RESEARCH ARTICLE

Journal of Anatolian Medical Research
JAMER 2024;9(3):114-120
DOI: 10.55694/jamer.1553696

Anxiety and Depression in Healthcare Workers After February 6th, 2023 Kahramanmaras Earthquake

6 Şubat 2023 Kahramanmaraş Depremi Sonrası Sağlık Çalışanlarında Anksiyete ve Depresyon

Mebrure Beyza Gökçek[1], İrfan Gökçek[2], İbrahim Toker[2], Ayşin Kılınç Toker[3]
Naciye Hocaoğlu[4]

[1] Kayseri Provincial Health Directorate, Family Physician Specialist, Kayseri, Türkiye
[2] University of Health Sciences Kayseri City Training and Research Hospital, Department of Emergency Medicine, Kayseri, Türkiye
[3] University of Health Sciences Kayseri City Training and Research Hospital, Department of Infectious Disease and Clinical Microbiology, Kayseri, Türkiye
[4] University of Health Sciences Kayseri City Training and Research Hospital, Department of Psychiatry, Kayseri , Türkiye

ABSTRACT

Aim: *Earthquakes are natural disasters that affect survivors physically and psychologically. Healthcare workers (HCWs) are both earthquake survivors and aid responders. In our study, we aimed to determine the level of anxiety and depression and related factors in HCWs involved in the treatment, discharge, follow-up, and rehabilitation of earthquake victims.*

Materials and Methods: *The Kayseri City Hospital Institutional Ethics Board approved the study (Approval number: 841, decision date: 23.05.2024). HCWs such as doctors, nurses, health technicians, medical technicians, and medical secretaries who worked in the acute care of earthquake victims in Kayseri City Hospital after the February 6, 2023 earthquake were included in the study. Sociodemographic data form, Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI) were applied to the participants.*

Results: *A total of 159 HCWs agreed to participate in our study. According to the BDI scale scores, 18.2% of the participants had mild depression, and 4.4% had severe depression. The presence of anxiety and depression was higher in female participants than in male participants (p=0.012, p=0.005). A statistically significant difference was found in terms of anxiety in HCWs who considered themselves earthquake survivors (p=0.002). While anxiety was higher in participants who thought that HCWs were more affected by the earthquake (p=0.034), both anxiety and depression were higher in participants who believed that HCWs should receive psychological support after the earthquake (p-values were 0.01 and 0.004, respectively).*

Conclusion: *Strategies should be developed before and after disasters such as earthquakes to protect and improve HCWs' mental health, even if they do not request it.*

Keywords: *Anxiety, depression, earthquakes*

ÖZET

Amaç: *Depremler, hayatta kalanları fiziksel ve psikolojik olarak etkileyen doğal afetlerdir. Sağlık çalışanları hem depremzede hem de yardım görevlileridir. Çalışmamızda, depremzedelerin tedavisi, taburcu edilmesi, takibi ve rehabilitasyonunda görev alan sağlık çalışanlarında anksiyete ve depresyon düzeyini ve ilişkili faktörleri belirlemeyi amaçladık.*

Gereç ve Yöntemler: *Çalışmaya 6 Şubat 2023 depremi sonrası Kayseri Şehir Hastanesi'nde depremzedelerin akut bakımında çalışan doktor, hemşire, sağlık teknisyeni, tıbbi teknisyen ve tıbbi sekreter gibi sağlık çalışanları dahil edildi. Katılımcılara sosyodemografik veri formu, Beck Anksiyete Ölçeği (BAÖ) ve Beck Depresyon Ölçeği (BDÖ) uygulandı.*

