



RESEARCH ARTICLE / ARAŞTIRMA YAZISI

# The Burnout Levels of Nurses Working in COVID-19 Ward and Intensive Care Units and Associated Factors: A Cross-sectional Study

## COVID-19 Servis ve Yoğun Bakım Ünitelerinde Çalışan Hemşirelerin Tükenmişlik Düzeyleri ve İlişkili Faktörler : Kesitsel Bir Çalışma

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### Abstract:

The purpose of the study was to determine the burnout levels of nurses working in COVID-19 wards and intensive care units and investigate factors related to burnout levels. The population of this cross-sectional study consisted of 1200 nurses working in COVID-19 wards and intensive care units in five public hospitals in Izmir, Turkey. Random Sampling Method, one of the non-probability sampling methods, was used in the study to reach the entire study population. The data were collected from 554 nurses between April 15 and July 15, 2021, by face-to-face interviews and the technique of pencil and paper. Individual Introduction Form and Maslach Burnout Scale were used in the study. The average of personal success of singles, those with no children, and contracted workers was higher than the others. In the stigmatization variable, it was found that the participants were exposed to emotional exhaustion [EE] and depersonalization [DP]. The personal success of employees for 1-5 years in the profession and employees in intensive care units in the COVID-19 pandemic was high compared to others. Nurses were exposed to emotional exhaustion, [EE] and depersonalization [DP] burnout in the variable of working environment and general health status in the COVID-19 outbreak. The social value of nurses must be increased because they are exposed to stigmatization in the COVID-19 pandemic, the working environment should be made suitable because the negative working environment increases burnout, and psychological healthcare intervention programs must be implemented because their general health status is affected negatively.

**Keywords:** COVID-19; SARS-CoV-2; Nursing; Burnout

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**Öz:**

Bu çalışmada COVID-19 servis ve yoğun bakımlarında çalışan hemşirelerin tükenmişlik düzeylerinin belirlenmesi ve tükenmişlik düzeyleri ile ilişkili faktörler incelenmiştir. Kesitsel tipte olan Çalışmanın evreni Türkiye'nin İzmir ilindeki beş kamu hastanesindeki COVID-19 servis ve yoğun bakımlarda çalışan 1200 hemşireden oluşmaktadır. Örneklem seçimi olasılıksız örnekleme yöntemlerinden gelişigüzel örnekleme yöntemi kullanılmış ve evrenin tümüne ulaşılması amaçlanmıştır. Veriler 15 Nisan - 15 Temmuz 2021 tarihleri arası 554 hemşireden yüz yüze görüşme ve kağıt kalemle tekniği ile toplanmıştır. Araştırmada Birey Tanıtım Formu ve Maslach Burnout ölçeği kullanılmıştır. Araştırma bulgularında bekar olanların, çocuk sahibi olmayanların ve sözleşmeli çalışanların kişisel başarı ortalaması diğerlerine göre yüksek bulunmuş; Damgalanma değişkeninde duygusal tükenme, [EE] ve duyarsızlaşma [DP] tükenmişliğe maruz kaldığı saptanmıştır. Meslekte 1-5 yıl arası çalışanların ve COVID-19 salgınında yoğun bakımda çalışanların kişisel başarıları diğerlerine kıyasla yüksektir. COVID-19 salgınında çalışma ortamı ve genel sağlık durumu değişkeninde hemşirelerin duygusal tükenme, [EE] ve duyarsızlaşma [DP] tükenmişliğe maruz kaldığı tespit edilmiştir. Araştırma sonucuna göre COVID-19 salgınında hemşireler damgalanmaya maruz kaldığı için toplumsal değeri yükseltilmeli, olumsuz çalışma ortamı tükenmişliği yükselttiği için çalışma ortamı uygun hale getirilmeli ve genel sağlık durumları olumsuz etkilendiği için ruh sağlığı müdahale programları uygulanmalıdır.

