



RESEARCH ARTICLE

Prevalence and determinants of probable post-traumatic stress disorder among university students eight months after the 2023 Kahramanmaras earthquake doublet

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ABSTRACT

Objective: The devastating Kahramanmaras earthquake doublet struck with a magnitude of Mw 7.8 and Mw 7.7, occurring 9 hours apart on February 6, 2023. Earthquakes can cause significant psychological impacts. This study aimed to investigate the prevalence and determinants of probable post-traumatic stress disorder (PTSD) among university students eight months following the 2023 earthquake doublet in Kahramanmaras, Turkiye.

Method: Convenience sampling was used to recruit participants. The study included 445 university students who completed a detailed questionnaire about the 2023 Turkiye-Syria earthquakes, along with the PTSD checklist for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5, PCL-5). Researchers prepared the questionnaire to evaluate pre-earthquake psychiatric history, behavioral reactions during and after the earthquake, experiences of being trapped under rubble, physical injury status, extent of property damage, and loss of loved ones through face-to-face interviews.

Results: According to the PCL-5 scores, 61.6% of the participants exhibited probable earthquake-related PTSD. Factors associated with a higher prevalence of probable earthquake-related PTSD included being female, having severe house damage, pre-existing psychiatric conditions, and a history of traumatic events. Only 26.5% of the participants were in a safer location outside buildings during the second earthquake.

Conclusion: A total of 274 subjects (61.6%) were diagnosed with probable earthquake-related PTSD eight months after the 2023 Kahramanmaras earthquake. The determinants linked to a probable PTSD diagnosis were severe house damage, pre-existing psychiatric conditions, a history of traumatic events, and being female. These findings enhance our understanding of probable earthquake-related PTSD, its associated risk factors, and underscore the importance of taking preventive measures to mitigate the psychological impacts of earthquakes.

Keywords: Earthquake, post-traumatic stress disorder (PTSD), risk factors, disaster

INTRODUCTION

On February 6, 2023, at 04:17, an earthquake with a magnitude of 7.8 Mw struck in the Pazarcık district

of Kahramanmaras province, Turkiye. Later the same day, at 13:24, a second major earthquake occurred, registering a magnitude of 7.7 Mw in the Elbistan district of the same province (1). These seismic events

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were part of the activity along the East Anatolian Fault Zone, one of the most active fault systems in and around Türkiye (2). The initial earthquake lasted 65 seconds and the second for 45 seconds (3). These major earthquakes affected 11 provinces of Türkiye, impacted approximately 15 million people, and resulted in over 50,000 fatalities (4). Specifically, in Malatya, official reports state that 1,346 people were killed, 6,962 were injured, and 1,154 buildings collapsed (5). Within three months following the earthquakes, 33,591 aftershocks were recorded in the region, including 550 with magnitudes between 4.0 and 5.0, 48 between 5.0 and 6.0, and 2 between 6.0 and 7.0 (3).

Disasters like these have profound short-term and long-term effects on socioeconomic, political, physical, and psychological dimensions (6). While immediate problems are often addressed, many psychological issues remain undetected (7). The immense emotional suffering caused by such events can have lasting effects on the mental health of affected populations (8). Common psychiatric disorders among earthquake survivors include sleep disorders, major depression, anxiety, and post-traumatic stress disorder (PTSD) (9). PTSD can develop following exposure to actual or threatened death, serious injury, or sexual violation and is characterized by symptoms such as re-experiencing traumatic events, avoidance of reminders, emotional numbing, cognitive distortions, and hyperarousal (10). The prevalence of earthquake-related PTSD varies widely in the literature. For instance, a study conducted one year after the 2008 Wenchuan earthquake (measuring 8.0 Mw on the Richter scale) reported a PTSD prevalence of 40.1% (11). Two years after the Spitak earthquake (Mw 6.8) in Armenia, the prevalence of PTSD was 49.6% (12). Twenty months after the 1999 Marmara earthquake (Mw 7.4) in Türkiye, the prevalence stood at 39% (13). Following a Mw 6.0 earthquake in Central Italy, a two-year study reported a prevalence of 21.7% (14). Feder et al. (15) conducted a study three years after the 2005 Pakistan earthquake (Mw 7.6), finding that the prevalence of PTSD was 65%. These studies, conducted among adult earthquake survivors in the general population, demonstrate significant variability in PTSD prevalence. This variability may be due to factors such as the time elapsed since the disaster, the earthquake's magnitude, the number of deaths, post-earthquake living conditions, and the study design. There is a need for more standardized methodologies to accurately determine the prevalence of earthquake-

related PTSD across different affected populations. Additionally, longitudinal studies are essential to track the progression of earthquake-related PTSD symptoms over time.