Bulgular: *Toplam 159 sağlık çalışanı çalışmamıza katılmayı kabul etti. BDÖ ölçek puanlarına göre katılımcıların %18,2'sinde hafif depresyon, %4,4'ünde ise şiddetli depresyon vardı. Anksiyete ve depresyon varlığı kadın katılımcılarda erkek katılımcılara göre daha yüksekti (p=0,012, p=0,005). Kendini depremzede olarak görenlerde anksiyete açısından istatistiksel olarak anlamlı fark bulundu (p=0,002). Sağlık çalışanlarının depremden daha fazla etkilendiğini düşünen katılımcılarda anksiyete daha yüksek iken (p=0,034), sağlık çalışanlarının depremden sonra psikolojik destek alması gerektiğine inanan katılımcılarda hem anksiyete hem de depresyon daha yüksek bulundu (sırasıyla p değerleri 0,01 ve 0,004'tür).*

Sonuç: *Sağlık çalışanlarının talep etmeseler bile, deprem gibi afetlerden önce ve sonra ruh sağlıklarını korumak ve iyileştirmek için stratejiler geliştirilmelidir.*

Anahtar Kelimeler: *Anksiyete, deprem, depresyon*

Corresponding Author: Mebrure Beyza Gökçek, Kayseri Provincial Health Directorate, Kayseri, Türkiye ***Email:*** beyzaozgun@gmail.com
Cite this article as: Gökçek BM, Gökçek İ, Toker İ, Toker KA, Hocaoğlu N. Anxiety and Depression in Healthcare Workers After February 6th, 2023 Kahramanmaras Earthquake. JAMER 2024;9(3):114-120.

Received: 20.10.2024
Accepted: 12.12.2024
Online Published: 31.12.2024

INTRODUCTION

Turkey has experienced devastating earthquakes throughout history. Since the early 20th century, more than seventy earthquakes have killed around ninety thousand people and affected a population of around seven million people. On February 6, 2023, according to data from the Kandilli Observatory and Earthquake Research Institute, a powerful earthquake of magnitude 7.7 occurred in Sofalaca-Şehitkamil-Gaziantep at 04.17 local time. It was followed by a second powerful earthquake of magnitude 7.6 at 13.24, centered in Ekinözü-Kahramanmaraş (1,2). Earthquakes negatively affect survivors physically and psychologically. They not only cause physiological injuries but also increase the risk of mental health problems (3). Psychological issues such as depression and anxiety are highly prevalent among earthquake survivors. Healthcare workers (HCWs) working in the earthquake zone are both victims and aid workers. Therefore, they may experience more stress than other earthquake victims. Not being able to leave the region where they work, feeling obliged to protect their families while working, and having to take care of earthquake victims with much trauma can be challenging factors (4,5).

HCWs who have to move quickly between life and death and provide the necessary medical care in unsafe environments frequently encounter stressful events such as accidents, serious injuries, deaths, violence, and murders as part of their profession (6). Post-traumatic stress symptoms, burnout, anxiety, and depression symptoms are also commonly detected in HCWs (7,8). Mental problems observed in emergency medical personnel involved in first aid are higher compared to police officers and firefighters who undertake similar duties (9).

Finally, many studies have shown that HCWs working in various social disasters such as earthquakes, nuclear accidents, fires, tsunamis, and COVID-19 are negatively affected mentally (10). Additionally, a critical point is that HCWs are continuously exposed to mental and physical stresses outside natural disasters (11). Therefore, it would be beneficial to constantly monitor HCWs' psychological and physical well-being within the scope of preventive measures before a problem arises. In this study, we aimed to reveal the development of anxiety and depression in HCWs who took part in the treatment, discharge, follow-up, and rehabilitation of earthquake victims, and if so, in which branches/departments HCWs were more likely to develop anxiety and depression. Thus, we aimed to increase our sensitivity and knowledge about this issue and contribute to taking necessary measures before undesirable situations occur among HCWs.

MATERIALS and METHODS

HCWs such as doctors, nurses, health technicians, medical technicians, and medical secretaries who worked in the acute care of earthquake victims in Kayseri Hospital after the February 6, 2023 earthquake were included in the study (Figure 1).

