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Research Article

Burnout syndrome and associated factors among healthcare workers in COVID-19 contact tracing teams: A cross-sectional study from Türkiye

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Abstract

Objective: The aim of this study is to investigate levels of occupational burnout, anxiety, and quality of life among healthcare workers engaged in contact tracing activities during the pandemic.

Method: This cross-sectional study was conducted in a provincial center in southern Türkiye. Between September 2021 and April 2022, 210 healthcare professionals actively serving in contact tracing teams were recruited into the study. Participants were given a questionnaire covering sociodemographic information, the Maslach Burnout Inventory, and the Health Workers' Work-Life Quality Scale. Inferential analyses included the chi-square test, Student's t-test, Mann–Whitney U test, one-way ANOVA, the Kruskal–Wallis test and linear regression analysis.

Results: The mean age of the 210 participants was 39.8 years and 73.8% were female and 26.2% were male. Physicians reported lower quality-of-life scores than others. Men exhibited higher scores on the depersonalization subscale than women. Physicians and dentists scored higher on the depersonalization subscale than other occupational groups. Professionals who lived outside their homes during the contact tracing period had higher anxiety, emotional exhaustion, and depersonalization scores, as well as lower personal accomplishment scores, than those who lived at home. Healthcare professionals assigned to swab collection duties reported higher emotional exhaustion and depersonalization scores than those not performing such tasks.

Conclusions: Of all the professional groups studied, physicians exhibited the highest burnout levels and the lowest quality-of-life scores. Additionally, healthcare professionals assigned to swab collection duties demonstrated significantly higher burnout levels. These results highlight the urgent need for targeted psychosocial support, workload management, and protective interventions.

Keywords: COVID-19, Pandemics, Health Personnel, Burnout, Anxiety, Quality of Life.

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INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the seventh known human coronavirus. It was first identified in January 2020 during a pneumonia outbreak in Wuhan, China. On March 10, 2020, the Turkish Ministry of Health announced to the public that the virus had arrived in Türkiye (1). On March 11, 2020, the World Health Organization (WHO) officially declared a pandemic (2). As of April 2022, approximately 492 million cases and 6.1 million deaths had been recorded globally. In Türkiye, the respective figures were approximately 14.9 million and 98 thousand (3).

Contact tracing is a process conducted in the field that involves systematically tracking the source of an infection and the contacts of reported cases during an epidemic. Super-spreader cases in the ongoing pandemic have once again highlighted the critical role of contact tracing in controlling the disease. Contact tracing teams are responsible for evaluating possible and confirmed cases, taking samples, and implementing necessary treatment and isolation measures in the patients' homes (4,5).

During the pandemic, healthcare workers on the front lines faced severe psychological pressure in addition to deteriorating working conditions. Similarly, high rates of anxiety, depression, and sleep disorders were observed among frontline healthcare personnel during previous SARS and MERS outbreaks. Moreover, these effects persisted long after the outbreaks ended (6, 7). According to data collected in China during the pandemic, 50% of healthcare professionals interviewed reported symptoms of depression. Furthermore, healthcare workers, including doctors, exhibit higher rates of insomnia, anxiety, depression, somatization disorder, and obsessive-compulsive symptoms (8). A study by Lai et al. found that many participants exhibited symptoms of depression, anxiety, insomnia, and distress. Another study conducted in China during the pandemic found a 25.2% prevalence rate among 14,825 doctors and nurses in 31 Chinese provinces (9).

Burnout syndrome is a work-related problem characterized by emotional, physical, and mental exhaustion resulting from prolonged exposure to intense stress, as well as a substantial decline in self-esteem and perceived competence (10). First conceptualized by Freudenberger in 1974, burnout syndrome affects approximately 10% of the workforce in European Union countries and 17% outside of them. The rate has significantly increased among healthcare workers during the pandemic (11). Furthermore, 521 healthcare workers lost their lives in Türkiye during the pandemic.

This study examined burnout, anxiety, and quality of life levels among healthcare workers on contact tracing teams during the pandemic, as well as the sociodemographic, occupational, and individual factors that influence these levels.

