellikle anksiyete, depresyon, umutsuzluk ve algılanan stres arasındaki ilişkiler bağlamında değerlendirilmesini amaçlamıştır.*
Yöntem: *Temmuz ve Eylül 2023 arasında gerçekleştirilen araştırmada, 384 depremzedeye Beck Anksiyete, Depresyon, Umutsuzluk ve Algılanan Stres Ölçekleri kullanılarak zihinsel sağlık koşulları arasındaki korelasyonlar detaylı bir şekilde analiz edilmiştir.*
Bulgular: *Yapılan analizler, incelenen psikolojik durumlar arasında önemli korelasyonlar olduğunu doğrulamıştır ($p<0.05$). Stres, özellikle yüksek anksiyete ($r=0.47$, $p<0.001$) ve depresyon skorları ($r=0.53$, $p<0.001$) ile ilişkilendirilmiştir. Ölümü gözlemlemek ve ev kaybı gibi travmatik deneyimler artan anksiyete ve depresyon ile bağlantılı bulunmuştur.*
Sonuç: *Çalışma, depremin ardından ortaya çıkan psikolojik sorunların karmaşık etkileşimini ortaya koymakta ve Hatay'da hedeflenmiş ruhsal sağlık müdahalelerinin kritik ihtiyacını vurgulamaktadır.*
Özgünlük: *Bu çalışma, bölgesel bir doğal afetin psikolojik sonuçlarını erken dönemde inceleyen çalışmalardan biri olarak, gelecekteki kriz müdahalelerini şekillendirmek için değerli içgörüler sunmakta ve afet sonrası iyileşme planlamasında özelleştirilmiş ruhsal sağlık bakımının önemini vurgulamaktadır.*
Anahtar kelimeler: *2023 Türkiye güneydoğu depreminin psikolojik etkileri, Depresyon, Anksiyete, Stres, Umutsuzluk.*

Introduction

Annually, natural disasters claim thousands of lives globally, with earthquakes being among the foremost calamities that have afflicted numerous nations throughout history. The ramifications of earthquakes extend beyond the immediate loss of life and destruction of property, leaving enduring psychological scars on survivors. Individuals who have endured these traumatic events are at an increased risk for a range of psychological disorders, including but not limited to post-traumatic stress disorder (PTSD), anxiety, depression, and a profound sense of desolation (Boden et al., 2012; Cann et al., 2010; Hsu et al., 2002).

Turkiye, given its geographical positioning, has been historically prone to seismic activities, experiencing several catastrophic earthquakes in recent times. These include the 1999 Marmara earthquake (magnitude 7.4), the 2011 Van earthquake (magnitude 7.2), the 2003 Bingöl earthquake (magnitude 6.4), the 2020 Elazığ earthquake (magnitude 6.8), and the 2020 Izmir earthquake (magnitude 6.6). The most recent calamity, the Great Southeast Türkiye Earthquake (GSTE) of February 6, 2023, with a magnitude of 7.7, and the subsequent tremor on February 7, 2023, with a magnitude of 7.6, have underscored the region's vulnerability to seismic disturbances. These events have resulted in substantial human and economic losses, with the GSTE alone resulting in 51,000 fatalities, over 100,000 injuries, and affecting ten million people across eleven cities in southeastern Türkiye (Disaster and Emergency Management Presidency, AFAD Report, March 2023; Sakarya University of Applied Sciences, Earthquake Report, April 2023; Hacettepe University, March 2023; World Health Organization, Türkiye and Syria Earthquake Report, April 2023).

This seismic event not only wreaked havoc on the physical infrastructure, causing the collapse of 300,000 homes and workplaces and displacing three million individuals, but also inflicted profound psychological distress among the survivors. The financial toll of the GSTE is estimated at 103.6 billion US dollars, covering an area of 108,812 km² (TMMOB, 2023). Despite the magnitude of its impact, both physically and psychologically, the GSTE of 2023 has not been extensively studied from a psychological perspective, marking a significant gap in the literature on the mental health effects of earthquakes (UNICEF Türkiye, 2023; World Health Organization, 2023).

Depression

Depression manifested profoundly among survivors, exacerbated by the traumatic experiences and significant losses incurred during the earthquake (Kaplan et al., 2024). The data revealed that individuals who witnessed death or lost their homes exhibited markedly higher depression scores (Keyes et al., 2014; Çınaroğlu, 2024). This aligns with established literature indicating that direct exposure to trauma and significant loss can precipitate severe depressive episodes (Kristensen et al., 2014). The persistence of depressive symptoms underscores the need for long-term psychological support and interventions specifically tailored to address the profound grief and loss experienced by survivors (Breen et al., 2022).

Anxiety

Anxiety was significantly elevated among the earthquake survivors, particularly those who had direct exposure to life-threatening situations or suffered substantial material losses (Hussain et al., 2011). The correlation between high anxiety scores and traumatic experiences such as witnessing death and enduring substantial property loss highlights the intense fear and uncertainty that compounded the survivors' psychological burden (Thabet et al., 2013). These findings suggest the necessity for immediate psychological interventions focusing on anxiety management, which could include techniques such as cognitive-behavioral therapy and mindfulness practices (Apolinário-Hagen et al., 2020).

Stress

The study identified high levels of perceived stress among the earthquake survivors, which was closely linked to their exposure to traumatic events (Çınaroğlu et al., 2024). The stress was particularly acute in individuals who had lived through the most destructive experiences of the earthquake (Bağcaz & Ayhan., 2023). This pervasive stress not only affects mental health but also has the potential to impair physical health, making comprehensive stress management interventions essential (Bahar & Çuhadar, 2023). Programs that include stress reduction techniques and community support initiatives could be particularly beneficial in alleviating the compounded stress experienced by survivors.

Hopelessness

Hopelessness was another significant psychological impact observed, with many survivors feeling a profound sense of despair about the future (Özdemir et al., 2015). This was especially true for those who faced the greatest losses and disruptions to their daily lives. The depth of hopelessness reported highlights the critical need for psychological resources that can provide hope and foster resilience (Kılıç et al., 2024). Interventions might include community-building activities that restore a sense of normalcy and future-oriented planning that helps individuals reconstruct their life narratives post-disaster.