The population of our study was the HCWs who took an active role after the earthquake in Kayseri hospital. The sample size was determined using the Stat Calc (EPI INFO 7.2.6.0) program to estimate a single population rate based on the assumptions of a 90% confidence level, a 10% margin of error, and an estimated 20% anxiety and depression. The minimum sample size obtained was 148. Sociodemographic data such as age, gender, education level, and the presence of predictive factors for anxiety and depression, such as the presence of chronic diseases, previous psychiatric disease diagnoses, medication use, and the loss of relatives in the earthquake, were questioned. The study was conducted with a face-to-face questionnaire filled with voluntary participants. Sociodemographic data form, Beck Anxiety Inventory and Beck Depression Inventory were applied to the participants.

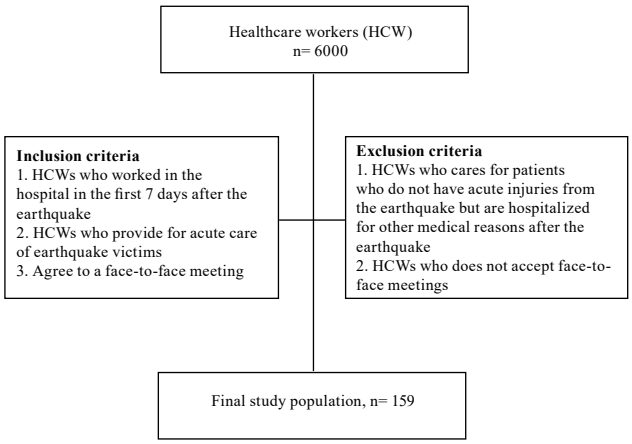

Figure 1. Flow chart of participants included in the study

The population of our study was the HCWs who took an active role after the earthquake in Kayseri City hospital. The sample size was determined using the Stat Calc (EPI INFO 7.2.6.0) program to estimate a single population rate based on the assumptions of a 90% confidence level, a 10% margin of error, and an estimated 20% anxiety and depression. The minimum sample size obtained was 148. Sociodemographic data such as age, gender, education level, and the presence of predictive factors for anxiety and depression, such as the presence of chronic diseases, previous psychiatric disease diagnoses, medication use, and the loss of relatives in the earthquake, were questioned. The study was conducted with a face-to-face questionnaire filled with voluntary participants. Sociodemographic data form, Beck Anxiety Inventory and Beck Depression Inventory were applied to the participants.

Beck Depression Inventory (BDI): BDI is a 21-item

self-report scale that assesses depressive symptoms and attitudes. It provides a 4-point Likert-type measurement. It includes information about the severity of depression. Hisli conducted a reliability and validity study and adapted it into Turkish. In the Beck Depression Inventory, a score of 19 and above are categorized as "mild to severe depression." In our study, those who scored 17 and above on the Beck Depression Inventory were classified as having depression, and those who scored 0-9 points were categorized as minimal, 10-16 points as mild, 17-29 points as mild, and 30-63 points as severe depression (12).

Beck Anxiety Inventory (BAI): BAI was developed in 1988, and its Turkish validity and reliability were performed by Ulusoy et al. (1998). It is a 4-point Likert-type scale consisting of 21 questions aiming to measure the individual's anxiety severity. Each question is scored between 0-3. A total score between 8 and 15 points indicates a low level of anxiety, between 16 and 25 points indicates mild level of anxiety, and between 26 and 63 points indicates high level of anxiety (13).

Statistics

In the statistical evaluation of the data obtained from the study, categorical data were expressed as frequency and percentage. The chi-square test was used to analyze categorical data. Binary logistic regression analysis was used to test risk factors for anxiety and depression. P<0.05 was considered statistically significant.

RESULTS

A total of 159 HCWs agreed to participate in our study. Mild anxiety was found in 19.5%, mild anxiety in 17.6%, and severe anxiety in 9.4% of the participants. According to the scores obtained through the BDI scale, 22.6% of the participants had depression, 18.2% had mild depression, and 4.4% had severe depression (Table 1).