METHODS

Research Area

The research was conducted in Adana, the seventh most populous province in Türkiye. According to 2021 Turkish Statistical Institute (TUIK) data, the province has a population of approximately 2,263,373 and comprises 15 districts, five of which are central. The study focused on four of these central districts: Seyhan, Yüreğir, Çukurova, and Sarıçam. Contact tracing teams operated within the district health directorates of these districts. The team structure consisted of three levels: management, central, and field.

Research Type and Ethical Permissions

This is a single-center, cross-sectional study. Ethical approval was obtained from the Çukurova University Faculty of Medicine Ethics Committee on February 12, 2021 (meeting no. 108, decision no. 39). Additionally, permissions were obtained from the Scientific Research Platform of the Republic of Türkiye's Ministry of Health (February 6, 2021) and the Adana Provincial Health Directorate (March 18, 2021). Throughout the research, compliance with the latest versions of the Good Clinical Practice

Guidelines and the Helsinki Declaration was ensured, and informed consent was obtained from all participants.

Population and Sample

The research population was defined as 640 people. Using a 95% confidence level, 80% power, and an effect size of d = 0.389, the target sample size was calculated to be 210 participants. Due to the dynamic nature of the teams and constant changes to the employee list, a non-probability sampling method was employed.

Measuring Instruments

The study used three scales and a personal information form.

The Coronavirus Anxiety Scale (CAS): This five-item scale, developed by Lee, is based on thoughts from the past two weeks. The scoring range is 0–20, with higher scores indicating higher anxiety levels. Cronbach's alpha = 0.832 (12). The Turkish validity and reliability study of the scale was conducted by Akkuzu et al (13).

Maslach Burnout Scale (MBS): This scale was developed by Maslach et al. The MBS is a scale that evaluates three sub-dimensions based on 22 items: Emotional Exhaustion (EE)—9 items; Depersonalization (DP)—5 items; and Personal Accomplishment (PA)—8 items. A Likert-type scale was used, with 0 indicating "Never" and 4 indicating "Always"; the PA subscale was reverse-scored. High scores on the EE and D subscales and low scores on the PA subscale indicate the intensity of burnout. Cronbach's alpha = 0.93 (14). The Turkish adaptation of the scale and the validity-reliability study were carried out by Ergin (15).

Health Personnel Working Life Quality Scale (HPLQS): Developed by Aydın et al. (16) (2011) in Turkish, the HPLQS consists of 27 questions and six factors: (F1) workplace accidents and physical working conditions; (F2) workplace discrimination; (F3) opportunities for continuous development; (F4) social integration into the organization; (F5) work stress and time pressure; and (F6) laws within the organization. The scale uses a 1–5 Likert scale; raw scores are standardized using the formula (raw score/maximum score) × 100 (range: 20–100). As the total score increases, so does the quality of life. Factor loadings ranged from 0.58 to 0.83, and Cronbach's alpha was 0.882.

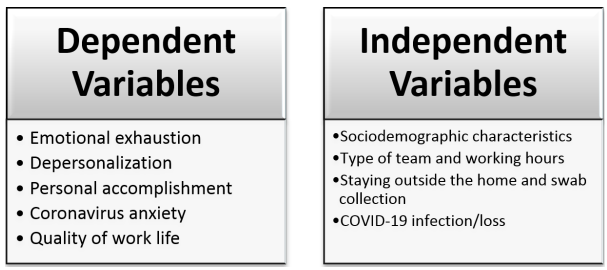

Figure 1. Dependent and Independent Variables

Data Collection

The surveys were conducted in person during the hours when the contact tracing teams were together, either at the start of their morning shift or when they returned to the institution at the end of the day. Due to the dynamic structure of the teams and the high volume of temporarily assigned personnel, the surveys included both active and former contact tracing healthcare workers. Figure 1 shows the dependent and independent variables of the study.

Data Analysis

All analyses were performed using the SPSS 22 software package. Descriptive statistics are presented as n and percentage for categorical variables and as mean ± standard deviation or median (interquartile range [IQR]) for continuous variables. Normality was assessed using the Kolmogorov-Smirnov test. The Student t-test was applied to data conforming to a normal distribution for pairwise group comparisons, and the Mann-Whitney U test was applied to data that did not conform to a normal distribution. For multiple group comparisons, one-way ANOVA was applied to normally distributed data, and the Kruskal–Wallis test was applied to non-normally distributed data. The Pearson and Spearman methods were used for the respective pairwise correlation analyses; linear regression analysis was applied to determine predictors of the dependent variable. The statistical significance level was set at $p < 0.05$.

