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Evaluation of Burnout Level of Emergency Service Physicians in Hatay Province after the Türkiye Kahramanmaraş Earthquake

Ocena stopnje izčrpanosti zdravnikov nujne medicinske pomoči v provinci Hatay po potresu v Kahramanmarašu v Turčiji

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Abstract

Introduction and objective: Natural disasters, with their devastating effects, are an important stress factor in people's lives. This situation emerges as a significant factor in the development of burnout syndrome. More than 400 physicians die every year due to depression and burnout. Our aim was to examine the burnout status of emergency physicians who are on the front line in all kinds of important events such as those following a devastating event like an earthquake. and the factors affecting it.

Materials and methods: This descriptive cross-sectional study was conducted to evaluate the levels of burnout among emergency physicians working in Hatay, Türkiye, before and after the earthquake centered in Kahramanmaraş on February 6, 2023. Data were collected electronically nine months after the earthquake (November 15–30, 2023). The survey consisted of two sections: 30 questions assessing participants' demographic characteristics and the problems they encountered during and after the earthquake, and a 22-item scale based on the Maslach Burnout Inventory (MBI). The questionnaire included both open-ended and multiple-choice items. Informed consent was obtained from all participants, and the data were recorded in digital format and analyzed using descriptive statistical methods. No comparison was made with physicians who had not experienced a disaster. No statistical correction was applied for group-based hypothesis testing or multiple comparisons.

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Results: A total of 182 physicians participated in the study, with a rate of female participants of 47.3% (n=86). According to the study's results, the mean Maslach scale was 49.4 (13). In the study, participants aged 40 years and older were found to have significantly lower levels of burnout compared to younger age groups (p<0.001). It was also observed that burnout levels decreased with increasing years of professional experience. These two findings are considered to be interrelated. Additionally, female participants were found to have significantly higher levels of burnout compared to their male counterparts (p=0.007).Participants who experienced difficulties such as lack of food (p=0.0005) and housing difficulties (p=0.032) while working after the earthquake, those who felt their efforts were not adequately recognized (p=0.016), and those who were dissatisfied with working in the emergency department were found to have significantly higher levels of burnout (p<0.001).

Conclusion: As demonstrated in our study, increased professional experience appeared to serve as a protective factor against burnout syndrome. However, higher levels of burnout were observed when additional stressors, such as those arising from natural disasters like earthquakes, were present. Moreover, factors influencing job satisfaction, as well as those related to the fulfillment of individuals' basic physiological needs, were found to impact burnout levels significantly.

Izvleček

Uvod in cilj: Naravne nesreče so zaradi svojih uničujočih posledic pomemben stresni dejavnik v življenju ljudi. Ta okoliščina pa tudi pomembno vpliva na nastanek sindroma izgorelosti. Vsako leto zaradi depresije in izgorelosti umre več kot 400 zdravnikov. Naš cilj je bil preučiti stanje izgorelosti urgentnih zdravnikov, ki so v prvi vrsti pri vseh pomembnih dogodkih, po uničujočem dogodku, kot je potres, in dejavnike, ki vplivajo na njihovo stanje.

Materiali in metode: Namen te opisne presečne študije je bil oceniti stopnjo izgorelosti med urgentnimi zdravniki, ki delajo v Hatayu v Turčiji, pred in po potresu z epicentrom v Kahramanmarašu 6. februarja 2023. Podatki so bili zbrani elektronsko devet mesecev po potresu (15.–30. novembra 2023). Anketa je bila sestavljena iz dveh delov: 30 vprašanj za oceno demografskih značilnosti udeležencev in težav, s katerimi so se srečevali med potresom in po njem, ter 22-točkovne lestvice, ki temelji na Maslachovem instrumentu za merjenje izgorelosti (MBI). Vprašalnik je vključeval odprta in večkratna izbirna vprašanja. Vsi udeleženci so dali pisno soglasje, podatki pa so bili zabeleženi v digitalni obliki in analizirani z uporabo deskriptivnih statističnih metod. Primerjava z zdravniki, ki niso doživeli nesreče, ni bila opravljena. Za preverjanje hipotez na podlagi skupin ali večkratne primerjave ni bila uporabljena nobena statistična korekcija.

Rezultati: V študiji je sodelovalo skupaj 182 zdravnikov, delež žensk pa je bil 47,3 % (n = 86). Glede na rezultate študije je bila povprečna vrednost na Maslachovi lestvici 49,4 (13). V študiji je bilo ugotovljeno, da so imeli udeleženci, stari 40 let in več, znatno nižjo stopnjo izgorelosti v primerjavi z mlajšimi starostnimi skupinami (p<0,001). Ugotovljeno je bilo tudi, da se je stopnja izgorelosti zmanjševala s povečanjem delovnih izkušenj. Ti dve ugotovitvi sta medsebojno povezani. Poleg tega je bilo ugotovljeno, da so imele ženske udeleženke znatno višjo stopnjo izgorelosti v primerjavi z moškimi udeleženci (p=0,007). Udeleženci, ki so med delom po potresu imeli težave, kot so pomanjkanje hrane (p=0,0005) in stanovanjske težave (p=0,032), tisti, ki so menili, da njihova prizadevanja niso bila ustrezno priznana (p=0,016), in tisti, ki so bili nezadovoljni z delom na oddelku za nujne primere, so imeli znatno višjo stopnjo izgorelosti (p<0,001).