Table 1. Distribution of participants according to the Beck Anxiety Inventory and Beck Depression Inventory

	n	%
Presence of anxiety (>7 points)	74	46.5
Anxiety level		
Minimal (0-7 points)	85	53.5
Mild (8- 15 points)	31	19.5
Moderate (16- 25 points)	28	17.6
Severe (26- 63 points)	15	9.4
Presence of depression (≥ 17 points)	36	22.6
Depression level		
Minimal (0-9 points)	77	48.4
Mild (10- 16 points)	46	28.9
Moderate (17- 29 points)	29	18.2
Severe (30- 63 points)	7	4.4
Total	159	100

In our study, when the presence of anxiety and depression was analyzed in terms of gender, age, marital status, occupation, and department of employment, a statistically significant difference was found between gender groups. Accordingly, the presence of anxiety and depression was higher in female participants than in male participants (p-values were 0.012 and 0.005, respectively) (Table 2).

Table 2. Differences between gender, age, marital status, occupation and work department groups in terms of the presence of anxiety and depression

	Anxiety			**Depression**			
	No n (%)	There is n (%)	p-value	No n (%)	Yes n (%)	p-value	Total
Gender							
Woman	27 (31.8)	38 (51.4)	**0,012**	43 (35)	22 (61.1)	**0,005**	65 (40.9)
Male	58 (68.2)	36 (48.6)		80 (65)	14 (38.9)		94 (59.1)
Age groups							
18- 25	4 (4.7)	4 (5.4)	0,820	5 (4.1)	3 (8.3)	0,204	8 (5)
26- 45	71 (83.5)	59 (79.7)		99 (80.5)	31 (86.1)		130 (81.8)
>45	10 (11.8)	11 (14.9)		19 (15.4)	2 (5.6)		21 (13.2)
Marital status							
Single/ divorced	18 (21.2)	18 (24.3)	0,636	24 (19.5)	12 (33.3)	0,081	36 (22.6)
Married	67 (78.8)	56 (75.7)		99 (80.5)	24 (66.7)		123 (77.4)
Profession							
Doctor	66 (77.6)	49 (66.2)	0,235	89 (72.4)	26 (72.2)	0,442	115 (72.3)
Nurse	9 (10.6)	14 (18.9)		16 (13)	7 (19.4)		23 (14.5)
Other health personnel	10 (11.8)	11 (14.9)		18 (14.6)	3 (8.3)		21 (13.2)
Department worked in							
Emergency	47 (55.3)	38 (51.4)	0,866	68 (55.3)	17 (47.2)	0,431	85 (53.5)
Internal	31 (36.5)	30 (40.5)		44 (38.8)	17 (47.2)		61 (38.4)
Surgery	7 (8.2)	6 (8.1)		11 (8.9)	2 (5.6)		13 (8.2)

In our study, when the answers given by the participants to the questions in terms of the presence of anxiety and depression were analyzed, a statistically significant difference was found in terms of anxiety in those who saw themselves as earthquake victims (p= 0.002). A statistically significant difference was found in terms of anxiety and depression in participants who thought that a psychological disorder developed after the earthquake and in participants who received psychiatric support after the earthquake (p-values <0.001). While anxiety was higher in participants who thought that HCWs were more affected by the earthquake (p=0.034), both anxiety and depression were higher in participants who believed that HCWs should receive psychological support after the earthquake (p-values are 0.01 and 0.004, respectively) (Table 3).

Table 3. Comparison of participants in terms of anxiety and depression according to questions