RESULTS

The participants' average age was 39.8 ± 9.1 years (range: 23–60 years), and 71% of them had children. Among the healthcare workers, 36 (17.1%) were physicians, 22 (10.5%) were dentists, and 132 (62.9%) were non-physician healthcare personnel. Sixteen healthcare workers (7.6%) had to stay outside their own homes during contact tracing. Of the participants, 125 (59.5%) collected swab samples from patients during their assignment. Furthermore, 47.6% were not actively working in the field but rather from the center.

Table 1. Comparing quality of life scores based on participants' characteristics and work styles.

Participants' characteristics and work styles		Quality of life	
		x̄±SS	p*
Gender	Female	84.6±11.9	0.163
	Male	82.1±11.0	
Marital status	Single	79.9±12.6	0.097
	Married	84.3±11.3	
	Others	87.6±13.6	
Having children	Yes	84.6±11.7	0.212
	No	82.4±11.7	
Profession	Medical doctor	78.6±9.7	**0.002**
	Dentist	87.7±10.8	
	Non-physician healthcare personnel	85.4±11.8	
	Others	79.7±11.7	
Living together	Alone	79.9±17.7	0.160
	With family	84.3±11.1	
The sector in which the husband/ wife works	Single	79.9±12.6	**0.016**
	Health	83.9±11.9	
	Non-health	86.1±10.5	
	Unemployed	78.4±13.2	
Staying outside your own home	Yes	87.6±8.6	0.200
	No	83.7±11.9	
Swab collection situation	Yes	83.8±11.9	0.850
	No	84.1±11.4	
Satisfaction with working hours	I'm not satisfied at all	85.3±13.7	**0.002**
	I'm not satisfied	87.1±8.8	
	I'm undecided	78.8±14.2	
	I'm satisfied	84.6±9.6	
	I'm very satisfied	90.0±8.0	
Work routine	Permanent daytime work	83.1±10.8	0.094
	Night shift	82.3±12.2	
	Shift work	85.8±12.8	
	Mixed	91.9±8.6	

* Student T-test was used if there were two categories, and One Way ANOVA test was used if there were more than two categories.

A significant difference in total quality of life scores was found among occupational groups ($p = 0.002$, $\eta^2 = 0.7$). Physicians' scores were significantly lower than those of dentists and auxiliary health personnel (Table 1). Women had significantly higher F3 (opportunities for continuous development) scores than men ($p = 0.029$, $r = 0.31$), as did those with children ($p = 0.008$). Individuals living with

their families had significantly higher F3 (opportunities for continuous development) scores than those living alone ($p = 0.014$, $r = 0.25$). Those stay outside their homes during contact tracing scored higher on F1 (physical working conditions) and F5 (work stress) ($p = 0.045$, $r = 0.31$; $p = 0.029$, $r = 0.32$). Healthcare workers who collected swabs had significantly higher physical working conditions scores. Conversely, F3 (opportunities for continuous development) ($p = 0.009$, $r = 0.40$), F4 (social integration into the organization) ($p = 0.0.16$, $r = 0.29$), and F6 (laws in the organization) ($p = 0.004$, $r = 0.41$) scores were significantly lower. Satisfaction with working hours emerged as a factor that determined overall quality of life and all its sub-factors (F1 $p = 0.028$, $\eta^2 = 0.6$; F2 $p < 0.001$, $\eta^2 = 0.11$; F3 $p < 0.001$, $\eta^2 = 0.10$; F4 $p = 0.002$, $\eta^2 = 0.6$; F5 $p < 0.001$, $\eta^2 = 0.12$).

Men had significantly higher depersonalization scores than women ($p = 0.015$, $r = 0.28$). Participants with children had lower depersonalization scores ($p = 0.003$, $r = 0.36$) and higher personal accomplishment scores ($p < 0.001$, $r = 0.52$). Significant differences in emotional burnout scores were found between high school graduates and those with a master's or doctoral degree ($p = 0.014$, $\eta^2 = 0.8$). The most striking finding among occupational groups was that physicians and dentists had significantly higher depersonalization scores than auxiliary healthcare personnel ($p < 0.001$, $\eta^2 = 0.9$). Conversely, auxiliary healthcare personnel had higher personal accomplishment scores than physicians ($p < 0.001$, $\eta^2 = 0.9$). The group with perceived low monthly income had significantly higher emotional exhaustion and depersonalization scores than the middle and high income groups ($p = 0.004$, $\eta^2 = 0.5$; $p = 0.024$, $\eta^2 = 0.6$) (Table 2).