Zaključek: Kot je pokazala naša študija, se zdi, da večje strokovne izkušnje delujejo kot zaščitni dejavnik proti sindromu izgorelosti. Vendar pa so bile višje stopnje izgorelosti opazne, kadar so bili prisotni dodatni stresni dejavniki zaradi naravnih nesreč, kot so potresi. Nadalje je bilo ugotovljeno, da poleg dejavnikov, ki vplivajo na zadovoljstvo z delom, tudi tisti, ki so povezani z zadovoljevanjem osnovnih fizioloških potreb posameznikov, pomembno vplivajo na stopnjo izgorelosti.

1 Introduction

Burnout, a psychological syndrome including emotional exhaustion, depersonalisation, and decreased sense of personal accomplishment, is a disturbing and increasingly widespread phenomenon in healthcare services and especially in emergency medicine (1). Each year in the United States, it is estimated that approximately 6,000 physicians experience suicidal ideation, and more than 400 die by suicide following an attempt (2). Compared to the general population, both male and female physicians have been reported to exhibit higher suicide rates (3,4). A review of the literature suggests that depression and burnout play a significant role in physician suicide (1). Occupational burnout is a severe syndrome that can adversely affect individuals' mental well-being, professional performance, and overall quality of life. In the field of healthcare, this syndrome is recognised as a significant and prevalent issue among many professional groups (5).

It has been observed that emergency physicians experience a higher level of burnout compared to other specialties as they are often on the front lines in all types of critical situations (3).

Natural disasters such as earthquakes, which cause extensive destruction, may result in the damage or collapse of hospitals. In such cases, many healthcare workers and their families are directly affected by the earthquake, including increased working hours, fear, anxiety, and the absence of a safe environment, which are significant risk factors for burnout among healthcare professionals during natural disasters (4).

After a devastating natural disaster such as an earthquake, the delivery of healthcare services is severely disrupted. Emergency physicians, who play a critical role in the healthcare system, are impacted by these disruptions both professionally and personally. In this process, the aim was to determine the burnout status of physicians and the factors that affect this status, using data collected by applying the Maslach Burnout Scale to physicians.

2 Materials and methods

This study was conducted in the Department of Emergency Medicine, Faculty of Medicine, Hatay Mustafa Kemal University in Turkey with permission numbered 01 obtained from the Non-Interventional Scientific Studies Ethics Committee of Hatay Mustafa Kemal University Faculty of Medicine on 6/11/2023.

This descriptive, cross sectional study prospectively enrolled emergency physicians employed in the emergency departments of state, training and research, and university hospitals in Hatay Province, Türkiye, before and after the Kahramanmaraş-centered earthquake on February 6, 2023. There were 340 physicians working in the emergency departments of Hatay before and after the earthquake. All 340 physicians were contacted electronically, and 182 physicians agreed to participate in the study. All 182 participating physicians answered all questions thoroughly (Figure 1).

Data collection took place nine months after the disaster (November 15–30, 2023). The questionnaire was distributed to participants electronically and comprised two sections: 30 items assessing demographic characteristics and the problems encountered during and after the earthquake and 22 open ended and multiple choice items adapted from the Maslach Burnout Inventory (MBI). Electronic informed consent was obtained, and completed questionnaires were securely stored in a digital database for analysis. As this study employed a descriptive in design, no group-based hypothesis testing was performed, and no statistical corrections for multiple comparisons were applied.

Based on a review of disaster-related literature, a 30 item questionnaire with yes/no response options was developed to assess the challenges faced by physicians after an earthquake and their relationship to burnout. The instrument comprised five domains: (1) demographic characteristics (age, sex, marital status, and years in practice); (2) post-disaster living conditions (housing difficulties, food, hygiene facilities, and family members' status); (3) work environment and return to duty factors (practice setting, timing of redeployment, workplace obstacles, and workload changes); (4) psychological status and fears (fear of death, feelings of helplessness, and perceived professional inadequacy); and (5) pre-disaster preparedness. Each item required a simple "yes" or "no" answer.

The Maslach Burnout Scale, which was developed to define the burnout status observed in individuals, was first used in 1981 and is universal (5). Its validity and reliability study was performed by Ergin in 1991. This scale, which uses a five-point Likert scale and comprises 22 questions, has three sub-factors: emotional exhaustion (EE), depersonalisation (DP) and personal success (PS) (6). The increase in scores on the scale, which includes the sub-factors, indicates an increase in burnout status and related factors (6). Emotional exhaustion is generally associated with work stress and is more common in professions that require face-to-face work. People in an intensive work environment push their limits and are overwhelmed by emotional demands (7). Depersonalisation contributes to the negative thoughts surrounding the individual experiencing burnout by