	Anxiety			Depression			
	No n (%)	Yes n (%)	p-value	No n (%)	Yes n (%)	p-value	Total
History of psychiatric illness							
	10 (11.8)	15 (20.3)	0.142	16 (13)	9 (25)	0.082	25 (15.7)
Psychiatric drug use							
	11 (23.9)	15 (20.3)	0.213	20 (16.3)	6 (16.7)	0.954	26 (16.4)
The department worked on earthquake							
ED	40 (47.1)	29 (39.2)	0.318	54 (43.9)	15 (41.7)	0,812	69 (43.4)
Non-ED departments	45 (47.1)	45 (60.8)		69 (56.1)	21 (58.3)		90 (56.6)
Experiencing material damage in the earthquake							
	9 (10.6)	9 (12.2)	0.755	15 (12.2)	3 (8.3)	0.520	18 (11.3)
Losing a loved one in an earthquake							
	18 (21.2)	18 (24.3)	0.636	24 (19.5)	12 (33.3)	0.081	36 (22.6)
Seeing yourself as an earthquake victim							
	18 (21.2)	33 (44.6)	0.002	40 (32.5)	11 (30.6)	0.824	51 (32.1)
Thinking that a psychological disorder developed after the earthquake							
	4 (4.7)	28 (37.8)	<0.001	15 (12.2)	17 (47.2)	<0.001	32 (20.1)
Receiving psychiatric support after the earthquake							
Psychiatrist	5 (5,9)	30 (40.5)	<0.001	17 (13.8)	18 (50)	<0.001	35 (22)
Thinking that HCWs were more affected by the earthquake							
	59 (69.4)	62 (83.8)	0.034	92 (74.8)	29 (80.6)	0.476	121 (76.1)
Thinking that HCWs should receive psychological support after the earthquake							
	62 (72.9)	66 (51.6)	0.010	93 (75.6)	35 (97.2)	0.004	128 (80.5)

Risk factors for anxiety and depression were analyzed by binary logistic regression analysis. In the binary logistic regression model, the variables that were found to be significant in univariate analyses such as gender, seeing oneself as an earthquake survivor, thinking that a psychological disorder developed after the earthquake, receiving psychiatric support after the earthquake, considering that HCWs were more affected by the earthquake and thinking that HCWs should receive psychological support after the earthquake were included.

In binary logistic regression analysis, considering oneself an earthquake survivor (OR, 2.7; 95% CI, 1.2- 5.9) was associated with anxiety (p= 0.012). Thinking that HCWs should receive psychological support after the earthquake (OR, 8.5; 95% CI, 1.05- 68.9) was associated with depression (p= 0.044) (Table 4).

Table 4. Binary Logistic Regression Analysis of factors affecting anxiety and depression

	Anxiety			Depression		
	OR	**95 % CI**	**p-value**	**OR**	**95 % CI**	**p-value**
Male gender	0.6	0.3- 1.4	0.241	1.8	0.7- 4.2	0.197
Do not see yourself as an earthquake survivor	2.7	1.2- 5.9	**0.012**	0.6	0.2- 1.5	0.295
Thinking that a psychological disorder developed after the earthquake	2.5	0.5- 13.5	0.276	2.3	0.4- 12.8	0.327
Receiving psychiatric support after the earthquake	4.6	0.9- 21.4	0.051	2.9	0.6- 14.4	0.202
Thinking that HCWs were more affected by the earthquake	1.7	0.7- 4	0.254	0.8	0.3- 2.4	0.756
Thinking that HCWs should receive psychological support after the earthquake	1.8	0.7- 5.2	0.217	8.5	1.05- 68.9	**0.044**

DISCUSSION

Depression and anxiety disorders are among the most common medical illnesses (14). This is associated with increased utilization of health services (15). Depression and anxiety disorders are comorbid conditions and are frequently found together. Major depression accompanies a large proportion of those diagnosed with generalized anxiety disorder (16). Post-traumatic anxiety and depression are mental health problems often observed among survivors of natural disasters (17).

In our study, anxiety and depression were found to be more prevalent in HCWs than in the general population by the literature, and the prevalence of anxiety and depression in HCWs was 28.9% and 22.6%, respectively. In the general population, the prevalence averages of all diseases mentioned under the name of anxiety disorders in DSM-5 are only around 6-7% (14). This shows that depression and anxiety in HCWs are 2-3 times higher than in the general population. When the studies in the literature are examined, the prevalence of depression and anxiety in HCWs varies between 20% and 50% in various studies (18). This result is compatible with our study. However, some studies are showing that psychological disorders such as anxiety and depression are more common in HCWs after disasters, as well as there are studies claiming the opposite (19).