Research on the risk factors for developing earthquake-related PTSD indicates that both disaster-related and individual variables play a role. For example, a study found that the presence of depression and anxiety before the earthquake significantly increased earthquake-related distress compared to the presence of schizophrenia-spectrum disorders before the earthquake. In this study, both patient groups exhibited significantly higher earthquake-related distress than healthy controls (16). Additionally, the loss of family members or close friends increases the likelihood of developing earthquake-related PTSD. Dell'Osso et al. (17) observed significantly higher earthquake-related PTSD symptom severity in bereaved survivors compared to non-bereaved survivors. A meta-analysis revealed that PTSD prevalence among survivors with damaged houses was significantly higher compared to those whose houses were undamaged (18). Additionally, being female and having a low educational level are risk factors for developing earthquake-related PTSD (19). Physical injuries resulting from the earthquake also significantly increase the incidence of earthquake-related PTSD (18). Proximity to the epicenter and the degree of earthquake exposure are associated with a higher risk of developing earthquake-related PTSD (20). Another meta-analysis identified being female, having a history of trauma, low education level, low socio-economic status, being trapped, physical injury, and bereavement during the disaster as significant predictors of PTSD post-earthquake (21). Eveningness chronotype is another risk factor for developing earthquake-related PTSD (22). A study assessing the impact of individuals' causal explanations for the disaster on probable PTSD found that women who blamed other humans for the disaster exhibited higher levels of probable PTSD compared to those who attributed it to religious or natural causes (23). The disparity in managing risk factors between developed and developing countries is notable. Earthquake-related psychological issues are more severe in developing countries due to higher fatalities, building collapses, and inadequate post-disaster responses (24–26). While many risk factors for earthquake-related PTSD have been identified, the relationships among these factors remain unclear. Some studies report significant associations, while others do not,

leading to contradictory conclusions about which factors are most predictive of PTSD. Therefore, further research is needed to clarify these associations and to develop comprehensive models that account for multiple risk factors. In this study, we have developed a comprehensive model that includes a variety of risk factors to assess potential predictive risk factors of earthquake-related PTSD.

The earthquake doublet on February 6, 2023, in Türkiye caused catastrophic impacts across the entire region, ranking as the fifth-deadliest earthquake of the 21st century (27). Subsequent major earthquakes, aftershocks, and new seismic activities in different fault zones have had devastating effects on the region. This extraordinary disaster continues to severely disrupt the daily lives of the local population in the region, complicating and exacerbating psychological issues. The primary objective of this study was to estimate the probable prevalence of earthquake-related PTSD within a convenience sample from the Malatya population. Additionally, we aimed to identify potential predictive risk factors of earthquake-related PTSD and to explore the behavioral responses of participants during and after the earthquakes, which are critical for minimizing the psychological impact of such disasters. We hypothesized that specific individual and earthquake-related factors, including being female, extensive property damage, pre-existing psychiatric conditions, a history of trauma, being trapped under rubble, physical injury, and the loss of loved ones, would be significantly associated with an increased likelihood of developing earthquake-related PTSD among university students.

METHODS

Study Design

This cross-sectional study was conducted from September 16, 2023, to October 6, 2023, and included individuals from Malatya province who were affected by the 2023 Türkiye-Syria earthquakes.

Participants

This study involved university students from a state university in Malatya province, Türkiye. The inclusion criteria were: 1) ages 18-65; and 2) mental competence to participate in face-to-face interviews. The exclusion criteria included: 1) individuals with dementia, mental retardation, or active substance abuse; and 2) those with a history of severe head trauma, epilepsy, or other neurological disorders.