**Anahtar Kelimeler:** COVID-19; SARS-CoV-2; Hemşirelik; Tükenmişlik

**Introduction**

Women are exposed to many factors that can cause anxiety. In December 2019, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the related disease (coronavirus disease 2019, COVID-19) emerged from Wuhan, China (Chan et al., 2020). The spread of SARS-CoV-2 infection has been much wider than other recent epidemic infections (SARS, MERS) (Jiang et al., 2020), over 605 million cases and 6.4 million deaths worldwide had been identified by 11 September 2022 (World Health Organization [WHO], 2022).

The seroprevalence of SARS-CoV-2 antibodies in healthcare workers worldwide is 56.5% in India located in Southeast Asia, 6.9% in the Americas, 8.4% in Europe, and 1.7% in the Western Pacific region by continents. However, the highest seroprevalence was 17.1% and the lowest 4.2% in healthcare workers. In the same study, its rate in the general population was 8% (Chen et al., 2020). Therefore, healthcare workers represent a high-risk group for COVID-19 infection (Galanis et al., 2021a).

Nurses had different burnout levels in the COVID-19 pandemic compared to the wards they worked (Jamebozorgi et al., 2022; Yeşil Bayülgen et al., 2021). Patients whose general conditions are stable, with a critical life danger, planned discharge or follow-up of the disease, and less hospitalization period are followed in the COVID-19 wards (Türk et al., 2021). Nurses were reported in previous studies to face direct and indirect patient care, witnessing death, stigmatization, loneliness, anxiety, depression, work stress, high risk of infection, isolation of their loved ones, symptomatic headache, dizziness, nausea, shortness of breath, palpitations, and chest discomfort (Labrague & de Los Santos, 2021; Zareei et al., 2022). These factors were found to be associated with burnout factors of nurses in the COVID-19 pandemic (Labrague & de Los Santos, 2021).

It was found in a meta-analysis study conducted by Galanis et al. (2021) in which burnout in nurses during the COVID-19 epidemic was examined that 34.1% of nurses

providing services during the COVID-19 epidemic had emotional exhaustion, 12.6% had a decrease in self-esteem and 15.2% had a decrease in personal success (Galanis et al., 2021b). This study was conducted cross-sectional in order to determine the burnout levels and Related Factors of Nurses Working in COVID-19 Service and Intensive Care Units.

**Methods****Design**

This study had a cross-sectional design.

**Setting and Sample**

The population of the research consisted of nurses working in the COVID-19 services and intensive care units of 5 public hospitals in Izmir, Turkey (N=1200). The sample size was not determined since it was aimed to reach the entire universe. The random sampling method, one of the improbable sampling methods, was used in the selection of the sample. The study sample consisted of 602 nurses who worked in COVID-19 services and intensive care units for at least one month and volunteered to participate in the study. The study was completed with 554 nurses by excluding 48 nurses from the sample who filled in the data collection forms incompletely.

The nurses participating in the study worked in the COVID-19 intensive care unit and the COVID-19 service. The data were collected by the researchers from April 15 to July 15, 2021, by face-to-face interview and paper-and-pencil technique. During the data collection process, all precautions regarding the risks of COVID-19 transmission were taken.

**Measurement**

To collect the data, the Individual Introduction Form, which was created by the researchers using the relevant literature Murat et al. (2021) and Maslach Burnout Inventory were used (Çam, 1991; Maslach & Jackson, 1981).

### Individual Introduction Form

The form consists of questions about the sociodemographic information of nurses, their experiences during the COVID-19 epidemic process, and working conditions. In this context, the questionnaire form included questions related to nurses' gender, age, marital status, having/not having children, education status, the hospital they work at, duration of professional years, duration of working in the hospital, unit where they care for COVID-19 patients, employment status, weekly working time, working time in COVID-19 unit, the status of receiving occupational health and safety training for COVID-19, the status of being diagnosed with COVID-19, providing social support by the society, stigmatization by the society during the COVID-19 process, whether they find working conditions satisfactory, evaluating the general health status.