In our study, post-earthquake anxiety and depression were found to be higher in female HCWs compared to male HCWs, in line with the literature. In a study conducted on HCWs in China after the earthquake, the female gender was found to be a risk factor for anxiety disorder (5). Epidemiologic studies on depression and anxiety in the literature have shown that the frequency of depression in women is two times higher than in men in the general population (14). Similar to the general population, depression and anxiety rates were found to be higher in female HCWs compared to male HCWs in situations that were not related to a disaster, such as earthquakes (18).

Various studies have found a link between older age, length of service, and the development of post-disaster depression and anxiety. After the Chi-Chi earthquake in Taiwan, post-traumatic disorders and psychiatric disorders were observed more frequently in rescuers who were older and worked longer (20). In our study, being older was not associated with the development of depression and anxiety.

In parallel with the results obtained from studies examining the relationship between marital status and the development of post-disaster depression and anxiety, we found that marital status did not affect the development of post-disaster depression and anxiety in our study (4,5). However, studies in the opposite direction were also available in the literature (21).

Looking at the literature, we could not find any studies like our study that examined the departments that worked in the hospital after the disaster separately and examined the effect of the department of work on the development of post-disaster depression and anxiety. However, we think that it is expected that HCWs working in emergency service departments or surgical departments are more exposed to challenging factors for the development of depression and anxiety. Although they did not examine the development of depression and anxiety in the post-disaster period, according to the literature examining the relationship between the departments worked in the hospital. The frequency of depression, anxiety, and burnout, frequency of depression, anxiety, and burnout was found to be higher, especially in healthcare personnel working in the emergency department compared to other departments (7,8). We examined the relationship between the department of work and the frequency of post-disaster depression and anxiety development, but we could not reveal the existence of such a relationship. One possible and most important reason for this situation is that all HCWs, regardless of internal or surgical branches, treated and cared for earthquake victims with extraordinary effort and devotion.

There have also been studies examining the relationship between the development of post-earthquake depression and anxiety and healthcare professional groups. In one of these studies, a higher frequency of anxiety and burnout was observed in physicians after the L'Aquila earthquake that occurred in Italy in 2009 (4). In other studies, no difference was observed between physicians and nurses in terms of the frequency of anxiety. Still, the frequency of anxiety was found to be higher compared to other healthcare professionals (22). In our study, there was no difference between healthcare professional groups (such as physicians, nurses, health officers, and paramedics) in terms of depression and anxiety. We believe that the most important reason for this situation is that all health professional groups undertook the treatment and care of earthquake victims together after the disaster, as mentioned above.

Due to the expectation of professional resilience in HCWs, they may be hesitant to seek help for anxiety and depression after a disaster. Indeed, studies support this view in the literature (23). In our research, we found that the frequency of anxiety increased in participants who considered themselves earthquake survivors. This shows us the importance of providing psychological help to HCWs who have experienced the earthquake and developed problems such as anxiety and depression but who hesitate to seek help due to the expectation mentioned above, regardless of the expectation of professional resilience. As a matter of fact, in our study, seeing oneself as an earthquake survivor was associated with anxiety. It can be facilitated for earthquake survivors who hesitate to express themselves due to this resilience expectation to access psychological help through studies such as our study. In this direction, after the Sichuan earthquake in China, detailed studies were conducted on the mental health of HCWs affected by the earthquake at the Institute of Psychology within the Chinese Academy of Science, and strategies to improve the mental health of HCWs affected by the earthquake were put forward (5).

In our study, anxiety was higher in participants who thought that HCWs were more affected by the earthquake. In comparison, both anxiety and depression were higher in participants who believed that HCWs should receive psychological support after the earthquake. These results support the literature indicating that anxiety and depression develop more in HCWs after disasters such as earthquakes (4,24).