Those who remained outside their homes during the contact tracing process had significantly higher emotional exhaustion ($p = 0.01$, $d = 0.71$) and depersonalization ($p < 0.001$, $r = 0.74$) scores and significantly lower personal accomplishment scores ($p = 0.015$, $r = 0.51$). Additionally, emotional exhaustion ($p = 0.015$, $d = 0.35$) and depersonalization ($p = 0.043$, $r = 0.29$) were found to be significantly higher in healthcare workers who collected swabs. A significant increase in burnout subscale scores was observed as satisfaction with working hours decreased (emotional exhaustion $p < 0.001$, $\eta^2 = 0.14$; depersonalization $p < 0.001$, $\eta^2 = 0.12$; personal accomplishment $p = 0.002$, $\eta^2 = 0.08$) (Table 2).

No significant relationship was found between sociodemographic variables and Coronavirus Anxiety Scores. However, individuals outside their homes during contact tracing had significantly higher anxiety scores than those who were not ($p < 0.001$, $d = 0.37$). Additionally, anxiety scores were significantly higher among those who were dissatisfied with their working hours compared to those who were satisfied ($p = 0.028$, $\eta^2 = 0.08$).

A significant positive correlation was found between quality of life, years worked, and personal accomplishment. A significant positive correlation was found between anxiety level and emotional exhaustion and depersonalization. A significant negative correlation was found between personal accomplishment and depersonalization and emotional exhaustion (Table 3).

A multiple linear regression analysis was conducted to estimate the relationship between the subdimensions of the Maslach Burnout Inventory (MBI) and the Quality of Working Life Inventory. Scores on F2 (workplace discrimination), F3 (development and improvement opportunities), and F5 (work stress and time pressure) were found to predict emotional exhaustion. Additionally, scores on F3 and F5 were found to predict depersonalization, and scores on F3 and F6 (organizational laws) were found to predict personal accomplishment (Table 4).

DISCUSSION

The effects of the pandemic were felt in all aspects of life, causing changes in working conditions for various professional groups, whether directly or indirectly. Healthcare workers were among those most affected by the pandemic. Burnout is more prevalent in professions that require intensive human interaction (17). Healthcare workers, who constantly interact with people in the service sector, are among the groups most exposed to burnout (18). Dealing with human life and the sense of responsibility that comes with it causes healthcare workers to experience intense work-related stress (19).

Table 2. Comparison of burnout scores according to demographic characteristics.