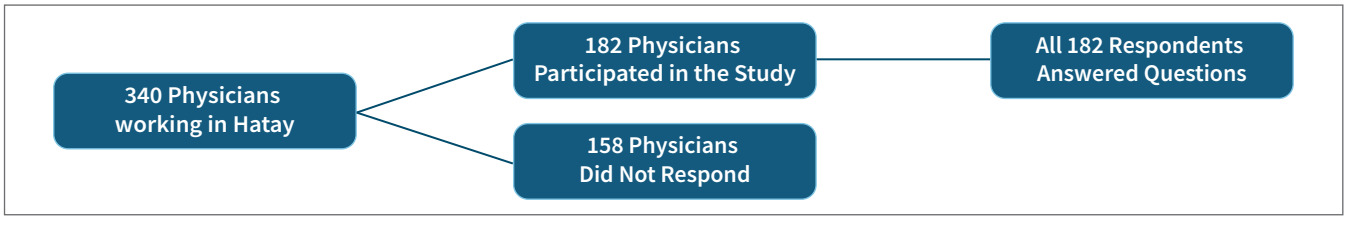

Figure 1: Participant flow diagram.

exhibiting negative behaviours towards the people they serve and colleagues. These attitudes negatively affect the employee's feeling of burnout (7). A low sense of personal success occurs when emotional and physical resources are exhausted and associated with a sense of failure at work. These negative attitudes may lead the individual to develop negative thoughts about himself/herself over time (7).

2.1 Statistical Analysis

The data determined in the study were analysed using IBM SPSS programme version 27. GraphPad Prism 8 programme was used to design the graphs. Percentage and frequency values were used to define categorical data, while distribution analysis was performed on numerical data. Normally distributed data were expressed as mean (standard deviation, SD). The t-test was used to analyse numerical data with two categories, and the non-parametric test was used for those that did not fit the normal distribution. ANOVA test was used in analyses with more than two categories. Cronbach's Alpha analysis was performed to assess the internal consistency of the results obtained from the MBI collected from participants and scored using the Likert scale.

Data with a p value below 0.05 were considered significant; however, due to the descriptive nature of the study, the results are hold only for this dataset and cannot be generalised.

2.2 Inclusion Criteria - Exclusion Criteria

The inclusion criteria were being an emergency physician and working as an emergency physician in the emergency departments of hospitals in Hatay province, Turkey, both before and after the February 6, 2023, Kahramanmaraş-centered earthquake, while the exclusion criteria were refusal to participate in the study and having not been exposed to a catastrophic event.

3 Results

The study included 182 physicians. The MBI was applied to all participants, and the mean score of the MBI was found to be 49,4(13). The mean and internal consistency analyses of the scale and its sub-factors (EE: Emotional exhaustion, DP: Depersonalisation, PS: Personal success) are shown in Table 1.

A total of 182 participants, comprising 86 females (47.3%), were included in our study. In the gender comparison, the mean MBI score, EE score, and DP score of female participants were significantly higher than those of male participants (p=0.007, p=0.003, p=0.05, respectively).

A total of 134 participants (73.7%) fell within the age range of 25 to 30 years. The mean MBI and subscale scores were significantly lower among participants aged 40 years and older ($p < 0.001$, $p<0.001$, $p<0.001$, and p=0.006, respectively). Burnout levels tended to decrease with increasing age, and participants aged 40 years and above showed significantly lower scores on the MBI and its subdimensions. Similarly, physicians with 20 or more years of professional experience had significantly lower MBI and subscale scores compared to other groups ($p < 0.001$, p=0.002, $p<0.001$, and p=0.025, respectively). However, no significant difference was found between assistant physicians, general practitioners, and specialists. The demographic data of the participants, along with the comparison of participants according to the MBI and its sub-factors are presented in Table 2.

Participants were asked various questions regarding their experiences during the earthquake. There were no significant differences in MBI and subscale scores between participants whose homes were destroyed and those whose homes remained intact. Similarly, no significant differences in burnout levels were observed based on whether a family member had been trapped under rubble.

Table 1: Participants' mean scaled scores and internal consistency analysis.

Scale	Maximum Score	Mean (SD)	Cronbach Alpha (95% CI)
MBI	88	49.4 (13.0)	0.854 (95% CI = 0.849-0.859)
EE	20	12.9 (4.8)	0.792 (95% CI = 0.785-0.799)
DP	20	8.7 (4.5)	0.700 (95% CI = 0.692-0.708)
PS	48	27.7 (6.7)	0.909 (95% CI = 0.907-0.911)

Legend: MBI – Maslach Burnout Iventory; EE – Emotional exhaustion; DP – Depersonalisation; PS – Personal success.

Table 2: Demographic data of the participants and comparison according to the scale.