In our study, we found that the frequency of anxiety and depression increased in participants who thought that they developed a psychological disorder after the earthquake and in participants who received psychological support after the earthquake. In fact, in our study, believing that HCWs should receive psychological support after the earthquake was found to be a risk factor for the development of depression. This consistently supports that those who need psychological support are more prone to depression. Therefore, it would be beneficial to monitor HCWs' mental and physical well-being continuously, examine whether they need psychological help in this regard, and follow up continuously within the scope of preventive measures before a problem such as an earthquake disaster occurs.

Limitations

The most important limitation of our study is that it was conducted in a region with less damage from the earthquake. However, conducting a study with HCWs during the earthquake was impossible because of the intense working conditions in places with high

destruction, difficulties in reaching people, and people's reluctance to participate. Another limitation of our study is that the participants were evaluated only on a scale, and a mental health specialist conducted no clinical interview. In addition, the lack of comparison with a control group, such as non-HCWs living in the same region or HCWs working in a more remote area where the earthquake was not felt, may be considered a limitation of our study.

Conclusion

Disasters such as earthquakes are essential events on a regional or global scale that affect a whole society physically, socially, and mentally. Such disasters have a significant impact on people's mental health. Many studies have shown that HCWs, who are already more likely to suffer from anxiety and depression due to occupational factors than the general population, are mentally affected by these disasters at least as much or even more than the rest of society, despite the expectation of occupational resilience. However, despite this situation, delivering psychological support to HCWs is often delayed. Therefore, strategies should be developed to protect and improve HCWs' mental health before and after disasters such as earthquakes, even if they do not request it.

Ethics Committee Aproval: The Kayseri City Hospital Institutional Ethics Board approved the study (Approval number: 841, decision date: 23.05.2024)

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has no financial support.

Acknowledgment: None.

Author contributions: Mebrure Beyza Gökçek and İrfan Gökçek conceived the manuscript, oversaw the data collection, and conducted the analyses. İbrahim Toker and Ayşin Kılınç Toker wrote the manuscript. Naciye Hocaoğlu participated in the study design, data analyses, and interpretations and critically revised the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects.