Convenience sampling was employed to recruit participants. We made announcements during classes to invite students who had experienced the earthquakes on February 6, 2023, in Kahramanmaraş to participate in the study. In these announcements, we specified that only students who were in Malatya on the day of the earthquakes and whose experiences could provide insight into the psychological impacts of the earthquakes were invited. Our recruitment efforts reached a total of 550 university students across various departments. Ultimately, 484 volunteers enrolled in the study, representing an acceptance rate of 88%. However, 39 participants were excluded due to incomplete data on the psychometric scales, leaving 445 participants to be evaluated. Volunteers were fully informed about the study's purpose, and all procedures were conducted in accordance with the Declaration of Helsinki. Interviews were conducted by a psychiatrist and a mental health nurse. The study received approval from the Malatya Turgut Ozal University Non-Interventional Studies Ethics Committee on August 18, 2023 (Session number: 34).

Measurements

Sociodemographic Form and Earthquake-Related Factors Questionnaire

Participants answered detailed questions regarding the 2023 Türkiye-Syria earthquakes. Sociodemographic attributes and earthquake-related factors were assessed through a questionnaire developed specifically for this study by the research team, drawing on a comprehensive review of the literature on earthquakes, other natural disasters, and PTSD. Questions covered demographic characteristics, pre-earthquake psychiatric history, the floor level during the earthquake, experiences of being trapped under rubble, physical injury status, extent of property damage, actions taken to reach a safer place post-earthquake, and the death of close relatives or friends during the disaster. We also investigated the traumatic event history of respondents using the Life Events Checklist for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5, LEC-5) to identify personally experienced traumatic events (28).

PTSD Checklist for DSM-5 (PCL-5)

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measure that assesses the symptoms of PTSD as defined in the DSM-5. Each item is rated on a 5-point Likert scale from 0 (not at all) to 4 (extremely), reflecting how much the individual has been disturbed by PTSD symptoms over the past month. Scores

range from 0 to 80. The scale includes four subscales that correspond to the PTSD symptom clusters identified in the DSM-5: re-experiencing, avoidance, negative alterations in mood and cognitions, and hyperarousal. The total symptom score is the sum of all item scores and provides an indication of the severity of PTSD symptoms. The Turkish validity and reliability of the scale were established by Boysan et al. (29), demonstrating good reliability with composite reliability coefficients of 0.79 to 0.92 for re-experiencing, 0.73 to 0.91 for avoidance, 0.85 to 0.90 for negative alterations, and 0.81 to 0.88 for hyperarousal. Test-retest intra-correlation coefficients were 0.70, 0.64, 0.78, and 0.76, respectively. The authors recommend using a cut-off score of 47 to diagnose probable PTSD.

Data Analysis

All statistical analyses were conducted using IBM Statistical Package for the Social Sciences (SPSS) for Windows, version 21.0. The Kolmogorov-Smirnov test was employed to determine the normality of the data distribution. The relationship between probable PTSD diagnosis and sociodemographic, clinical, and earthquake-related variables was examined using either the Student t-test or the Mann-Whitney U test. Binomial logistic regression analysis was conducted to investigate the association between clinical and earthquake-related factors and the likelihood of a probable PTSD diagnosis. Clinical and earthquake-related factors that showed statistical significance in univariate analyses were used as independent variables. The Hosmer-Lemeshow test was utilized to assess model fit. A significance level of $p < 0.05$ was adopted for all statistical analyses.

RESULTS

Sociodemographic and Clinical Characteristics of Participants

The overall mean age of the participants was 22.4 ± 3.9 years. Males comprised 42.5% of the participants ($n=189$). All participants were university students. Their education lasted an average of 13.6 ± 3.8 years, and the marriage rate was 7.9% ($n=35$). The prevalence of probable earthquake-related PTSD among participants was 61.6% ($n=274$). The average PCL-5 score was 48.3 ± 14.3 . Additionally, 7.4% of the participants were residing in container cities at the time of the study. Prior to the earthquake, 11.2% had a psychiatric diagnosis (Table 1).

Table 1: Sociodemographic and clinical characteristics of participants

	Total subjects (n=445)	Percentage (%)
Sex, n		
Male	189	42.5
Female	256	57.5
Age, years (mean \pm SD)	22.4 \pm 3.9	
Duration of education, years (mean \pm SD)	13.6 \pm 3.8	
Family Income (monthly), n (%)		
Below minimum wage	155	34.8
Above minimum wage	290	65.2
Marital status, n		
Married	35	7.9
Unmarried	406	91.2
Widow/widower	4	0.9
PCL-5 score (mean \pm SD)	48.3 \pm 14.3	
Probable PTSD diagnosis, n	274	61.6
Living in a container city, n	33	7.4
Psychiatric diagnosis prior to the EQ, n		
None	395	88.8
Depression	39	8.8
Anxiety disorder	7	1.6
Alcohol dependence	2	0.4
ADHD	2	0.4

n: Number of Participants; ADHD: Attention Deficit Hyperactivity Disorder; EQ: Earthquake; PCL-5: PTSD Checklist for DSM-5; PTSD: Post-Traumatic Stress Disorder; SD: Standard Deviation.