### Burnout Level Scale

The Maslach Burnout Inventory Scale was developed by Maslach and Jackson (1981) to examine its criterion-related validity and was adapted into Turkish by Çam (1991). The scale consists of 22 items and three subscales. Emotional exhaustion [EE], one of these sub-scales, consists of 9 items, and describes whether the person is burnt out or overwhelmed by his/her job; the subscale of depersonalization [DP] consists of 5 items describes whether the person cares for the patients without considering their personal traits and devoid of feelings; the subscale of personal accomplishment [PA], consists of a total of 8 items, and describes feelings of competence and successful coping skills in a person working with people.

It is a 7-point Likert -type scale including answers: "never", "several times a year or less", "several times a month or less", "several times a month", "once a week", "several times a week", "every day". A high level of burnout reflects high scores on emotional exhaustion and depersonalization subscales and low scores on the personal achievement subscale. Moderate burnout reflects moderate scores for all three subscales, while a low burnout level reflects low scores on emotional exhaustion and depersonalization subscales and high scores on the "personal achievement" subscale. In scoring, three separate burnout scores are calculated for each person. These scores are classified within themselves as low, medium, and high. The Cronbach alpha internal consistency coefficient calculated to determine the reliability of the scale was found to be 0.90 for emotional exhaustion, [EE]; 0.79 for depersonalization [DP], and 0.71 for personal accomplishment [PA] (Çam, 1991).

### Statistical methods

Statistical analysis of the study was done using Statistical Package for the Social Sciences v.25 software package (SPSS - IBM Corporation, New York, NY, USA). Percentage, mean, frequency, minimum-maximum value, mean and standard deviation were used for the descriptive analysis. In the study, when we examined whether the data set was normally distributed or not, we determined that the sub-dimension of Emotional Exhaustion of the Maslach Burnout Inventory had a Skewness value of -1.459 and a Kurtosis value of 0.956, Depersonalization Skewness and Kurtosis values of -0.168 and -1.429, respectively, Personal Accomplishment Skewness and Kurtosis values of -0.182 and -1.391, respectively.

Independent-samples t-test was used to compare two independent groups, and one-way analysis of variance

(ANOVA) was used to compare more than two groups. Mean values were used to evaluate the significance between pairs, and one-way ANOVA post-hoc advanced analysis to evaluate the significance between triplets. The results were evaluated at the 95% confidence interval and a significance level of  $P < 0.05$ .

### Ethical approval

For research permission, an application was made to the COVID-19 Scientific Research Platform affiliated to the T.R. General Directorate of Health Services of the Ministry of Health on February 16, 2021, and permission was obtained on February 17, 2021 (No:2021-02-16T13\_09\_03). Ethical approval was given by the non-interventional ethics committee of the university on April 7, 2021, numbered E-99166796-050.06.04-115424 (Approval Decision: 21-4T/51). Additionally, the ethics committee approval numbered (E-42056799-619) was obtained from T.R. İzmir Governorship Provincial Health Directorate. In addition, a special permit numbered E-13399118-799 was obtained for the study to be conducted in a training and research hospital, and a permit numbered E-27344949-100-77607 was obtained for it to be conducted in a faculty of medicine. Permission to use the scale was obtained from the scale owner, who conducted the Turkish validity and reliability study of the Maslach Burnout Inventory Scale on 28.10.2020 via e-mail. Written and oral consent was received from each nurse participating in the study.