REFERENCES

1. 06 ŞUBAT 2023 Mw=7.6 EKİNÖZÜ KAHRAMANMARAŞ DEPREMİ - B.Ü. KRDAE Bölgesel Deprem-Tsunami İzleme ve Değerlendirme Merkezi. 2023; Available from: http://www.koeri.boun.edu.tr/sismo/2/06-subat-2023-ml7-5-ekinozu-kahramanmaras-depremi/
2. 06 ŞUBAT 2023 Mw=7.7 SOFALACA ŞEHİTKAMİL GAZİANTEP DEPREMİ - B.Ü. KRDAE Bölgesel Deprem-Tsunami İzleme ve Değerlendirme Merkezi. 2023; Available from: http://www.koeri.boun.edu.tr/sismo/2/06-subat-2023-ml7-4-sofalaca-sehitkamil-gaziantep-depremi/
3. Bilici R, Tufan E, Turhan L, Uğurlu GK, Tan S, Kaşan T. Deprem sonrasında bireylerin anksiyete düzeyleri ve etkileyen faktörler: Elazığ merkezli bir ön çalışma. Fırat Tıp Derg. 2013 Feb 1;18(1):15–19.
4. Mattei A, Fiasca F, Mazzei M, Necozione S, Bianchini V. Stress and Burnout in Health-Care Workers after the 2009 L'Aquila Earthquake: A Cross-Sectional Observational Study. Front Psychiatry. 2017;8:98.
5. Wang L, Zhang J, Zhou M, Shi Z, Liu P. Symptoms of posttraumatic stress disorder among health care workers in earthquake-affected areas in southwest China. Psychol Rep. 2010 Apr;106(2):555–561.
6. Kılıç C, İnci F. Acil tıp çalışanlarında travmatik stres: yaş ve eğitimin koruyucu etkisi. Türk Psikiyatri Derg. 2015;26(4):236–241.
7. Sterud T, Ekeberg Ø, Hem E. Health status in the ambulance services: a systematic review. BMC Health Serv Res. 2006 Jul 3;6:82.
8. McAllister M, McKinnon J. The importance of teaching and learning resilience in the health disciplines: a critical review of the literature. Nurse Educ Today. 2009 May;29(4):371–379.
9. Berger W, Coutinho ESF, Figueira I, Marques-Portella C, Luz MP, Neylan TC, et al. Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. Soc Psychiatry Psychiatr Epidemiol. 2012 Jun;47(6):1001–1011.
10. Sehlikoğlu Ş, Yilmaz Karaman IG, Yastıbaş Kaçar C, Canakci ME. Earthquake and mental health of healthcare workers: A systematic review. Turk J Clin Psychiatry. 2023;26(4):309–318.
11. McVicar A. Workplace stress in nursing: a literature review. J Adv Nurs. 2003 Dec;44(6):633–642.
12. Hisli N. Validity and reliability of the beck depression inventory for university students. Psikol Derg. 1989;7(23):3–13.
13. Ulusoy M, hisli sahin N, Erkmen H. Turkish Version of the Beck Anxiety Inventory: Psychometric Properties. J Cogn Psychother Int Q. 1998 Jan 1;12.
14. Kafes AY. Depresyon ve anksiyete bozuklukları üzerine bir bakış. Humanist Perspect. 2021 Feb 22;3(1):186–194.
15. Wittchen HU, Kessler RC, Beesdo K, Krause P, Höfler M, Hoyer J. Generalized anxiety and depression in primary care: prevalence, recognition, and management. J Clin Psychiatry. 2002;63 Suppl 8:24–34.
16. Ruscio AM, Hallion LS, Lim CCW, Aguilar-Gaxiola S, Al-Hamzawi A, Alonso J, et al. Cross-sectional Comparison of the Epidemiology of DSM-5 Generalized anxiety disorder across the globe. JAMA Psychiatry. 2017 May 1;74(5):465–475.
17. Başoğlu M, Kiliç C, Salcioğlu E, Livanou M. Prevalence of posttraumatic stress disorder and comorbid depression in earthquake survivors in Turkey: an epidemiological study. J Trauma Stress. 2004 Apr;17(2):133–141.
18. Geng HM, Chuang DM, Yang F, Yang Y, Liu WM, Liu LH, et al. Prevalence and determinants of depression in caregivers of cancer patients: A systematic review and meta-analysis. Medicine (Baltimore). 2018 Sep;97(39):e11863.
19. James LE, Noel JR, Roche Jean Pierre YM. A mixed-methods assessment of the experiences of lay mental health workers in postearthquake Haiti. Am J Orthopsychiatry. 2014 Mar;84(2):152–163.
20. Chang CM, Lee LC, Connor KM, Davidson JRT, Lai TJ. Modification effects of coping on post-traumatic morbidity among earthquake rescuers. Psychiatry Res. 2008 Mar 15;158(2):164–171.
21. Cansel N, Ucuz İ. Post-traumatic stress and associated factors among healthcare workers in the early stage following the 2020 Malatya-Elazığ earthquake. Konuralp Med J. 2022 Mar 14;14(1):81–91.
22. Guveli H, Anuk D, Oflaz S, Guveli ME, Yildirim NK, Ozkan M, et al. Oncology staff: burnout, job satisfaction and coping with stress. Psychooncology. 2015 Aug;24(8):926–931.
23. Daly ES, Gulliver SB, Zimering RT, Knight J, Kamholz BW, Morissette SB. Disaster mental health workers responding to Ground Zero: one year later. J Trauma Stress. 2008 Apr;21(2):227–230.
24. Suzuki Y, Fukasawa M, Obara A, Kim Y. Burnout among public

servants after the Great East Japan Earthquake: decomposing the construct aftermath of disaster. J Occup Health. 2017 Mar 20;59(2):156–164.