Variable		n (%)	MBI (Mean, SD)	EE (Mean, SD)	DP (Mean, SD)	PS (Mean, SD)
Age	25-30	134 (73.7%)	50.9 (11.4)	13.5 (4.5)	9.2 (4.4)	28.2 (6.1)
	31-40	35 (19.2%)	48.1 (14.4)	12.7 (4.7)	8.4 (3.8)	27.0 (7.8)
	>40	13 (7.1%)	34.1 (12.6)	7.5 (5.2)	4.2 (4.1)	22.3 (5.9)
	p-value		<0.001	<0.001	<0.001	0.006
Sex	Female	86 (47.3%)	51.8 (11.8)	14.0 (4.5)	9.3 (4.4)	28.5 (6.0)
	Male	96 (52.7%)	46.8 (13.1)	11.9 (4.9)	8.1 (4.4)	26.8 (6.9)
	p-Value		0.007	0.003	0.05	0.088
Marital status	Single	129 (70.9%)	50.1 (12.0)	13.3 (4.6)	8.9 (4.5)	27.9 (6.3)
	Married	52 (28.6%)	47.3 (13.9)	12.2 (5.2)	8.2 (4.2)	26.9 (7.1)
	p- Value		0.178	0.29	0.552	0.351
Profession	General Practitioner	127 (69.8%)	48.9 (12.2)	12.7 (5.1)	8.4 (4.6)	27.9 (6.1)
	Assistant Physician	38 (20.9%)	49.7 (14.1)	13.4 (4.3)	9.7 (4.2)	26.7 (8.1)
	Expert Physician	17 (9.3%)	49.8 (13.5)	13.6 (4.4)	8.5 (4.0)	27.6 (6.8)
	p- Value		0.674	0.249	0.926	0.895
Duration in the profession	0-5 years	141 (77.5%)	50.4 (11.0)	13.4 (4.3)	9.0 (3.3)	28.1 (5.9)
	5-10 years	25 (13.7%)	49.2 (16.8)	13.1 (0.3)	9.1 (3.3)	27.0 (9.1)
	10-20 years	7 (3.9%)	47.4 (11.5)	12.0 (7.3)	7.7 (5.3)	27.7 (4.3)
	More than 20 years	8 (4.4%)	28.8 (13.0)	5.0 (2.3)	2.9 (2.3)	20.9 (7.0)
	p- Value		<0.001	0.002	<0.001	0.025

Legend: MBI – Maslach Burnout Iventory; EE – Emotional exhaustion; DP – Depersonalisation; PS – Personal success.

Physicians who were called back to work by the hospital after the earthquake had significantly higher MBI and subscale scores compared to those who were not called back (p=0,002, p=0,025, p=0,028, and p=0,002, respectively). Similarly, participants who did not return to work because they did not want to leave their children had significantly higher mean scores for MBI, EE, and DP ($p < 0.001$, $p = 0.002$, and $p = 0.002$, respectively). Participants who commuted from another city to work had a significantly higher mean DP score (13.9 (4.5)) compared to those who did not ($p = 0.018$). Participants who reported experiencing housing difficulties upon returning to work also had significantly higher mean scores on the MBI and DP subscales than those without such difficulties ($p = 0.032$ and $p = 0.041$, respectively).

In addition, participants who reported experiencing food insecurity upon returning to work had significantly higher scores on the MBI, EE, and DP subscales compared to those who did not ($p = 0.005$,$p = 0.002$, and $p = 0.006$, respectively).

Participants' responses to these questions and their comparisons are presented in Table 3.

No significant association was found between the hospital's physical condition after the earthquake (damaged, destroyed, or intact) and the MBI or its subscale scores. However, participants who began working in container units following post-earthquake structural assessments had significantly lower mean scores on the DP and PS subscales compared to those working in tents or hospital buildings (p=0.005 and p=0.027, respectively).

Following an evaluation of factors related to participants' psychological well-being, it was observed that insufficient workplace planning and infrastructure, increased workload, lack of material and emotional

Table 3: Responses to questions and scale comparison.

Questions		n (%)	MBI (Mean (SD))	EE (Mean (SD))	DP (Mean (SD))	PS (Mean (SD))
When I came to work, I had housing difficulties.	No	91 (50.0%)	47.1 (12.7)	12.2 (5.0)	8.3 (4.3)	26.7 (6.3)
	Yes	91 (50.0%)	51.2 (12.4)	13.6 (4.6)	9.1 (4.6)	28.5 (6.7)
	p-Value		**0,032**	**0,041**	0,24	0,066
When I came to work I had trouble finding food.	No	113 (62.2%)	47.1 (12.7)	12.1 (4.7)	8.0 (4.0)	27.1 (6.1)
	Yes	69 (37.9%)	52.6 (12.3)	14.3 (4.7)	9.8 (5.0)	28.4 (7.2)
	p-Value		**0,005**	**0,002**	**0,006**	0,193
I did not change cities after the earthquake, but I had problems with accommodation, food, and hygiene where I stayed.	No	123 (67.6%)	48.8 (12.3)	12.6 (5.0)	8.5 (4.5)	27.7 (4.9)
	Yes	59 (32.4%)	51.7 (12.0)	13.5 (4.4)	9.0 (4.5)	28.2 (5.0)
	p-value		0,142	0,22	0,605	0,249
I did not go to the hospital after the earthquake because I did not want to leave my children.	No	173 (95,6)	59,5(11,8)	13,1(4,4)	8,7(4,4)	27,7(6,2)
	Yes	9 (4,40)	42,9(24,3)	10(8,4)	7,6(5,4)	25,3(12,4)
	p-value		**<0,001**	**0,002**	0,274	**0,002**
Did you consider yourself sufficient in the disaster management process?	No	142 (68.0%)	49.0 (13.2)	13.1 (4.6)	9.0 (4.5)	27.0 (5.0)
	Yes	40 (22.0%)	50.2 (8.3)	12.2 (5.5)	7.7 (4.4)	27.3 (4.0)
	p-value		0,963	0,297	0,104	0,174
Did you receive training on disaster management by your organisation before the earthquake?	No	161 (88.5%)	49.7 (13.3)	12.9 (5.0)	8.6 (4.5)	28.3 (5.7)
	Yes	21 (11.5%)	50.7 (11.4)	13.2 (3.9)	9.4 (4.0)	29.0 (5.8)
	p-value		0,456	0,776	0,406	0,434
Fear of another earthquake while working and losing my family	No	29 (15.9%)	50.2 (10.9)	13.3 (5.1)	8.9 (4.4)	27.9 (4.4)
	Yes	153 (84.1%)	49.8 (11.2)	12.8 (4.8)	8.6 (4.5)	28.4 (5.7)
	p-value		0,238	0,928	0,952	0,501
Fear of losing my life due to an earthquake	No	94 (51.6%)	46.9 (12.7)	12.2 (5.2)	7.8 (4.4)	26.9 (6.4)
	Yes	88 (48.4%)	51.6 (12.3)	13.7 (4.3)	9.5 (4.4)	28.4 (6.7)
	p-value		**0,013**	**0,042**	**0,01**	0,130
Fear of not being able to find a place to stay	No	101 (45.5%)	47.5 (12.7)	12.2 (4.9)	8.3 (4.4)	27.0 (6.4)
	Yes	81 (44.5%)	51.2 (12.5)	13.8 (4.6)	9.1 (4.6)	28.3 (6.8)
	p-value		0,052	**0,019**	0,284	0,052
Lack of life safety in the working environment	No	78 (42.9%)	48.7 (13.2)	12.3 (5.2)	8.4 (4.6)	28.1 (4.9)
	Yes	104 (57.1%)	50.1 (11.9)	13.4 (4.5)	8.9 (4.4)	27.8 (4.4)
	p-value		0,354	0,14	0,425	0,603