### Results

#### Descriptive data

Examining the nurses participating in the study by gender distribution, 481 (86.8%) were female, 73 (13.2) were male; by their marital status, 244 (44.0%) were married, 310 (56.0%) were single; by their status of having children, 188 (33.9%) had child(ren), 366 (66.1) did not; by their education level, 23 (4.2%) were health vocational school graduates, 46 (7.2%) had an associate degree, 430 (77.6%) had an undergraduate degree, 61 (11.0%) had a graduate degree; by the years of employment, 62 (2.9%) worked less than 1 year, 236 (42.6%) between 1-5 years, 92 (16.6%) between 6-10 years, 87 (15.7%) 11-15 years, 49 (8.8%) 16-20 years, 28 (5.1%) 21 years or more in the profession; by the year they work at their current hospital, 16 (2.9%) worked less than 1 year, 324 (58.5%) between 1-5 years, 99 (17.9%) between 6-10 years, 57 (10.3%) 11-15 years, 39 (10.7%) 16-20 years, 19 (3.4%) 21 years and over; by the number of months they worked in a COVID-19 service, 194 (35.0%) worked between 1-4 months, 88 (15.9%) between 5-8 months, 122 (22.0%) between 9-12 months, 150 (27.1%) between 13-16 months; by the unit they worked in, 246 (44.4%) worked in the service, 256 (46.2%) in the intensive care unit, and 52 (9.4%) in the service and intensive care unit; by employment status, 252 (45.1%) were contracted and 304 (54.9%) were permanent staff; by the weekly working hours in the COVID-19 service, 283 (51.1%) worked between 40-44 hours, 179 (32.3%) between 45-49 hours, 7 (1.3%) between 50-54 hours, 42 (7.6%) between 55-59 hours, 43 (7.8%) for 60 or more hours; by the status of receiving Occupational Health and Training, 370 (66.8%) said yes and 184 (33.2%) said no; by the diagnosis of COVID-19, 172 (31.0%) had been diagnosed with COVID-19 and 382 (69.0%) had not been diagnosed with COVID-19; by the status of receiving social support, 320 (57.8%) received it from family, 210 (37.9%) from friends, 56 (10.1%) from managers, 145

(26.2) from friends, and 144 (26.0%) received no social support; by the stigmatization status, 302 (54.5%) were exposed to stigma and 252 (45.5%) were not exposed to stigma; by the working environment, 106 (19.1%) found it very insufficient, 168 (30.3) sufficient, 209 (37.7%) partially sufficient, 71 (12.8%) very sufficient; by the

general health status of the participants, 269 (48.6%) had very bad or bad health, 249 (44.9%) had moderate health, and 36 (6.5%) had good and very good health; by the age; the minimum age was 19 and the maximum age was 59, and the average age was 31.

**Table 1.** Comparison of Some Sociodemographic Variables and MIB Subscale Scores of Nurses

Subscales (EE)		n	□	sd	t	p
Gender	Male	481	2,6341	,61169	,402	,688
	Female	73	2,6027	,68190		
Marital status	Married	244	2,6762	,58592	1,576	,116
	Single	310	2,5935	,64559		
Having a Child	Yes	188	2,6489	,60669	,515	,607
	No	366	2,6202	,62857		
Staff status	Staffed	250	2,6520	,62967	,757	,449
	Contracted	304	2,6118	,61391		
Occupational health training	Yes	370	2,6324	,61598	,133	,895
	No	184	2,6250	,63213		
Covid-19 Diagnosis	Yes	172	2,6453	,59906	,391	,696
	No	382	2,6230	,63104		
Stigma	Yes	302	2,6987	,56351	2,824	<b>,005*</b>
	No	252	2,5476	,67520		
Subscales (DD)		n	□	sd	t	p
Gender	Male	481	2,0707	,80052	-1,611	,108
	Female	73	2,2329	,80830		
Marital status	Married	244	2,1025	,79203	,270	,787
	Single	310	2,0839	,81216		
Having a Child	Yes	188	2,0957	,78173	,077	,938
	No	366	2,0902	,81430		
Staff status	Staffed	250	2,0960	,80084	,105	,917
	Contracted	304	2,0888	,80551		
Occupational health training	Yes	370	2,0811	,80238	-,456	,648
	No	184	2,1141	,80505		
Covid-19 Diagnosis	Yes	172	2,1395	,78974	,934	,351
	No	382	2,0707	,80857		
Stigma	Yes	302	2,2219	,81542	4,257	<b>,000*</b>
	No	252	1,9365	,76002		
Subscales (PA)		n	□	sd	t	p
Gender	Male	481	2,0852	,79255	-1,207	,228
	Female	73	2,2055	,79859		
Marital status	Married	244	2,0205	,79840	-2,127	<b>,034*</b>
	Single	310	2,1645	,78540		
Having a Child	Yes	188	1,9947	,79097	-2,270	<b>,024*</b>
	No	366	2,1557	,79057		
Staff status	Staffed	250	2,0080	,80156	-2,515	<b>,012*</b>
	Contracted	304	2,1776	,78013		
Occupational health training	Yes	370	2,0568	,79259	-1,868	,062
	No	184	2,1902	,79046		
Covid-19 Diagnosis	Yes	172	2,0814	,80518	-,391	,696
	No	382	2,1099	,78934		
Stigma	Yes	302	2,0563	,81114	-1,456	,146
	No	252	2,1548	,77038		