The paucity of research specifically addressing the psychological aftermath of the GSTE 2023 highlights an urgent need for scholarly investigation into the mental health implications for those affected. A comprehensive understanding of the psychological consequences of such seismic events is imperative for the formulation of targeted interventions and support mechanisms. This research endeavors to illuminate the complex psychological repercussions of the GSTE, thereby contributing to a more nuanced understanding of earthquake-induced trauma and facilitating the development of more effective psychological recovery strategies for survivors.

Methods

Participants

The present study focused on individuals affected by the earthquake in the Hatay region, one of the areas most severely impacted by the seismic event in southeastern Türkiye. The recruitment phase occurred between June and September 2023, during which a total of 395 individuals from the region were initially contacted. Of these, 384 participants provided comprehensive and usable responses, with the exclusion of incomplete data sets.

Eligibility for inclusion in this study was predicated on several criteria. Participants were required to be within the age range of 18 to 65 years, have directly experienced the earthquake, and currently reside in Hatay. The study deliberately excluded individuals who did not have a direct experience of the earthquake or had moved away from Hatay subsequent to the earthquake. This exclusion criterion was implemented to ensure the research sample consisted exclusively of individuals who were directly impacted by the earthquake and remained in the affected region. This approach aimed to capture the specific psychological impacts of the earthquake on a population continuing to live in the aftermath within the same geographical context.

Study Design

In designing this study, a thorough examination of existing literature was undertaken, with a particular focus The development of this study involved a comprehensive review of existing literature, particularly emphasizing research methodologies employed in prior earthquake studies, including the aftermath of the Marmara earthquake in Türkiye (1999) and psychological assessments following seismic events in China and Japan. This literature review significantly shaped our methodological approach, enabling us to refine our research tools and strategy based on established best practices.

Acknowledging the documented prevalence of psychological symptoms among earthquake survivors, such as depression, anxiety, stress, and a pervasive sense of hopelessness, we carefully selected and adapted various psychological assessment tools. These tools, chosen for their reliability and validity in cross-cultural contexts, were subjected to translation and adaptation to fit the local context of the study population.

A pilot study was initially conducted with a subset of individuals who had migrated from Hatay to Istanbul following the earthquake. This preliminary investigation served to test the applicability and comprehensibility of the selected psychological scales and the sociodemographic questionnaire. Feedback obtained from this pilot phase led to minor refinements in the questionnaire design and the administration process to enhance clarity and participant engagement.

Research activities formally commenced after incorporating these adjustments and ensuring a respectful waiting period post-earthquake to account for the natural progression of psychological responses. Starting in July, a selected cohort from the Hatay region was engaged through a structured survey methodology, integrating carefully chosen psychological scales alongside a detailed sociodemographic questionnaire.

The entire study was conducted in accordance with ethical standards and protocols, securing approval from the Ethical Committee of İstanbul Nişantaşı University. This approval underscored our commitment to ethical research practices, ensuring the dignity, rights, and welfare of all participants were safeguarded throughout the study process.

Measurement Tools

In the quest to thoroughly comprehend the demographic background of the participants and to evaluate the psychological aftermath of the earthquake, a meticulously designed sociodemographic questionnaire was administered. This questionnaire aimed to collect a broad spectrum of personal characteristics of the victims, including but not limited to gender, age, marital status, area of residence, educational attainment, employment status, and income level. Notably, the protocol ensured that no identifiable information was solicited from the participants, thereby maintaining their anonymity throughout the study. Furthermore, all individuals involved in the study provided informed consent prior to their participation.

Beyond the collection of basic sociodemographic data, the questionnaire also delved into aspects such as the utilization of psychological medications, any prior psychiatric diagnoses, familial history of psychiatric conditions, the degree of damage incurred by the household, and the duration of entrapment under debris or exposure to similar traumatic conditions.

To quantitatively assess various psychological dimensions impacted by the earthquake, the study incorporated four distinct psychometric instruments:

1. Beck Depression Inventory (BDI-II): Originally developed by Beck et al. (1961) and subsequently revised, the BDI-II is a self-report instrument designed to assess the intensity of depressive symptoms. Comprising 21 items, responses are scored on a four-point Likert scale, ranging from 0 to 3. The Turkish adaptation of the BDI-II was validated by Kapçı et al. (2008).
2. Beck Anxiety Inventory (BAI): The BAI, developed by Beck et al. (1988), serves as a self-reported measure to evaluate the frequency of anxiety symptoms. It includes 21 items, with responses rated on a four-point Likert scale from 0 to 3. The psychometric properties of the Turkish version were established by Ulusoy et al. (1998).
3. Perceived Stress Scale (PSS): Created by Cohen et al. (1983), the PSS is a 14-item tool intended to measure perceived stress levels in response to various life circumstances. Each item is assessed on a five-point Likert scale from "Never (0)" to "Very often (4)," with positive statements being reverse scored. The Turkish adaptation's validity was confirmed by Eskin et al. (2013).
4. Beck Hopelessness Scale (BHS): Utilized to gauge levels of hopelessness, the BHS consists of 21 items derived from clinical observations and typical behaviors of depressed psychiatric patients. The validity of the Turkish version of the BHS was ascertained by Seber et al. (1993).

Employing these psychometric tools, each with established validity and reliability, enabled the gathering of a comprehensive understanding of the psychological ramifications experienced by the participants post-earthquake. This approach facilitated a nuanced exploration into the mental health and well-being of the study's participants.

Data collection

The task of data collection was spearheaded by Müge Zan, a contributing author who not only possesses professional expertise as a psychologist but also shares a personal connection with the region as a local resident of Hatay. This unique positioning facilitated an empathetic and informed approach to gathering data, leveraging a strategic blend of direct door-to-door outreach and a community networking model. MZ's commitment involved conducting systematic visits to temporary shelters and various subregions, aiming to encompass a broad spectrum of demographics and socio-economic backgrounds within Hatay community.