Earthquake-Related and Sociodemographic Characteristics of Participants According to PTSD Status

The Student's t-test and Mann-Whitney U test revealed no significant differences between the groups with and without probable PTSD in terms of age ($p=0.116$), behavior of seeking a safer location post-earthquake ($p=0.340$), exiting buildings immediately after the night earthquake ceased ($p=0.301$), the floor level of the house ($p=0.258$), sustaining physical injuries ($p=0.535$), participation in rescue operations ($p=0.608$), being trapped under rubble ($p=0.273$), and currently residing in container cities ($p=0.171$). During the first earthquake, all participants were at their homes. During the second earthquake, 27.4% of the probable PTSD present group and 25.1% of the probable PTSD absent group sought shelter in safer locations outside of buildings. The remaining participants reported that they were inside

Table 2: Assessment of earthquake-related characteristics of participants

	Probable PTSD present (n=274)	Probable PTSD absent (n=171)	P
Age (years)	22.6±4	22.1±2.5	0.116
Female subjects	172 (62.8%)	84 (49.1%)	0.005*
Went outside immediately after the shaking stopped (night EQ)	256 (93.4%)	155 (90.6%)	0.301
Was at a safer place during the second EQ	75 (27.4%)	43 (25.1%)	0.761
Went to a safer place after the EQ	179 (65.3%)	104 (60.8%)	0.340
Presence of moderate or severe damage to property	100 (36.5%)	36 (25%)	0.001*
Extent of property damage			
None or minimal	174 (63.5%)	135 (75%)	
Moderate	41 (15%)	12 (7%)	0.001*
Heavy	39 (14.2%)	17 (9.9%)	
Collapsed	20 (7.3%)	7 (4.1%)	
Death of a close relative or friend	114 (41.6%)	53 (31%)	0.025**
House floor	2.6±2.3	2.9±2.7	0.258
History of traumatic events	125 (45.6%)	47 (27.5%)	<0.001**
Physical injury due to the EQ	11 (4%)	5 (2.9%)	0.535
Involvement in rescue operations after the EQ	46 (16.8%)	32 (18.7%)	0.608
Being trapped under rubble	7 (2.6%)	2 (1.2%)	0.273
Living in a container city	24 (8.8%)	9 (5.3%)	0.171
Monthly income below the minimum wage, n (%)	101 (36.9%)	54 (31.6%)	0.256
Presence of any psychiatric diagnosis prior to the EQ	42 (15.3%)	8 (4.7%)	0.001*

*p≤0.05; **p<0.001; Statistical analyses were conducted using the Student's t-test and Mann-Whitney U test. n: Number of Participants; EQ: Earthquake.

buildings during the second earthquake. There was no significant difference between the groups regarding being in a safer place during the second earthquake ($p=0.761$). The proportion of females was significantly higher in the probable PTSD present group compared to the probable PTSD absent group ($p=0.005$). The rate of death of a close relative or friend due to an earthquake was significantly higher in the probable PTSD present group compared to the probable PTSD absent group ($p=0.025$). The presence of a history of traumatic events prior to the earthquake was significantly higher in the probable PTSD present group compared to the probable PTSD absent group ($p<0.001$). Of the participants, 89 (51.7% of those who reported a history of traumatic events) had previously experienced an earthquake. The presence of a psychiatric diagnosis prior to the earthquake was significantly higher in the probable PTSD present group compared to the probable PTSD absent group ($p=0.001$). The findings also show that the presence of moderate or severe earthquake-related damage to homes was higher in the probable PTSD present group compared to the probable PTSD absent group ($p=0.001$) (Table 2).