\*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001.

**Main results**

As can be seen in Table 1; a significant difference was found in the emotional exhaustion (EE) subscale by stigma ( $t(552)=,005$ ;  $p<0.05$ ) factors in the Maslach Burnout Inventory scores of the nurses included in the study: In other words, there was found that the nurses exposed to stigma ( $\bar{x}(\text{yes})= 2,6987$ ;  $ss=,56351$ ) experienced more burnout than those not exposed to stigma ( $\bar{x}(\text{no})= 2,5476$ ;  $ss=,67520$ ) in the emotional exhaustion (EE) subscale.

As can be seen in Table 1; a significant difference was found in the depersonalization subscale by stigma ( $t(552)=,000$ ;  $p<0.05$ ) factors in the Maslach Burnout Inventory scores of the nurses included in the study: In other words, there was found that the nurses exposed to stigma ( $\bar{x}(\text{yes})= 2.2219$ ;  $sd=,81542$ ) experienced more burnout than the nurses not exposed to stigma ( $\bar{x}(\text{no})= 1.9365$ ;  $sd=,76002$ ) in the depersonalization subscale.

As can be seen in Table 1; a significant difference was found in the personal accomplishment (PA) subscale by marital status ( $t(552)=,034$ ;  $p<0.05$ ), in the personal accomplishment (PA) subscale by having a child ( $t(552)=,024$ ;  $p<0.05$ ), in the personal accomplishment (PA) subscale by employment status ( $t(552)=,012$ ;  $p<0.05$ ) factors in the Maslach Burnout Inventory scores of the nurses included in the study. When a significant difference was detected in the subscale of personal accomplishment (PA) ( $F(5-448)= 2.939$ ,  $p<0.013$ ). To determine the source of this difference, the Bonferroni test was performed and the results showed that the mean score of the nurses who worked in the profession for 1-5 years ( $\bar{x}=2,1907$ ) was higher than the mean score of the nurses who worked in the profession for less than 1 year ( $\bar{x}=1,7903$ ).

**Table 2.** The MIB Subscale Scores According to the Unit that Nurses Worked in during Covid-19 Pandemic

Subscale	Unit	n	$\bar{x}$	sd	Min	Max	Variance Source	SS	MS
<b>EE</b>	Service	246	2,5732	,67062	1	3	Between groups	2	,765
	Intensive care	256	2,6836	,55791	1	3	In-group	551	,384
	Service and Intensive Care	52	2,6346	,65765	1	3	Total	553	
								F=1,993, $p>,137$	
<b>DP</b>	Service	246	2,0244	,80775	1	3	Between groups	2	1,375
	Intensive care	256	2,1680	,78160	1	3	In-group	551	,642
	Service and Intensive Care	52	2,0385	,86232	1	3	Total	553	
								F=2,144, $p>,118$	
<b>KB</b>	Service	246	2,0122	,81557	1	3	Between groups	2	2,893
	Intensive care	256	2,2109	,77361	1	3	In-group	551	,622
	Service and Intensive Care	52	1,9808	,72735	1	3	Total	553	
								F=4,653, $p<,010^{**}$	

\* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$  (F:ratio, MS: Mean Squares, SS:Sum of Squares, p:significance level)

As can be seen in Table 2; when the nurses included in the study were examined according to the unit they worked in during the COVID-19 epidemic, a significant difference was determined in terms of personal accomplishment subscale (PA) ( $F(2-451)= 4.653$ ,  $p<.010^{**}$ ). To determine

the source of this difference, the Bonferroni test was performed and the results showed that the mean score of the nurses working in the intensive care unit ( $\bar{x}=2.2109$ ) was higher than that of the nurses working in the service ( $\bar{x}=2.0122$ ).

**Table 3.** Distribution of Nurses' MIB Subscale Scores by the variable of Working Environment in Covid-19

Subscale	Working Environment	n	$\bar{x}$	sd	Min	Max	Variance Source	SS	MS
<b>EE</b>	Very Insufficient	106	2,8491	,43188	1,00	3,00	Between groups	3	4,542
	Insufficient	168	2,7262	,55481	1,00	3,00	In-group	550	,363
	Partially Sufficient	209	2,5311	,64319	1,00	3,00	Total	553	
	Sufficient	71	2,3662	,77900	1,00	3,00	<b>F=12,521, p&lt;,000***</b>		
<b>DP</b>	Very Insufficient	106	2,3774	,76161	1,00	3,00	Between groups	3	6,440
	Insufficient	168	2,1607	,79165	1,00	3,00	In-group	550	,613
	Partially Sufficient	209	2,0096	,81447	1,00	3,00	Total	553	
	Sufficient	71	1,7465	,69113	1,00	3,00	<b>F=10,512, p&lt;,000***</b>		
<b>KB</b>	Very Insufficient	106	2,1981	,78582	1,00	3,00	Between groups	3	,430
	Insufficient	168	2,0893	,78786	1,00	3,00	In-group	550	,631
	Partially Sufficient	209	2,0766	,81091	1,00	3,00	Total	553	
	Sufficient	71	2,0563	,77252	1,00	3,00	F=,681, p>,564		

\* p<0.05, \*\*p<0.01, \*\*\*p<0.001 (F:ratio, MS: Mean Squares, SS:Sum of Squares, p:significance level)

As can be seen in Table 3; when the nurses included in the study were examined according to the evaluation criteria of their working environment in the COVID-19 pandemic, it was found that there was significant difference in terms of emotional exhaustion (EE) (F(3-550)= 12,521, p<,000\*\*\*) and depersonalization (DP) (F(3-550)= 10,512, p<,000\*\*\*) subscales of the Maslach Burnout Inventory. To determine the source of this difference, the Bonferroni test was performed and the results showed that

the mean score of the nurses working in a very insufficient environment ( $\bar{x}$ =2.8491) was higher than the that of the nurses working in a partially sufficient ( $\bar{x}$ =2.5311) and sufficient environment ( $\bar{x}$ =2.3662). In addition, in this study, it was determined that the mean score of the nurses working in a sufficient environment ( $\bar{x}$ =2.7262) was higher than the mean score of the nurses working in a partially sufficient ( $\bar{x}$ =2.5311) and sufficient (2.3662) environment.