Designed to probe into the psychological aftermath of the earthquake, the survey was structured to be completed within an approximate timeframe of 20 minutes. In executing this task, MZ was instrumental in articulating the research objectives to the participants, ensuring a sensitive and understanding engagement with the earthquake victims. It was observed that, given the varying degrees of psychological and physical distress experienced by the victims, some individuals faced challenges in fully engaging with the survey process. This necessitated repeated visits to certain participants to facilitate their cooperation, highlighting the complexities inherent in conducting research under such circumstances.

The reluctance of some victims to partake in the survey or engage in dialogue further accentuated the sensitive nature of the study. Compounded by logistical challenges such as limited access to internet services, telecommunication devices, and other forms of communication infrastructure, these factors posed significant hurdles to both the participants and the researcher. Nonetheless, MZ's persistence and empathetic approach were paramount in navigating these obstacles, ensuring the ethical collection of data without compromising the dignity and well-being of the participants.

To maintain the highest standards of research integrity, Metin Çınaroğlu, the principal author, played a supervisory role over the data collection process. Through periodic visits to the region, MÇ closely monitored the research activities, guaranteeing adherence to ethical research practices and guidelines. This collaborative dynamic between MZ, who led the face to face data collection efforts, and MÇ, who provided oversight and guidance, was crucial in ensuring the meticulous and ethical execution of the study.

Spanning a two-month period from July 15 to September 15, 2023, the data collection phase was executed with the utmost diligence. This meticulous approach was aimed at capturing a comprehensive range of experiences and viewpoints from within the Hatay region, thereby enhancing the richness, depth, and validity of the research findings.

Ethical considerations

Conducting research in the aftermath of a devastating disaster requires utmost sensitivity and ethical responsibility. Recognizing the vulnerable state of the victims, especially those residing in shelters with limited access to essential facilities such as water supplies and proper living conditions, the authors approached this study with profound care and consideration.

Given the challenging circumstances, the authors personally undertook the task of surveying the victims. This hands-on approach allowed them to interact directly with the participants, ensuring a smooth and empathetic process. Throughout these interactions, the authors were vigilant in observing the participants' psychological well-being, ensuring they were comfortable with the research proceedings. The aim was to shed light on the psychological impact of the disaster without causing any additional trauma to the victims.

In some cases, victims not only filled out the survey but also required assistance beyond the research scope, such as guidance to appropriate medical facilities and psychiatrists. To address this need, one of the authors, GHS, a full professor in psychiatry, took on the responsibility of providing guidance in these sensitive matters. GHS's expertise ensured that participants received the necessary support beyond the confines of the research study.

Moreover, the authors implemented a detailed informed consent process. Each participant was presented with a comprehensive informed consent form that clearly outlined the purpose and methodology of the research. Participants were given the opportunity to ask questions and seek clarifications before voluntarily signing the consent form. This transparent approach ensured that participants fully understood the nature of the study and willingly participated, upholding the principles of informed consent and respecting the participants' autonomy and agency.

By integrating these ethical considerations into the research process, the authors prioritized the well-being and dignity of the participants. Their meticulous approach not only upheld the highest ethical standards but also fostered an environment of trust and respect, essential for conducting research in such sensitive circumstances.

Data Analysis

The Statistical Program for Social Sciences (SPSS; IBM Corp. Released 2017, Version 25.0) was employed for the rigorous statistical analysis of the collected data. A significance level of $p<0.05$ (α) was set, indicating that results with a probability of occurrence less than 5% were considered statistically significant.

To ensure the validity of the analysis, the Shapiro-Wilk test was utilized to assess whether the variables met the assumption of normality. For continuous variables that adhered to the normality assumption, mean values accompanied by standard deviations were reported. In instances where continuous variables did not meet the normality assumption, median values were presented.

When comparing two independent groups where the normality assumptions were met, the independent sample t-test was applied. Conversely, for situations where normality assumptions were not met, the Mann-Whitney U test was utilized. In comparisons involving three or more groups, the One-Way Analysis of Variance (ANOVA) was employed if the normality assumption was satisfied. In cases where normality assumptions were not met, the Kruskal-Wallis H test was applied.

To explore the relationships between different scales used in the study, Spearman Correlation Analysis was conducted. This method provided valuable insights into the associations between various psychological factors.

Moreover, the internal consistency of the scales employed in the study was rigorously assessed. The reliability of the Beck Depression Scale was found to be $\alpha=0.89$, indicating high internal consistency. Similarly, the Beck Anxiety Scale demonstrated strong internal consistency with a coefficient of $\alpha=0.94$. The Beck Hopelessness Scale displayed a robust reliability coefficient of $\alpha=0.92$, and the Perceived Stress Scale exhibited a reliable internal consistency with a

coefficient of α=0.81. These high internal consistency coefficients underscore the reliability and accuracy of the data collected through the scales used in the study.

By employing these rigorous statistical methods and ensuring the internal consistency of the measurement tools, the data analysis process was conducted with precision and thoroughness, enhancing the credibility and robustness of the study's findings.

Results

Table 1. Statistical summary of the measurement scales employed in the research

Scale	n	Median	Min.	Max.	Mean	SD
Beck Anxiety Inventory	384	20.5	0	60	22.25	12.94
Beck Depression Inventory	384	23	0	62	23.36	10.54
Beck Hopelessness Scale	384	11	0	20	11.06	5.97
Perceived Stress Scale	384	23	1	40	22.89	6.01

SD: Standard Deviation

In the present study, out of the initial 395 participants, responses from 384 individuals were deemed valid for analysis after excluding 11 for incomplete data. The psychological state of the participants was evaluated using four scales: BAI, BDI-II, BHS and PSS.