Demographic characteristics		Emotional exhaustion		Depersonalization		Personal accomplishment	
$\bar{x}$±SS		p*	Median (IQR)	p**	Median (IQR)	p**	
Gender	Female	19.7±7.6	0.200	5.0 (2.0-7.0)	**0.015**	21.0 (17.0-26.0)	0.849
	Male	17.9±9.3		7.0 (3.0-11.0)		22.0 (18.0-25.0)	
Having children	Yes	18.8±8.1	0.232	4.0 (2.0-7.5)	**0.003**	23.0 (19.0-26.0)	**<0.001**
	No	20.2±8.1		7.0 (4.0-10.0)		19.0 (15.0-22.0)	
Educational status	High school and below	14.4±10.6	**0.014**	4.5 (1.0-11.0)	0.235	23.0 (13.0-27.0)	0.629
	Associate degree / Bachelor's degree	19.1±8.2		5.0 (2.0-8.0)		22.0 (18.0-26.0)	
	Master's degree / Doctorate	20.9±6.3		6.0 (4.0-10.0)		20.0 (16.0-25.0)	
Profession	Medical doctor	21.5±7.2	0.132	9.0 (6.0-11.0)	**<0.001**	17.5 (14.5-24.0)	**0.002**
	Dentist	20.9±8.6		7.0 (4.0-10.0)		20.0 (17.0-24.0)	
	Non-physician healthcare personnel	18.5±8.2		4.0 (1.0-7.0)		23.0 (18.0-27.0)	
	Others	17.7±8.2		6.0 (3.0-10.5)		21.5 (18.5-24.0)	
Monthly income status	Bad	21.5±7.4	**0.004**	6.0 (4.0-10.0)	**0.024**	21.0 (17.0-25.0)	0.697
	Average	18.1±8.2		4.0 (1.0-8.0)		23.0 (17.0-26.0)	
	Good	16.3±8.4		4.0 (1.0-8.0)		20.0 (16.0-28.0)	
Living together	Alone	20.3±7.7	0.592	5.0 (1.0-9.0)	0.725	18.0 (15.0-20.0)	**0.017**
	With family	19.1±8.2		5.0 (3.0-9.0)		22.0 (18.0-26.0)	
Staying outside your own home	Yes	24.2±6.9	**0.01**	11.5 (9.5-14.0)	**<0.001**	18.0 (14.5-21.0)	**0.015**
	No	18.8±8.1		5.0 (2.0-8.0)		22.0 (18.0-26.0)	
Swab collection situation	Yes	20.3±8.0	**0.015**	6.0 (3.0-10.0)	**0.043**	21.0 (16.0-26.0)	0.089
	No	17.5±8.0		4.0 (2.0-7.0)		22.0 (19.0-26.0)	
Work routine	Permanent daytime work	18.8±8.1	0.647	5.0 (1.0-9.0)	0.393	21.0 (18.0-25.5)	0.438
	Night shift	18.7±8.8		6.0 (4.0-10.0)		23.0 (18.0-28.0)	
	Shift work	20.0±7.4		5.0 (3.0-7.5)		20.0 (16.0-25.0)	
	Mixed	21.8±9.2		5.0 (3.0-5.5)		21.0 (17.5-25.5)	
Satisfaction with working hours	I'm not satisfied at all	24.9±8.7	**<0.001**	7.5 (4.0-12.0)	**<0.001**	21.0 (16.0-26.0)	**0.002**
	I'm not satisfied	21.5±6.3		6.0 (4.0-10.0)		21.0 (18.0-25.0)	
	I'm undecided	18.8±7.5		6.0 (3.0-9.0)		18.5 (15.0-24.0)	
	I'm satisfied	15.8±7.9		3.0 (1.0-6.0)		24.0 (20.0-27.0)	
	I'm very satisfied	16.5±10.1		7.0 (1.0-14.0)		20.0 (16.0-27.0)	

* Student T-test was used if there were two categories, and One Way ANOVA test was used if there were more than two categories;
** The Mann-Whitney U Test was used if there were two categories, and the Kruskal-Wallis Test was used if there were more than two categories.

Table 3. Correlation results between age, years of work experience, and scale scores.

		Age	Years of work experience	Quality of life	Anxiety Level	Emotional exhaustion	Depersonalization
Years of work experience	r	**0.883**					
	p	**<0.001**					
Quality of life	r	0.080	**0.143**				
	p	0.256	**0.040**				
Anxiety Level	r	0.030	0.028	**0.161**			
	p	0.664	0.691	**0.021**			
Emotional exhaustion	r	**-0.178**	-0.117	0.091	**0.266**		
	p	**0.010**	0.092	0.196	**<0.001**		
Depersonalization	r	**-0.304**	**-0.338**	-0.064	**0.232**	**0.568**	
	p	**<0.001**	**<0.001**	0.360	**0.001**	**<0.001**	
Personal accomplishment	r	**0.365**	**0.360**	**0.244**	-0.061	**-0.223**	**-0.437**
	p	**<0.001**	**<0.001**	**<0.001**	0.381	**0.001**	**<0.001**

Table 4. Work Life Quality Parameters That Can Predict Burnout Levels.