Legend: MBI – Maslach Burnout Iventory; EE – Emotional exhaustion; DP – Depersonalisation; PS – Personal success.

recognition, separation from family and friends, loss of loved ones, uncertainty, and feelings of helplessness significantly increased the mean total MBI scores. Among those who reported inadequate workplace infrastructure, the mean DP score was 13.5(4.6), and the mean PS score was 28.1(6.2), both of which were significantly higher than those reported by participants who considered the infrastructure adequate (p=0.003 and p=0.015, respectively).

The distribution of factors affecting participants' psychological status, along with their comparison with MBI scores, are presented in Table 4.

Among the questions related to participants' professional status, those who reported satisfaction with working in the emergency department had significantly lower mean scores on the MBI and its subscales ($p < 0.001$). Conversely, participants who considered resigning during this period had significantly higher mean MBI and subscale scores compared to those who did not ($p < 0.001$).

Table 4: Distribution of the factors affecting the psychological state of the participants and comparison with the scale.

Psychologically challenging factors after the earthquake		n (%)	MBI (Mean (SD))	EE (Mean (SD))	DP (Mean (SD))	PS (Mean (SD))
Inadequate planning and infrastructure at the workplace	No	42 (20,08)	44.7 (13.6)	11.0 (5.1)	7.7 (4.3)	26.0 (7.5)
	Yes	140 (79,92)	50.5 (12.1)	13.5 (4.6)	8.9 (4.5)	28.1 (6.2)
	p-value		0,070	**0,003**	0,126	**0,015**
Increased workload	No	50 (20,47)	44.4 (13.4)	11.2 (4.9)	7.5 (4.2)	25.7 (7.1)
	Yes	132 (79,53)	51(12)	13,6(4,7)	9,1(4,5)	28,3(6,2)
	p-value		**0,003**	**0,004**	**0,033**	**0,022**
Lack of personal safety at work	No	63 (30,62)	49,2(16,8)	13(4,9)	8,5(4,1)	27,7(9,3)
	Yes	119 (79,38)	50(17,1)	12,9(4,8)	8,7(4,7)	27,43(9,8)
	p-value		0,921	0,85	0,758	0,824
Not being able to get material and moral rewards for their labour	No	51 (30,02)	45,5(17,7)	11(5,5)	7,3(4,8)	27,2(7,1)
	Yes	131 (79,98)	50,6(11,6)	13,7(4,3)	9,2(4,2)	27,7(6,3)
	p-value		**0,016**	**<0,001**	**0,012**	0,652
Being away from my family/ friends	No	64 (30,16)	48,5(18,1)	12,4(4,9)	8,6(4,2)	27,4(10,6)
	Yes	118 (79,84)	49,3(16,3)	13,2(4,8)	8,7(4,6)	28,1(9)
	p-value		0,35	0,32	0,902	0,277
I've lost people I love.	No	92 (50,55)	46,9(12,9)	13,4(4,8)	8(4,2)	26,5(6,9)
	Yes	90 (49,45)	51,4(12,1)	13,5(4,8)	9,3(4,7)	28,7(6)
	p-value		**0,028**	0,13	**0,046**	**0,015**
Uncertainty	No	31 (20,03)	45,5(15,9)	11,1(6,1)	7,6(5,4)	26,8(7,7)
	Yes	151 (79,97)	50(11,8)	13,3(4,5)	8,9(4,2)	27,7(6,3)
	p-value		**0,024**	**0,019**	0,164	**0,036**
Desperation	No	46 (20,27)	45,6(16,5)	11,6(5,8)	7,7(4,9)	26,3(8,7)
	Yes	136 (79,73)	50,3(11)	13,4(4,4)	9(4,3)	28(5,7)
	p-value		**0,003**	**0,032**	0,075	**0,003**

Legend: MBI – Maslach Burnout Iventory; EE – Emotional exhaustion; DP – Depersonalisation; PS – Personal success.