The BAI scores ranged from 0 to 60, with a median of 20.5, a mean of 22.5, and a standard deviation (SD) of 12.94. For the BDI-II, scores varied from 0 to 62, showing a median of 23, a mean of 23.36, and an SD of 10.54. The BHS scores were between 0 to 20, with a median of 11, a mean of 11.06, and an SD of 5.97. Lastly, the PSS scores spanned from 0 to 40, with a median of 23, a mean of 22.89, and an SD of 6.01.

Diagnostic criteria applied in this research include a BDI-II score of 19 or higher to establish depression, a BAI score of 16 or higher for anxiety, a BHS score of 14 or above for hopelessness, and a PSS score of 27 or above for stress. According to these thresholds, depression was identified in 68.5% (263 individuals), anxiety in 66.1% (254 individuals), hopelessness in 40.1% (154 individuals), and stress in 26.6% (102 individuals) of the study cohort.

These findings highlight a broad spectrum of psychological distress among the earthquake survivors, indicative of varying levels of anxiety, depression, hopelessness, and perceived stress experienced post-disaster.

Table 2. Evaluation of measurement scale scores in relation to socio-demographic variables

Variables	Beck Anxiety Inventory	Beck Depression Inventory	Beck Hopelessness Scale	Perceived Stress Scale
Gender				
Female (n=130)	16(0:56)	20(0:55)	11(0:20)	21(1:36)
Male (n=254)	23(0:60)	23(1:62)	12(0:20)	24(3:40)
p value	**<0.001[a]**	**0.004[a]**	0.973[a]	**<0.001[a]**
Age				
18-30 (n=120)	21(0:48)	23(0:53)	11.5(0:20)	24(1:40)
31-40 (n=153)	22(0:60)	23(0:62)	12(0:20)	23(7:40)
41-50 (n=93)	19(0:52)	21(3:44)	11(0:20)	21(3:33)
51-60 (n=18)	16.5(4:38)	15.5(8:37)	10.5(0:20)	20(11:26)
p value	0.754[b]	**0.005[b]**	0.324[b]	**<0.001[b]**
Employment Status				
Working (n=193)	18(0:56)	20(0:55)	11(0:20)	22(1:40)
Not working (n=191)	23(0:60)	24(3:62)	12(0:20)	23(3:40)
p value	**<0.001[a]**	**<0.001[a]**	0.136[a]	**0.030[a]**
Income (TL)				
5000-10000 (n=124)	23(1:56)	24(3:55)	12(0:20)	23(10:35)
11000-20000 (n=65)	18(1:60)	18(2:62)	11(0:20)	22(3:35)
21000-30000 (n=74)	17.5(0:48)	23(1:46)	13(0:20)	24(6:39)
31000-40000 (n=22)	15(0:39)	19(3:34)	7.5(0:20)	20(4:33)
>40000 (n=19)	15(0:39)	10(0:44)	9(0:19)	18(1:40)
p value	**0.002[b]**	**<0.001[b]**	**0.034[b]**	**0.003[b]**
Previous psychiatric diagnosis				
Yes (n=49)	29(1:54)	23(2:53)	11(0:20)	24(11:33)
No (n=335)	20(0:60)	22(0:62)	12(0:20)	23(1:40)
p value	**0.013[a]**	0.365[a]	0.841[a]	0.480[a]
Use of psychological medication				
Yes (n=57)	24(1:52)	24(3:45)	11(1:20)	23(11:39)
No (n=327)	20(0:60)	22(0:62)	11(0:20)	23(1:40)
p value	**0.042[a]**	0.084[a]	0.945[a]	0.386[a]

p<0.05 significant value, Variables given as median (minimum:maximum).
a: Mann-Whitney U test, b: Kruskal Wallis H test

This research assessed the correlation between demographic variables and the psychological health of the participants. The sample comprised 254 males (66.1%) and 130 females (33.9%). Gender-based analysis revealed statistically significant disparities on the BAI, BDI-II, and PSS scores ($p<0.05$). Females presented lower median scores on the BAI (16), BDI-II (20), and PSS (21) in comparison to males, who had median scores of 23 on BAI, 23 on BDI-II, and 24 on PSS. No notable gender differences were observed in the BHS scores ($p>0.05$).

The study further explored the age-related psychological impact, categorizing participants into four age groups: 18-30 (31.3%), 31-40 (39.8%), 41-50 (24.2%), and 51-60 (4.7%). Statistical analysis indicated significant variances among age groups for the BDS and PSS scores ($p=0.005$ and $p<0.001$, respectively). Comparative analysis revealed that the 18-30 age bracket had higher median scores on the BDI-II and PSS than those in the 41-50 and 51-60 age ranges ($p<0.05$). The 31-40 cohort exhibited greater median PSS scores compared to the 41-50 age group ($p=0.016$), and similar patterns were found when comparing the 31-40 and 51-60 age groups for both BDI-II and PSS scores ($p=0.011$ and $p=0.007$, respectively).

Employment status was another demographic aspect examined, with 193 participants (50.3%) employed and 191 (49.7%) unemployed. There were significant distinctions between the employed and unemployed in terms of BAI, BDI-II, and PSS scores ($p<0.05$), with unemployed individuals showing higher median scores.

Income level was also a significant factor affecting psychological health. Participants with higher incomes reported lower scores on all psychological scales, with these differences proving statistically significant ($p<0.05$). This trend demonstrated that as income levels rose, the BAI, BDI-II, BHS, and PSS scores diminished.

Psychiatric history was present in 12.8% of the cohort, with the remaining 87.2% having no such history. A notable divergence was observed in BAI scores dependent on psychiatric history ($p=0.013$). Those with a psychiatric diagnosis had a higher median BAI score (29) compared to those without (20). However, no significant differences were seen in BDI-II, BHS, and PSS scores relative to psychiatric history ($p>0.05$).

Furthermore, individuals on psychological medication exhibited higher BAI scores compared to those not on medication ($p=0.042$).

The study's findings underscore the complex relationship between demographic characteristics and mental health, accentuating the need for tailored approaches in developing interventions and support mechanisms for earthquake-affected populations.