Emotional exhaustion R^2=0.276				**Depersonalization** R^2=0.178			**Personal accomplishment** R^2=0.242		
	Unstandardized Coefficients		Sig.	Unstandardized Coefficients		Sig.	Unstandardized Coefficients		Sig.
	B	Std. Error		B	Std. Error		B	Std. Error	
F1	0.034	0.093	0.714	0.015	0.057	0.790	0.084	0.066	0.206
F2	0.296	0.108	**0.007**	0.008	0.067	0.909	-0.064	0.077	0.408
F3	-0.500	0.149	**0.001**	-0.466	0.092	**<0.001**	0.676	0.106	**<0.001**
F4	-0.078	0.166	0.636	0.088	0.102	0.389	0.105	0.118	0.374
F5	0.825	0.226	**<0.001**	0.360	0.140	**0.011**	0.297	0.162	0.067
F6	0.116	0.216	0.591	0.074	0.134	0.582	-0.361	0.155	**0.021**

(F1) workplace accidents and physical working conditions; (F2) workplace discrimination; (F3) opportunities for continuous development; (F4) social integration into the organization; (F5) work stress and time pressure; and (F6) laws within the organization.

Pre-pandemic studies have also demonstrated high levels of burnout among healthcare workers (20,21). During the pandemic, their responsibilities and stress levels increased significantly. A study conducted in Hong Kong found that healthcare workers were at risk of burnout (22). Kökçü et al. found that healthcare workers experienced moderate levels of burnout in emotional exhaustion and personal accomplishment and low levels in depersonalization (23). Tukur et al. found that 86% of intensive care nurses working in tertiary care experienced emotional exhaustion, and approximately half of them experienced depersonalization (24).

Before the pandemic, a study was conducted on healthcare workers and found that their emotional exhaustion score was 17.8±8.12, their personal accomplishment score was 20.2±4.93, and their depersonalization score was 6.4±3.80 (25). Among primary care healthcare workers, the emotional exhaustion score was 14.63 ± 6.38, the personal accomplishment score was 10.80 ± 4.62, and the depersonalization score was 4.02 ± 3.15 (26). Sayıl et al. (27) found the emotional exhaustion score of healthcare workers at Ankara University Hospital to be 18.1, the personal achievement score to be 20.3, and the depersonalization score to be 5.48. Comparing the results of these studies with those of

our study suggests that the level of burnout among healthcare workers has increased since the pre-COVID-19 pandemic period.

The literature reports different results regarding burnout between genders. Some studies have found significant gender differences in emotional burnout (26), while others have not (28,29). A study conducted at the Diyarbakır Gazi Yaşargil Training and Research Hospital found that emotional burnout and personal accomplishment scores were significantly higher in women than in men (11). Mete et al., in a cross-sectional study conducted among physicians in primary and secondary healthcare settings in Türkiye, reported that emotional exhaustion was significantly more prevalent among female physicians, while depersonalization did not differ significantly by gender (30). In our study, men's depersonalization subscale scores were significantly higher than women's, but no significant differences were found in emotional burnout or personal accomplishment scores.

Consistent with previous studies, no significant differences were found in emotional exhaustion, depersonalization, or personal accomplishment based on marital status (11,25,26). In our study, significant differences in depersonalization and personal accomplishment were found based on having children, but no significant difference was found in emotional exhaustion. Healthcare workers with children reported feeling more sensitive and successful in their work. In a study by Tunç et al., physicians had higher emotional exhaustion scores, while nurses and midwives had higher personal accomplishment scores (11). Some studies have found that physicians' emotional exhaustion and depersonalization scores are significantly higher than those of other professional groups (11,25). In our study, physicians' depersonalization scores were significantly higher, while personal accomplishment scores were significantly higher in auxiliary healthcare personnel.

This study found that the emotional exhaustion and depersonalization scores of individuals with low incomes were significantly higher than those of other groups. In addition to an increased workload and stress during the pandemic, economic problems also contributed to healthcare workers experiencing burnout. Personal accomplishment scores were found to be significantly higher among those living with their families. Another study found that emotional exhaustion and depersonalization scores were significantly higher for those living alone than for those living with their families (31).

The study found that individuals outside their homes during contact tracing had significantly higher emotional exhaustion and depersonalization scores and significantly lower personal accomplishment scores. Similarly, those who collected swabs had higher scores for emotional exhaustion and depersonalization. Healthcare workers in this role may be more susceptible to burnout due to the technical challenges of collecting swabs and the necessity of close patient contact. In Gün's study, emotional exhaustion and depersonalization scores decreased and personal accomplishment scores increased as the average age increased (31). However, some studies have not found significant differences between age groups (32,33).