4 Discussion

Emergency medicine departments are among the most critical units in maintaining the continuity of healthcare services during extraordinary situations, such as natural disasters that disrupt daily life. Due to factors such as high workload and intense working conditions under stress, these units carry a high risk of burnout syndrome. Burnout is a chronic condition that emerges as psychological and physical resources are depleted, negatively affecting both professional and social functioning. Physicians, owing to the critical nature of their roles, are particularly vulnerable to this syndrome. Although previous studies have indicated that variables such as gender, age, geographic factors, professional experience, medical specialty, and depressive symptoms may be associated with burnout, consistent and definitive predictors have yet to be clearly established. For instance, a comprehensive review by Rotenstein et al. reported that the prevalence of burnout among physicians ranged from 0% to 86.2% (8-11), highlighting the impact of methodological differences across studies.

The impact of gender on burnout levels remains a subject of debate in the literature. In a study conducted by Mattei et al. following the 2009 L'Aquila earthquake, no significant differences in burnout levels were found between male and female healthcare workers (12). In contrast, our study revealed that female participants had significantly higher total MBI scores and subscale scores compared to their male counterparts. This finding is consistent with the results of a study by Kawashima et al., conducted after the Great East Japan Earthquake (2011), which reported higher levels of burnout and post-traumatic stress symptoms among female healthcare workers (13).

In the literature, findings on the association between age, years of professional experience, and burnout vary across different types of disasters. In two earthquake-related studies conducted by Mattei et al. (2009) and Kawashima et al. (2011), no significant relationship was found between age and burnout scores (12,13). However, other studies have reported that burnout tends to increase particularly during midlife, especially among individuals in their 40s and 50s (14,15). For example, a study by Dosil et al. conducted in Spain during the COVID-19 pandemic reported higher burnout levels among healthcare workers aged 36–55 years (16). In contrast, a nationwide study conducted in Türkiye by Arpacıoğlu et al. during the COVID-19 pandemic found that younger individuals exhibited higher levels of burnout (17). Regarding professional experience, Mattei et al. (2009) also found no significant association between years of service and burnout levels in healthcare workers after an earthquake (12). However, a study by Dimunova and Nagyova among nurses revealed a negative correlation between years of experience and burnout symptoms (18). In our study, burnout levels differed significantly in relation to both age and professional experience. Participants aged 40 years and older had significantly lower burnout and subscale scores compared to younger groups. Similarly, individuals with more than 20 years of professional experience exhibited significantly lower levels of burnout. Although age and professional experience are often correlated, their influence on burnout may be shaped by different psychosocial mechanisms. These findings suggest that age and experience may play a protective role against burnout, though this effect may vary depending on contextual factors.

The inability of individuals to allocate sufficient time for themselves and their families, as well as feelings of inadequacy, can contribute to increased levels of burnout (19). The literature presents inconsistent findings regarding the influence of marital status and parenthood on burnout. Studies conducted by Mattei et al. following an earthquake and by Hatice et al. during the COVID-19 pandemic reported that these two variables had no significant effect on burnout levels (12,20). Our findings were consistent with these studies. However, concern for the safety and protection of children was identified as a significant source of stress. Physicians who left their children behind to return to work after the earthquake exhibited significantly higher scores in EE, DP, and total MBI compared to those who did not. However, no significant difference was observed in the PS subscale. These results suggest that physician parents working during disasters may be at higher risk for burnout due to concerns about the safety of their children. Therefore, a protective approach that includes psychosocial support and burnout prevention strategies may be beneficial for physician parents in the aftermath of devastating disasters such as earthquakes.

The changes that occur following any natural disaster affect the natural flow of life and, consequently, the psychosocial well-being of individuals. Studies have shown that particularly victims of disasters face socioeconomic problems, mental issues, and adverse outcomes such as depression and anxiety (21). The healthcare sector is identified as a high-risk area in this context. Research conducted in this field has revealed that 28.8% of physicians experience depression (22). In our study, factors that increased stress during the post-earthquake

period, which is a particularly stressful time for physicians, were compared. It was observed that factors such as the location of the participants during the earthquake, the condition of their homes, whether their families were trapped under debris, whether they themselves were trapped, their lifestyle during the first three days, and the loss of close relatives did not significantly affect burnout levels. However, burnout was found to be higher among physicians who experienced the fear of death. These findings underscore the importance of promptly providing basic living conditions and prioritizing psychosocial interventions to safeguard the physical and psychological well-being of healthcare workers in the aftermath of a disaster.