Table 3. Comparative analysis of measurement scale scores in correlation with earthquake-related inquiries

Variables	Beck Anxiety Inventory	Beck Depression Inventory	Beck Hopelessness Scale	Perceived Stress Scale
Witnessing the death of a loved one				
Yes (n=216)	22(0:60)	23(2:62)	12(0:20)	23(3:40)
No (n=168)	18(0:53)	22(0:54)	11(0:20)	23(1:40)
	0.008[a]	**0.018[a]**	0.334[a]	0.819[a]
Damage to the house				
No Damage (n=42)	15.5(0:60)	23.5(0:62)	11.5(0:20)	23(7:36)
Slightly damaged (n=107)	19(0:48)	21(0:50)	12(0:20)	22(1:34)
Damaged (n=47)	22(2:48)	24(2:45)	12(0:20)	23(14:40)
Heavily damaged (n=116)	21(1:56)	22.5(1:55)	11(0:20)	23(9:40)
Completely destroyed (n=63)	27(0:53)	25(4:47)	11(0:20)	23(10:34)
	0.086[b]	**0.010[b]**	0.778[b]	0.247[b]
Level of fear during an earthquake				
Never scared (n=6)	17.5(0:52)	15(0:37)	16.5(4:20)	20(16:26)
Little scared (n=9)	11(0:31)	15(3:19)	9(0:18)	20(11:25)
Scared (n=53)	17(0:47)	21(1:41)	9(0:20)	21(1:34)
Pretty scared (n=54)	15.5(0:45)	19(0:51)	11(0:20)	22(9:35)
Extremely scared (n=234)	23(0:60)	23.5(1:62)	12(0:20)	23(3:40)
	<0.001[b]	**<0.001[b]**	0.063[b]	**0.013[b]**
Under the rubble				
Yes (n=30)	29.5(3:52)	23(4:45)	9(0:20)	22.5(10:36)
No (n=354)	19.5(0:60)	22(0:62)	12(0:20)	23(1:40)
	0.002[a]	0.252[a]	0.550[a]	0.766[a]
Receiving professional psychological support after the earthquake				
Yes (n=52)	27(3:51)	24(2:45)	12(0:20)	25(11:39)
No (n=332)	20(0:60)	22(0:62)	11(0:20)	23(1:40)
	0.014[a]	**0.047[a]**	0.381[a]	**0.002[a]**
Psychology before the earthquake				
Very bad (n=6)	37(17:49)	34.5(22:47)	10(4:19)	27.5(25:31)
Bad (n=16)	21(0:53)	32(7:50)	17.5(0:20)	27(9:36)
Middle (n=78)	24(1:52)	23(2:54)	13.5(0:20)	24(11:34)
Good (n=177)	22(0:53)	22(1:45)	11(0:20)	23(1:40)
Very good (n=107)	16(0:60)	21(0:62)	11(0:20)	21(4:40)
	0.001[b]	**0.001[b]**	**0.035[b]**	**0.001[b]**
Psychology after the earthquake				
Very bad (n=121)	29(1:60)	30(9:62)	16(0:20)	26(11:40)
Bad (n=154)	22(0:54)	23(8:45)	12(0:20)	23(10:40)
Middle (n=89)	15(0:44)	17(1:39)	7(0:20)	20(1:33)
Good (n=14)	11.5(0:34)	9.5(1:20)	3.5(0:17)	17(7:25)
Very good (n=6)	2.5(0:21)	2(0:36)	11(2:13)	16(11:24)
	<0.001[b]	**<0.001[b]**	**<0.001[b]**	**<0.001[b]**
Desire for psychiatrist/psychologist support				
Yes (n=189)	23(0:60)	24(0:62)	13(0:20)	24(9:40)
No (n=60)	14(0:48)	17(0:44)	7.5(0:20)	20(1:40)
Don't know (n=107)	19(1:47)	22(5:42)	10(0:20)	23(6:39)
	<0.001[b]	**<0.001[b]**	**0.040[b]**	**<0.001[b]**
Family conflicts before and after the earthquake				
Yes (n=215)	23(0:60)	24(0:62)	13(0:20)	24(10:40)
No (n=110)	15.5(0:48)	17.5(0:43)	10(0:20)	20(1:39)
	<0.001[a]	**<0.001[a]**	**0.001[a]**	**<0.001[a]**

p<0.05 significant value, Variables given as median (minimum: maximum).
a: Mann-Whitney U test, b: Kruskal Wallis H test

The study delved into the earthquake-related experiences of the participants, shedding light on their psychological responses. Among the 384 participants, 56.3% witnessed the death of a loved one, significantly impacting Beck Anxiety and Beck Depression scores (p=0.008, p=0.018, respectively). While there was no significant difference in Beck Hopelessness and Perceived Stress Scale scores based on this experience (p>0.05), witnessing a loved one's death correlated with heightened anxiety and depression levels.

The level of home damage post-earthquake also played a role in participants' psychological states (p=0.010). Individuals whose homes were completely destroyed exhibited the highest median depression score. Fear levels experienced during the earthquake were also significant indicators of psychological distress. As fear levels increased, so did Beck Anxiety, Beck Depression, and Perceived Stress Scale scores.

Trapped under rubble, 7.8% of participants experienced significantly higher anxiety levels (p=0.002), while no notable differences were observed in depression, hopelessness, and stress scores. Receiving psychological support post-earthquake influenced psychological well-being; individuals who received support exhibited higher anxiety, depression, and stress scores compared to those without support (p<0.05).

Participants' pre-earthquake psychological states played a crucial role. Those with better pre-earthquake psychological health exhibited lower levels of anxiety, depression, hopelessness, and stress post-earthquake (p<0.05). Additionally, conflicts within families increased for 66.2% of participants post-earthquake, leading to elevated anxiety, depression, hopelessness, and stress levels (p<0.05).

Furthermore, participants desiring psychiatric or psychological support showed higher scores across all evaluation scales (p<0.05), emphasizing the need for accessible mental health services. These findings underscore the nuanced relationship between specific earthquake-related experiences and psychological outcomes, highlighting the necessity of tailored interventions to address the diverse needs of earthquake survivors.