The Association Between Clinical, Earthquake-Related, and Sociodemographic Variables and the Diagnosis of PTSD with Logistic Regression Analysis

The regression model indicated that being female ($p=0.001$), having a psychiatric diagnosis before the earthquake ($p=0.007$), suffering moderate to severe damage to one's home due to the earthquake ($p=0.001$), and a history of traumatic events ($p<0.001$) were associated with probable earthquake-related PTSD. The logistic regression model was statistically significant ($\chi^2 [5, N = 445] = 48.97; p<0.001; \beta=0.785$; Nagelkerke $R^2=0.142$), demonstrating that the predictors reliably distinguished between the outcome categories. The logistic regression model fit well according to the Hosmer-Lemeshow goodness of fit test ($\chi^2=4.890, df=8, p=0.769$) (Table 3).

DISCUSSION

This study examined the prevalence of probable earthquake-related PTSD and its associated risk factors among university students in Malatya, eight months after the 2023 Kahramanmaraş earthquake.

Table 3: Logistic regression analysis identifying variables associated with probable PTSD diagnosis

Independent variables	B	p value	OR	95% Confidence interval
Gender (Female)	-0.703	0.001*	0.495	0.327–0.750
Presence of moderate to severe property damage	0.824	0.001*	2.279	1.396–3.720
Death of a close relative or friend	0.113	0.621	1.119	0.716–1.750
History of traumatic events	0.785	<0.001**	2.193	1.428–3.368
History of psychiatric diagnoses prior to the EQ	1.120	0.007*	3.066	1.363–6.897

*p<0.05; **p<0.001; EQ: Earthquake; OR: Odds Ratio; PTSD: Post-Traumatic Stress Disorder; Log likelihood ratio=543.870; Nagelkerke R2=0.142; Cox and Snell R2=0.104; Overall p-value<0.001.

The prevalence of probable earthquake-related PTSD was found to be 61.6%. Factors associated with a higher prevalence of probable PTSD included severe damage to homes, pre-existing psychiatric conditions, a history of trauma, and being female. Basoglu et al. (19) reported a PTSD prevalence of 43% among individuals in tent cities eight months following the 1999 Marmara earthquake, which registered 7.4 Mw on the Richter scale. Another study in Gaziantep, four months after the 2023 Kahramanmaras earthquake, found a PTSD prevalence of 43.5% among university students (22). Various studies have reported PTSD prevalence ranging from 21.5% to 41.0% among survivors in different locations one year after the 2008 Wenchuan earthquake, which measured 8.0 Mw on the Richter scale (11, 30, 31). Livanou et al. (32) found a 63% PTSD prevalence 14 months after the August 1999 earthquake with a magnitude of 7.4 mW. Factors such as the magnitude of the earthquake, proximity to the epicenter, number of fatalities, post-earthquake living conditions, and timing of the study likely influenced PTSD prevalence. In Malatya, the earthquakes caused extensive damage, with ongoing demolitions and disruptions to essential services exacerbating the daily challenges for residents. Additionally, frequent aftershocks and new seismic events in the region prevent the reduction of the traumatic impact of the earthquake doublet. Considering the cumulative stress since the earthquakes, we investigated the impact of the earthquakes on the mental health of university students in Malatya. We found that 6 out of 10 participants experienced symptoms of probable earthquake-related PTSD. Therefore, we recommend that clinicians thoroughly investigate symptoms of earthquake-related PTSD and assess the risk factors to mitigate the psychological impact of the earthquakes.

Our findings indicate that the extent of damage to homes, where individuals resided before the earthquake, was associated with a probable PTSD diagnosis. Consistent with our results, studies have shown that severe damage to residences is linked

to higher rates of earthquake-related PTSD (33–35). Besides the economic, safety, and security issues, homes generally hold significant symbolic value, representing the personal history, stability, and identity of individuals. Severe damage or loss of a home due to an earthquake may intensify the psychological impact of the disaster. In earthquakes, developing countries face a higher risk of large-scale destruction due to poor building structures and a lack of disaster preparedness (35). Our findings indicate that being female is associated with a probable earthquake-related PTSD diagnosis. In a study, higher PTSD symptoms in female civilians were attributed to intense peritraumatic emotional distress (36). Being female was associated with an earthquake-related PTSD diagnosis in several studies (35, 37, 38). Aksaray et al. (39) demonstrated that women experience more severe psychological reactions than men following a disastrous earthquake. This disparity may be due to traditional gender roles and a patriarchal system that disproportionately exposes women to traumatic events such as gender-based violence, sexual violence, and harassment (40). The patriarchal system can restrict women's access to education, healthcare, and economic opportunities, leading to socioeconomic inequalities. These inequalities are linked to higher rates of mental illness among women (41). The psychosocial factors contributing to the higher prevalence of earthquake-related PTSD among women should be further investigated. In response, specific interventions are necessary in the aftermath of such disasters, with particular attention to the female gender.