Studies have shown that as length of service in a profession increases, depersonalization scores decrease significantly (31-33). Similarly, our study found a significant positive correlation between years of service and personal accomplishment scores and a significant negative correlation between depersonalization scores and personal accomplishment scores. Previous studies have reported that being young and having little professional experience increases the risk of burnout (34,35). In our study, a significant positive correlation was found between anxiety and emotional exhaustion and depersonalization scores. Thus, it can be said that burnout increases as anxiety increases. A significant positive correlation was found between emotional exhaustion and depersonalization and a significant negative correlation was found between emotional exhaustion and personal accomplishment. Thus, it was determined that burnout negatively affects personal accomplishment.

According to profession, the "risk of work accidents, occupational diseases, and physical working conditions in the workplace" score was significantly higher among dentists. The "opportunities for continuous development and improvement" score was significantly higher among auxiliary health personnel. Those who stayed outside their homes during the contact tracing process had significantly higher scores for "Risk of Work Accidents, Occupational Diseases, and Physical Working Conditions in the Workplace" and "Work Stress and Time Pressure." Those who worked continuously during the day had significantly lower "Risk of Work Accidents, Occupational Diseases and Physical Working Conditions in the Workplace" scores compared to those who worked shifts. In Saygılı et al.'s study, those who worked on-call duties had significantly lower scores compared to those who did not (36). Supporting our findings, Mete et al. demonstrated that work stress and time pressure was the single strongest predictor of burnout among physicians, accounting for 35.4% of the variance in burnout scores. Occupational accident and physical working conditions risk contributed an additional 4%. These results, obtained using the same quality of work life scale employed in the present study, corroborate the central role of work stress and the quality of the working environment in the development of burnout among healthcare professionals (30).

Limitations of the Study

Healthcare workers involved in contact tracing teams were professionally exposed to the virus and could not be included in the study when they were absent from duty due to infection. Because the team structure, number of employees, and field areas were constantly changing, it was impossible to create a fixed employee list. This necessitated the adoption of a non-probability sampling method. The practice of temporary assignments constantly transformed the population structure, making it difficult to accurately calculate the population size.

Strengths of the Study

Collecting data face-to-face in the field significantly increased the reliability of the information. The research was conducted with the approval of the ethics committee, the Ministry of Health, and the Provincial Health Directorate. Using scales with proven validity and reliability added a high level of credibility to the findings.

CONCLUSION

This study demonstrated that burnout syndrome was a significant problem among healthcare workers involved in contact tracing during the pandemic, with physicians experiencing the highest burnout levels and lowest quality of life scores. Healthcare workers who stayed away from home and those performing swab collection were particularly vulnerable to emotional exhaustion and depersonalization. Workplace discrimination, limited development opportunities, and job stress emerged as key predictors of burnout dimensions. These findings highlight the urgent need for targeted psychosocial support programs, workload management strategies, and policy-level interventions — particularly for high-risk groups such as physicians and swab collection personnel. Future research should examine the long-term effects of burnout and evaluate the effectiveness of such interventions across different pandemic periods and healthcare settings.

Based on the findings of this study, several recommendations can be made at both institutional and national levels. At the institutional level, psychosocial support programs — including regular psychological counseling and peer support groups — should be established specifically for healthcare workers assigned to high-risk roles such as contact tracing and swab collection. Workload distribution should be reorganized to prevent excessive burden on physicians, and rotation systems should be implemented to minimize prolonged separation from home. At the national level, the Turkish Ministry of Health should develop standardized burnout monitoring protocols to be integrated into

public health emergency response plans. Given Türkiye's geographically and demographically diverse healthcare infrastructure, regional health directorates should tailor these interventions according to local workforce capacity and needs. Finally, collaboration between universities, public health institutions, and policymakers is encouraged to design and evaluate evidence-based intervention programs that can be rapidly deployed during future public health emergencies.

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Peer-Review

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Conflict of Interest

The authors declare that they have no conflict of interests regarding content of this article..

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Ethical Declaration

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Authorship Contributions

Concept: AÇ,EN , Design: AÇ,EN,HD, Supervising: AÇ,EN,DY, Financing and equipment: AÇ,EN, Data collection and entry: AÇ, Analysis and interpretation: AÇ,EN,DY,HD, Literature search: AÇ,EN,DY, Writing: AÇ,EN,DY, Critical review: AÇ,EN,DY, HD.

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