When considering individuals' basic physiological needs, factors such as housing difficulties, security, and food emerge as significant, and it has been observed that these factors have a considerable impact on psychological health (23). In a study conducted by Suzuki et al. (2011) following the Great East Japan Earthquake, participants whose homes were destroyed were found to have higher levels of burnout (24). In our study, although no significant differences were observed in burnout scores and subscales between participants whose homes were destroyed and those whose homes were not, a significant increase in burnout scores was observed among participants who faced housing difficulties and food availability issues in their work environments after the earthquake. Our findings indicate that physicians experiencing or at risk of basic physiological issues are significantly more likely to experience higher levels of burnout.

In an analysis conducted on individuals working in administrative units, a correlation was observed between increasing workload and burnout (25). In our study, participants who reported an increase in workload had significantly higher burnout scores and subscale scores compared to those who reported no change in their workload. It was determined that these participants had higher levels of burnout. This finding is consistent with the literature.

Individuals spend a significant portion of their lives at work, and the positive or negative events they encounter in the workplace often reflect in their lives outside of work (26). Job satisfaction influences subscales of burnout, including EE,PS, and DP (27). In a study conducted by Sobrequés and colleagues, a comparison was made between job happiness and burnout levels, revealing a negative correlation between the two (28). In our study, various factors related to job satisfaction were evaluated. Participants who reported not receiving adequate material and moral compensation for their work showed significantly higher scores in burnout scales and subscales, with an increase in burnout observed in these participants. Similarly, participants dissatisfied with working in the emergency department, those contemplating resignation, and those who felt unappreciated by their institution during the challenging period showed significant increases in burnout scores and subscales, with higher burnout levels noted in these individuals. Following the earthquake, participants who experienced an increase in the number of patients they attended to showed a significant increase in the depersonalization subscale.However, no significant difference was found in overall burnout levels.

One of the significant factors influencing service quality in healthcare is job and career satisfaction. In addition, factors such as work status, the balance between work and family time, and having control in the workplace have been identified as contributing elements (29). As observed in our study, an increase in factors that reduce job satisfaction in the work environment correlates with an increase in burnout levels.

5 Limitations

This study has several limitations. Firstly, it was conducted in only one province and does not include a control group, which limits the ability to compare with unaffected groups and make causal inferences. Due to its descriptive and cross-sectional design, the results reflect the situation for a specific period following the earthquake, limiting their generalizability. Additionally, burnout and stress levels were assessed using a single scale, which may not fully capture other psychological dimensions such as anxiety or post-traumatic stress. Lastly, although analyses were conducted by age groups, the absence of correlation analysis based on age data may have limited the depth of interpretation.

6 Conclusion

This study presents significant data examining the burnout levels of emergency department physicians working in Hatay Province following the February 6, 2023, earthquake centered in Kahramanmaraş, as well as the factors influencing these levels. The findings suggest that characteristics such as age and professional experience may have a protective effect on burnout levels. However, difficulties in accessing basic physiological needs caused by natural disasters, increased workload, job dissatisfaction, and psychosocial stressors

significantly increase burnout levels. The study's findings reveal that burnout is influenced by many different factors, and these effects are often interconnected in a complex manner.

The data obtained indicate that healthcare workers serving in post-disaster settings need to be protected not only physically but also psychologically. In this context, establishing psychosocial support programs for healthcare personnel during crisis periods, ensuring the rapid and effective fulfillment of basic living needs, and implementing measures to increase job satisfaction in the work environment could have a burnout-reducing effect. In preparation for extraordinary situations such as disasters, maintaining the well-being of healthcare workers and their families is critical for the sustainability of healthcare services.

Conflict of interest

None declared.