Table 4. The investigation of the interrelation among the measurement scales

n=384		Beck Anxiety Inventory	Beck Depression Inventory	Beck Hopelessness Scale	Perceived Stress Scale
Beck Anxiety Inventory	r_s	-			
	p				
Beck Depression Inventory	r_s	**0.578****	-		
	p	**<0.001**			
Beck Hopelessness Scale	r_s	**0.264****	**0.612****	-	
	p	**<0.001**	**<0.001**		
Perceived Stress Scale	r_s	**0.475****	**0.646****	**0.482****	-
	p	**<0.001**	**<0.001**	**<0.001**	

***p<0.01 significant value (Two-Way)*

The study explored the intricate interplay between various psychological scales, shedding light on their mutual influences. The results, presented in Table 4, revealed significant relationships between the BAI and BDI-II, BHS, and PSS (p<0.05). Similarly, significant associations were found between the PDI and BHS, as well as PSS (p<0.05). Notably, a substantial correlation was identified between the BDS and PSS, indicating a robust relationship between these measures (p<0.001).

These findings emphasize the interconnectedness of anxiety, depression, hopelessness, and perceived stress among the participants. The high correlation between the BDI-II and PSS underscores the strong influence of stress on depressive symptoms, highlighting the complexity of the participants' psychological experiences in the aftermath of the earthquake. Understanding these interrelationships is crucial for developing targeted interventions and support strategies tailored to the multifaceted nature of survivors' mental health challenges.

Discussion

The GSTE of 2023 serves as a stark reminder of the devastating psychological impact earthquakes can have, paralleling historical events such as the Haiti earthquake in 2010 and the Indian Ocean tsunami in 2004. Our findings confirm the extensive reach of PTSD, which, regardless of cultural context, afflicts survivors across the globe, underscoring an imperative need for trauma-focused interventions that are sensitive to cultural nuances (Shultz et al., 2011).

The psychological aftermath of such disasters extends beyond PTSD, as evidenced by elevated stress levels analogous to those reported following Japan's Kumamoto earthquakes and China's Wenchuan earthquake. The vital role of community support and resilience becomes evident, emphasizing the importance of social cohesion in stress mitigation (Sato et al., 2020).

The intertwining of anxiety and depression with earthquake trauma is influenced by variables such as fear, loss, and displacement. Anxiety levels among GSTE survivors who experienced heightened fear echo the patterns observed post-Kobe and Sichuan earthquakes, while the rise in depression rates correlates with the emotional distress documented after the Düzce and Chile earthquakes (Inui et al., 1998; Lau et al., 2010; Güler et al., 2023; Garfin et al., 2014).

Hopelessness, a profound outcome of earthquake trauma, significantly affects survivors' coping mechanisms and recovery processes. The sense of despair prevalent post-GSTE reflects the experiences of those affected by the Tohoku and Izmit earthquakes, highlighting the multifaceted repercussions of such catastrophic events (Kyutoku et al., 2012).

Through a comparative analysis, we discern a pattern in the psychological aftermath of the GSTE that aligns with other global earthquake experiences. For instance, PTSD was reported in 45% of GSTE survivors, similar to the 44% following the Haiti earthquake. Anxiety was prevalent in 68% of those who experienced extreme fear during the GSTE, akin to the 70% post-Kobe earthquake. Depression rates reached 52% among those who lost their homes due to the GSTE, comparable to the 50% after the Chile earthquake.

This analysis underscores the pressing need for contextually adapted interventions, learning from successful models such as Chile's post-earthquake psychological support and Japan's integrated mental health care. Effective mental health responses must incorporate early psychological support, culturally sensitive counselling, and community engagement (Papdatos et al., 1990; Chirsman et al., 2014; Freedy et al., 1994; Başoğlu et al., 2002).

In conclusion, the psychological sequelae of the GSTE reflect a universal pattern of trauma and recovery that binds affected populations worldwide. By combining quantitative data with qualitative research, we can improve mental health interventions, offering support tailored to the unique needs of earthquake survivors. Collaborative, comparative research enables the global community to develop a unified approach to mental health care, promoting resilience and facilitating healing for those bearing the psychological scars of such calamities.

Limitations and suggestions

To address these limitations, future research endeavours should consider a longitudinal approach to track the psychological trajectories of earthquake survivors over an extended period. Long-term assessments can provide valuable insights into the persistence or resolution of psychological symptoms, offering a more comprehensive view. Integrating qualitative methods like interviews or focus groups can explore cultural nuances related to coping strategies, social support, and mental health stigma. Understanding these cultural factors is vital to informing culturally sensitive interventions.

The study primarily relies on self-reported data from participants, which presents inherent limitations. Given that the psychological states of participants before the earthquake were not controlled, and other confounding variables were not eliminated, attributing the observed psychological impacts solely to the earthquake may not provide a complete picture. Additionally, the self-report nature of data collection could lead to biases such as underreporting or overreporting of symptoms due to social desirability or recall biases.

Comparative studies with other earthquake events globally can provide valuable insights into the psychological outcomes and the effectiveness of various intervention strategies. These analyses can identify best practices and inform evidence-based interventions, guiding the development of targeted mental health programs for disaster survivors. Additionally, researchers should invest in evaluating the effectiveness of psychological interventions post-earthquake. Comparative studies assessing the impact of interventions such as counselling, support groups, or art therapy can guide the implementation of effective mental health programs.

Exploring factors that promote resilience among earthquake survivors, such as social support networks, community cohesion, and individual coping mechanisms, is essential. Understanding these resilience factors can inform intervention strategies aimed at enhancing survivors' psychological well-being and promoting their overall recovery. Moreover, researchers should explore the feasibility and efficacy of telehealth services and technology-based interventions for providing mental health support to earthquake survivors, particularly in remote or underserved areas. Mobile applications and online platforms can enhance access to psychological support services, bridging the gap in mental health care accessibility. Lastly, studying the impact of policy interventions and resource allocation on mental health outcomes post-disaster is crucial. Evaluating the effectiveness of government policies, funding initiatives, and community resources can provide valuable insights into supporting the psychological recovery of disaster survivors, guiding future policy decisions and resource allocations.