Additionally, we found that the existence of a traumatic history is associated with a probable earthquake-related PTSD diagnosis. Several studies have shown that experiencing traumatic events in the past increases the risk of developing PTSD following subsequent trauma (42–44). A longitudinal study indicated that prior traumatic events predicted the immediate reaction to trauma and the development of PTSD after the current trauma (45). A prospective

epidemiological study demonstrated that prior trauma increases the risk of PTSD after a subsequent trauma only among individuals who developed PTSD in response to the prior trauma (46). In our study, 51.7% of participants who reported a history of traumatic events had experienced an earthquake in the past. This may be attributed to a preexisting susceptibility to stressors, which could contribute to the development of PTSD. Additionally, the effects of trauma may be cumulative; therefore, clinicians should rigorously investigate earthquake-related PTSD symptoms, especially in high seismic hazard zones. Consistent with prior studies (47, 48), our findings indicate that a pre-existing psychiatric diagnosis before the earthquake correlates with a likely earthquake-related PTSD diagnosis. A longitudinal study following Hurricane Katrina demonstrated that a predisaster mental disorder increases the risk of chronic postdisaster PTSD (49). Individuals with existing psychiatric diagnoses may be more vulnerable to stressors. Moreover, a psychiatric diagnosis before the earthquake could compromise an individual's coping mechanisms, leading to the development of probable earthquake-related PTSD.

Only 26.5% of participants were in a safer location outside buildings during the second earthquake. The second earthquake, a 7.7 Mw event with an epicenter closer to Malatya, was more destructive there than the first and caught officials and the public off guard. Promptly relocating to safer areas after the primary earthquake is vital to reduce the increased risk posed by aftershocks, especially within the first 24 hours following the main shock (50). Designated post-earthquake assembly areas are essential to minimize risks after the main shocks (51). A significant cause of injuries and deaths during earthquakes is the lack of knowledge about appropriate protective behavior during an earthquake. Therefore, training programs and earthquake drills should be organized to reduce preventable risks, especially in high-risk seismic zones (52). This unprecedented subsequent second earthquake, which was not an aftershock, led to increased deaths and injuries due to its destructive effects. Our finding highlights the urgent need to increase public awareness and emphasize the importance of effective preventive measures such as designating assembly areas and implementing drill and training programs, to mitigate risks and foster a culture of post-earthquake safety.

A study conducted in Gaziantep, four months after the 2023 Kahramanmaraş earthquake, revealed that 43.5% of the medical students (n=193) exhibited PTSD, according to PCL-5 scores (22). The strengths

of our study include a large sample size and the assessment of a wide range of earthquake-related characteristics among participants. However, limitations include potential selection bias due to the convenience sampling method and the cross-sectional design, which prevents establishing causality or assessing changes in PTSD symptoms over time. Another limitation is the use of only a self-report questionnaire to diagnose probable earthquake-related PTSD. Additionally, because we included only university students, the findings of this study cannot be generalized.

CONCLUSION

This study found that 61.6% of the victims of these unprecedented earthquakes suffered from probable PTSD eight months after the disaster, influenced by various risk factors, including severe damage to their homes, pre-existing psychiatric disorders, a history of trauma, and being female. These findings underscore the importance of preventive measures and improving earthquake preparedness among participants to mitigate the psychological impacts of such disasters.

Contribution Categories		Author Initials
Category 1	Concept/Design	A.B.T., K.K.
	Data acquisition	A.B.T., K.K.
	Data analysis/Interpretation	A.B.T.
Category 2	Drafting manuscript	A.B.T.
	Critical revision of manuscript	A.B.T., K.K.
Category 3	Final approval and accountability	A.B.T., K.K.

Ethical Approval: The Malatya Turgut Ozal University Non-Interventional Studies Ethics Committee granted approval for this study (date: 18.08.2023, number: 34).

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