References

1. Stehman CR, Testo Z, Gershaw RS, Kellogg AR. Burnout, Drop Out, Suicide: Physician Loss in Emergency Medicine, Part I. West J Emerg Med. 2019;20(3):485-94. DOI: 10.5811/westjem.2019.4.40970 PMID: 31123550
2. Kishore S, Dandurand DE, Mathew A, Rothenberger D. Breaking the Silence Culture on Physician Suicide. Bethesda: National Academy of Medicine; 2016 [cited 2019 Mar 15]. Available from: https://nam.edu/wp-content/uploads/2016/06/Breaking-the-Culture-of-Silence-on-Physician-Suicide.pdf.
3. Lindeman S, Laara E, Hakko H, Lonnqvist J. A systematic review on gender-specific suicide mortality in medical doctors. Br J Psychiatry. 1996;168(3):274-9. DOI: 10.1192/bjp.168.3.274 PMID: 8833679
4. Schernhammer ES, Colditz GA. Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). Am J Psychiatry. 2004;161(12):2295-302. DOI: 10.1176/appi.ajp.161.12.2295 PMID: 15569903
5. Sørgaard KW, Ryan P, Hill R, Dawson I, Group O; OSCAR Group. Sources of stress and burnout in acute psychiatric care: inpatient vs. community staff. Soc Psychiatry Psychiatr Epidemiol. 2007;42(10):794-802. DOI: 10.1007/s00127-007-0228-6 PMID: 17700977
6. Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. Arch Intern Med. 2012;172(18):1377-85. DOI: 10.1001/archinternmed.2012.3199 PMID: 22911330
7. Aydın M. Understanding Disasters and Mass Trauma in the Context of Earthquakes. Turk Norshir J. 2023;33(2):165-9.
8. Maslach C, Jackson SE. The measurement of experienced burnout. J Organ Behav. 1981;2(2):99-113. DOI: 10.1002/job.4030020205
9. Erg C. Maslach Burnout Scale Norms for Turkish Healthcare Workers. Journal of Psychiatry. 1996;4(1):28-33.
10. Belen VK. Identifying Factors Affecting Anxiety, Depression, and Professional Fulfillment Levels of Emergency Physicians in Hatay Province, in Emergency Medicine. Hatay: Mustafa Kemal University; 2022.
11. Rotenstein LS, Torre M, Ramos MA, Rosales RC, Guille C, Sen S, et al. Prevalence of Burnout Among Physicians: A Systematic Review. JAMA. 2018;320(11):1131-50. DOI: 10.1001/jama.2018.12777 PMID: 30326495
12. 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. DOI: 10.3389/fpsyt.2017.00098 PMID: 28659831
13. Kawashima Y, Nishi D, Noguchi H, Usuki M, Yamashita A, Koido Y, et al. Post-Traumatic Stress Symptoms and Burnout Among Medical Rescue Workers 4 Years After the Great East Japan Earthquake: A Longitudinal Study. Disaster Med Public Health Prep. 2016;10(6):848-53. DOI: 10.1017/dmp.2016.83 PMID: 27188495
14. Cheng Y, Chen IS, Chen CJ, Burr H, Hasselhorn HM. The influence of age on the distribution of self-rated health, burnout and their associations with psychosocial work conditions. J Psychosom Res. 2013;74(3):213-20. DOI: 10.1016/j.jpsychores.2012.12.017 PMID: 23438711
15. Ramos R, Jenny G, Bauer G. Age-related effects of job characteristics on burnout and work engagement. Occup Med (Lond). 2016;66(3):230-7. DOI: 10.1093/occmed/kqv172 PMID: 26810576
16. Dosil M, Ozamiz-Etxebarria N, Redondo I, Picaza M, Jaureguizar J. Psychological symptoms in health professionals in Spain after the first wave of the COVID-19 pandemic. Front Psychol. 2020;11. DOI: 10.3389/fpsyg.2020.606121 PMID: 33391125
17. Arpacıoğlu MS, Baltacı Z, Ünübol B. Burnout, COVID-19 Fear, Depression, Job Satisfaction Levels, and Associated Factors in Healthcare Workers During the COVID-19 Pandemic. Cukurova Med J. 2021;46(1):88-100.
18. Dimunová L, Nagyova I. Relation Between Burnout Syndrome and Employment Duration in Nurses and Midwives in Slovakia. Profese online. 2012;4(1):1-4. DOI: 10.5507/pol.2012.001
19. Keten Edis E, Keten M. Burnout, Job Satisfaction, and Life Satisfaction in Healthcare Workers During the COVID-19 Pandemic. Kırıkkale Univ J Med Sci. 2022;24(2):331-42. DOI: 10.24938/kutfd.1082327
20. Yağcı H, Dayapoğlu N, Karaşahin O. Evaluation of Stress and Burnout Levels of Healthcare Professionals Working in COVID-19 Services. Mersin Üniversitesi Tıp Fakültesi Lokman Hekim Tıp Tarihi ve Folklorik Tıp Dergisi. 2021;11(2):381-90.
21. Makwana N. Disaster and its impact on mental health: A narrative review. J Family Med Prim Care. 2019;8(10):3090-5. DOI: 10.4103/jfmpc.jfmpc_893_19 PMID: 31742125
22. Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Di Angelantonio E, et al. Prevalence of Depression and Depressive Symptoms Among Resident Physicians: A Systematic Review and Meta-analysis. JAMA. 2015;314(22):2373-83. DOI: 10.1001/jama.2015.15845 PMID: 26647259
23. Lester D, Hvezda J, Sullivan S, Plourde R. Maslow's Hierarchy of Needs and Psychological Health. J Gen Psychol. 1983;109(1):83-5. DOI: 10.1080/00221309.1983.9711513 PMID: 28150561
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;59(2):156-64. DOI: 10.1539/joh.16-0263-OA PMID: 28077824
25. Mansour Z, Hamed Y, Meisam M, Mohammad K. Level of Workload and Its Relationship with Job Burnout among Administrative Staff. Int J Occup Hyg. 2015;7(2).
26. Tekir Ö, Çevik C, Selma A, Çetin G. Investigation of Burnout, Job Satisfaction Levels, and Life Satisfaction of Healthcare Workers. Kırıkkale University Journal of Medicine. 2016;18(2):51-63.

27. Kulakçı H, Ayyıldız T, Veren F, Kalıncı N, Topan A. Evaluation of the Mobbing and Burnout Levels and Affecting Factors of Midwives and Nurses Working in Zonguldak Province Public Hospitals. J Educ Res Nurs. 2015;12(2):133-41.

28. Sobrequés J, Cebrià J, Segura J, Rodríguez C, García M, Juncosa S. Job satisfaction and burnout in general practitioners. Aten Primaria. 2003;31(4):227-33. PMID: 12681162

29. Laar D, Edwards J, Easton S; The Work-Related Quality of Life. (WRQoL) scale for healthcare workers. J Adv Nurs. 2007;60:325-33. DOI: 10.1111/j.1365-2648.2007.04409.x PMID: 17908128