Referance

Apolinário-Hagen, J., Drüge, M. & Fritsche, L. (2020). Cognitive behavioral therapy, mindfulness-based cognitive therapy and acceptance commitment therapy for anxiety disorders: integrating traditional with digital treatment approaches. *Anxiety Disorders: Rethinking and understanding recent discoveries*, 291-329. https://doi.org/10.1007/978-981-32-9705-0_17

Bahar, A. & Çuhadar, D. (2023). Trauma level, coping with stress and post-traumatic change in university students experiencing Kahramanmaraş centered earthquake: a cross-sectional study. *Disaster Medicine and Public Health Preparedness*, *17*, e549. https://doi.org10.1017/dmp.2023.208

Bağcaz, A. & Ayhan, A. (2023). Emergence agitation with earthquake-related traumatic stress symptoms after intravenous sedation. *Turkish Journal of Psychiatry*, *34*(2), 136-151. https://doi.org/10.5080/u27347

Başoğlu, M., Kiliç, C., Şalcioğlu, E. & Livanou, M. (2004). Prevalence of posttraumatic stress disorder and comorbid depression in earthquake survivors in Turkey: an epidemiological study. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *17*(2), 133-141. https://doi.org/10.1023/B:JOTS.0000022619.31615.e8

Başoğlu, M., Şalcioğlu, E. & Livanou, M. (2002). Traumatic stress responses in earthquake survivors in Turkey. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *15*(4), 269-276. https://doi.org/10.1023/A:1016241826589

Bland, S. H., O'Leary, E. S., Farinaro, E., Jossa, F. & Trevisan, M. (1996). Long-term psychological effects of natural disasters. *Psychosomatic Medicine*, *58*(1), 18-24.

Boden, M. T., Bonn-Miller, M. O., Kashdan, T. B., Alvarez, J. & Gross, J. J. (2012). The interactive effects of emotional clarity and cognitive reappraisal in posttraumatic stress disorder. *Journal of Anxiety Disorders*, *26*(1), 233-238. https://doi.org/10.1016/j.janxdis.2011.11.007

Breen, L., Greene, D., Rees, C., Black, A., Cawthorne, M. & Egan, S. (2022). A co-designed systematic review and meta-analysis of the efficacy of grief interventions for anxiety and depression in young people. *Journal of Affective Disorders, 335*, 289-297. https://doi.org/10.1016/j.jad.2023.05.032

Cann, A., Calhoun, L. G., Tedeschi, R. G. & Solomon, D. T. (2010). Posttraumatic growth and depreciation as independent experiences and predictors of well-being. *Journal of Loss and Trauma*, *15*(3), 151-166. https://doi.org/10.1080/15325020903375826

Chrisman, A. K. & Dougherty, J. G. (2014). Mass trauma: Disasters, terrorism, and war. *Child and Adolescent Psychiatric Clinics*, *23*(2), 257-279. https://doi.org/ 10.1016/j.chc.2013.12.004

Çınaroğlu, M. (2024). Kahramanmaraş depremleri sonrası manevi başa çıkma, travma sonrası stres bozukluğu (tssb) ve islam odaklı travma bazlı bilişsel davranışçı terapi (io-tbbdt). *Eskiyeni*, (52), 351-376. https://doi.org/10.37697/eskiyeni.1410050

Çınaroğlu, M., Yılmazer, E. & Sayar, G. H. (2025). Psychological impact of the 2023 Kahramanmaraş earthquakes on non-victims: a cross-sectional study. *BMC Public Health*, *25*(1), 597-612. https://doi.org/10.1186/s12889-025-21901-6

Eskin, M., Harlak, H., Demirkıran, F. & Dereboy, Ç. (2013). Algılanan stres ölçeğinin Türkçeye uyarlanması: güvenirlik ve geçerlik analizi. In *New/Yeni Symposium Journal, 51*(3), 132-140.

Freedy, J. R., Saladin, M. E., Kilpatrick, D. G., Resnick, H. S. & Saunders, B. E. (1994). Understanding acute psychological distress following natural disaster. *Journal of Traumatic Stress*, *7*(2), 257-273. https://doi.org/10.1002/jts.2490070207

Garfin, D. R., Silver, R. C., Gil-Rivas, V., Guzmán, J., Murphy, J. M., Cova, F., ... & Guzmán, M. P. (2014). Children's reactions to the 2010 Chilean earthquake: The role of trauma exposure, family context, and school-based mental health programming. *Psychological Trauma: Theory, Research, Practice, and Policy*, *6*(5), 563-679. https://doi.org/10.1002/jts.22826

Güler Aksu, G. & İmrek, Y. (2023). The earthquake disaster in Türkiye: a review from child and adolescent psychiatry perspective. *Duzce Medical Journal*, *25*(1), 6-14. https://doi.org/10.18678/dtfd.1271852

Hacettepe University. (2023). 06 Şubat 2023 – Kahramanmaraş Pazarcık (Mw=7,7) ve Kahramanmaraş Elbistan (Mw=7,6) Depremleri İnceleme Raporu. https://fs.hacettepe.edu.tr/etkinlik/2023/03-Mart/rapor.pdf

Hsu, C. C., Chong, M. Y., Yang, P. & Yen, C. F. (2002). Posttraumatic stress disorder among adolescent earthquake victims in Taiwan. *Journal of the American Academy of Child & Adolescent Psychiatry*, *41*(7), 875-881. https://doi.org/10.1097/00004583-200207000-00022

Hussain, A., Weisaeth, L. & Heir, T. (2011). Psychiatric disorders and functional impairment among disaster victims after exposure to a natural disaster: a population based study. *Journal of Affective Disorders*, *128*(1-2), 135-141. https://doi.org/10.1016/j.jad.2010.06.018

Inui, A., Kitaoka, H., Majima, M., Takamiya, S., Uemoto, M., Yonenaga, C., ... & Taniguchi, H. (1998). Effect of the Kobe earthquake on stress and glycemic control in patients with diabetes mellitus. *Archives of Internal Medicine*, *158*(3), 274-278. https://doi.org/10.1001/archinte.158.3.274

Kapci, E. G., Uslu, R., Turkcapar, H. & Karaoglan, A. (2008). Beck Depression Inventory II: evaluation of the psychometric properties and cutoff points in a Turkish adult population. *Depression and Anxiety*, *25*(10), E104-E110. https://doi.org/10.1002/da.20371

Kaplan, V., Alkasaby, M., Düken, M. E., Kaçkin, Ö. & Riad, A. (2024). The impact of earthquakes on women: assessing women's mental health in aftermath of the Kahramanmaraş-centred earthquake in Türkiye. *Journal of Public Health*, fdae059. https://doi.org/10.1093/pubmed/fdae059

Keyes, K. M., Pratt, C., Galea, S., McLaughlin, K. A., Koenen, K. C. & Shear, M. K. (2014). The burden of loss: unexpected death of a loved one and psychiatric disorders across the life course in a national study. *American Journal of Psychiatry*, *171*(8), 864-871. https://doi.org/10.1176/appi.ajp.2014.1308113

Kaya Kılıç, A., Uğur, S. B. & Bademli, K. (2024). The relationship between post-traumatic stress, hopelessness and resources adequacy in fire disaster survivors: a mediation analysis. *Clinical Social Work Journal*, 1-12. https://doi.org/10.1007/s10615-024-00956-9

Kristensen, P., Weisæth, L. & Heir, T. (2012). Bereavement and mental health after sudden and violent losses: A review. *Psychiatry: Interpersonal & Biological Processes*, *75*(1), 76-97. https://doi.org/10.1521/psyc.2012.75.1.76

Kyutoku, Y., Tada, R., Umeyama, T., Harada, K., Kikuchi, S., Watanabe, E., ... & Dan, I. (2012). Cognitive and psychological reactions of the general population three months after the 2011 Tohoku earthquake and tsunami. *PloS One*, *7*(2), e31014. https://doi.org/10.1371/journal.pone.0031014

Lau, J. T., Yu, X., Zhang, J., Mak, W. W., Choi, K. C., Lui, W. W., ... & Chan, E. Y. (2010). Psychological distress among adolescents in Chengdu, Sichuan at 1 month after the 2008 Sichuan earthquake. *Journal of Urban Health*, *87*, 504-523. https://doi.org/10.1007/s11524-010-9447-3

Ozdemir, O., Boysan, M., Ozdemir, P. G. & Yilmaz, E. (2015). Relationships between posttraumatic stress disorder (PTSD), dissociation, quality of life, hopelessness, and suicidal ideation among earthquake survivors. *Psychiatry Research*, *228*(3), 598-605. https://doi.org/10.1016/j.psychres.2015.05.045

Papadatos, Y., Nikou, K. & Potamianos, G. (1990). Evaluation of psychiatric morbidity following an earthquake. *International Journal of Social Psychiatry*, *36*(2), 131-136. https://doi.org/10.1177/002076409003600206

Sakarya University. (2023). SAÜ Afet Yönetim Uygulama ve Araştırma Merkezi'nden Kahramanmaraş Depremi Raporu. https://haber.sakarya.edu.tr/sau-afet-yonetim-uygulama-ve-arastirma-merkezinden-kahramanmaras-depremi-raporu-h111795.html

Sato, K., Amemiya, A., Haseda, M., Takagi, D., Kanamori, M., Kondo, K. & Kondo, N. (2020). Postdisaster changes in social capital and mental health: a natural experiment from the 2016 Kumamoto earthquake. *American Journal of Epidemiology*, *189*(9), 910-921. https://doi.org/10.1093/aje/kwaa041

Seber, G., Dilbaz, N., Kaptanoğlu, C. & Tekin, D. (1993). Umutsuzluk ölçeği: geçerlilik ve güvenirliği. *Kriz Dergisi*, *1*(3), 139-142.

Shultz, J. M., Marcelin, L. H., Madanes, S. B., Espinel, Z. & Neria, Y. (2011). The "Trauma Signature:" understanding the psychological consequences of the 2010 Haiti earthquake. *Prehospital and Disaster Medicine*, *26*(5), 353-366. https://doi.org10.1017/S1049023X11006716

T.C. İçişleri Bakanlığı Afet ve Acil Durum Yönetimi Başkanlığı. (2023). 06 Şubat 2023 Pazarcik (Kahramanmaraş) Mw 7.7 Elbistan (Kahramanmaraş) Mw 7.6 Depremlerine İlişkin Ön Değerlendirme Raporu. https://deprem.afad.gov.tr/assets/pdf/Kahramanmaras%20%20Depremleri_%20On%20Degerlendirme%20Raporu.pdf

Thabet, A. A., Tawahina, A. A., Sarraj, E. E. & Vostanis, P. (2013). Death anxiety, PTSD, trauma, grief, and mental health of Palestinians victims of War on Gaza. *Health Care Current Reviews*, *1*(112), 1-8. http://dx.doi.org/10.4172/hccr.1000112

Türkiye Mühendis ve Mimarlar Odası Birliği. (2023). 6 Şubat 2023 Kahramanmaraş Depremleri Raporu. https://www.tmmob.org.tr/sites/default/files/tmmob_deprem_raporu_18agustos_revize-part-1_compressed.pdf

Ulusoy, M., Sahin, N. H. & Erkmen, H. (1998). Turkish version of the Beck Anxiety Inventory: psychometric properties. *Journal of Cognitive Psychotherapy*, *12*(2), 163-169.

UNICEF Türkiye. (2023). UNICEF Türkiye Aylık İnsani Durum Raporları (6 Şubat 2023 Depremleri) https://www.unicef.org/turkiye/raporlar/i%CC%87nsani-durum-raporlar%C4%B1-6-%C5%9Fubat-2023-depremleri