**Table 4.** Distribution of Nurses' MIB Subscale Scores According to their General Health Status in Covid-19

Subscale		n	$\bar{x}$	sd	Min	Max	Variance Source	SS	MS
<b>EE</b>	Bad	269	2,4498	,72937	1,00	3,00	Between groups	2	9,096
	Medium	249	2,7751	,45528	1,00	3,00	In-group	551	,354
	Good	36	2,9722	,16667	1,00	3,00	Total	553	
					1,00	3,00	Between groups	<b>F=25,709, p&lt;,000***</b>	
<b>DP</b>	Bad	269	2,0074	,81950	1,00	3,00	In-group	2	8,111
	Medium	249	2,0924	,77479	1,00	3,00	Total	551	,617
	Good	36	2,7222	,56625	1,00	3,00	Between groups	553	
					1,00	3,00	In-group	<b>F=13,142, p&lt;,000***</b>	

<b>KB</b>	Bad	269	2,0372	,79087	1,00	3,00	Total	2	1,144
	Medium	249	2,1526	,78853	1,00	3,00	Between groups	551	,628
	Good	36	2,2222	,83190	1,00	3,00	In-group	553	
								F=1,822, p>,163	

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001 (F:ratio, MS: Mean Squares, SS:Sum of Squares, p:significance level)

As can be seen in Table 4; when the nurses included in the study were examined according to the evaluation criteria of their general health status in the COVID-19 pandemic, it was found that there was significant difference was determined in the subdimensions of emotional exhaustion (EE) ( $F(3-550)=25.709$ ;  $p<.000$ ) and depersonalization (DP) ( $F(3-450)=13.142$ ;  $p<.000$ ) of the Maslach Burnout Inventory. To determine the source of the difference in the emotional exhaustion (EE) subscale of the Maslach Burnout Inventory, the Bonferroni test was performed and the results showed that the mean score of the nurses with good and very good general health status ( $\square=2.9722$ ) and the mean score of those with moderate ( $\square=2.7751$ ) general health status were higher than the mean score of those with very bad and bad general health status ( $\square=2,4498$ ). To determine the source of the difference in the depersonalization (DP) subscale of the Maslach burnout scale, the Bonferroni test was performed again, and the results revealed that the mean score of the nurses with good and very good general health status ( $\square=2.7222$ ) was higher than the mean score of those with moderate general health status ( $\square=2.0924$ ) and the mean score of those with very bad and bad general health status ( $\square=2.0074$ ).

## Discussion

In the study, no significant difference was found in this study between the gender variable and the Maslach burnout level ( $p>0.05$ ). When the studies in the literature are examined, studies are available showing that there is no significant difference between the gender variable and Maslach burnout level, which supports this study ( $p>0.05$ ) (Sarbooz Hoseinabadi et al., 2020). Another study determined that although there was no significant difference between the gender variable and the Maslach burnout level, males were more exposed to burnout than females in the Emotional Exhaustion [EE] burnout level, which is a subscale of the Maslach Burnout Inventory (Murat et al., 2021).

In this study, no significant difference was found between the variable of occupational health and training outcome and the Maslach Burnout Inventory ( $p>0.05$ ). Studies in the literature are showing that there is a significant difference between the level of Maslach burnout and occupational health and training due to the lack of necessary personal protective equipment and the low quality and quantity of personal protective equipment ( $p<0.05$ ) (Chidiebere Okechukwu et al., 2020). In this study, no significant difference was found between the COVID-19 test result variable and the Maslach Burnout Inventory ( $p>0.05$ ). When the studies in the literature are examined, studies are available showing that there is a significant difference in terms of the level of Emotional Exhaustion [EE] and Depersonalization exhaustion, which are the subscales of the Maslach Burnout Inventory due to positive COVID-19 test results (Sarbooz Hoseinabadi et al., 2020).

In the study, a significant difference was found in this study between the marital status variable and the personalization subscale of the Maslach Burnout Inventory ( $p<0.05$ ). When the studies in the literature are examined, studies are found showing that there is no significant difference between marital status and the Maslach Burnout Inventory (Sarbooz Hoseinabadi et al., 2020; Murat, 2021; Sagherian et al., 2020). In this study, a significant difference was found between the variable of having a child and the personalization subscale of the Maslach Burnout Inventory ( $p<0.05$ ). When the studies in the literature are examined, studies are showing that there is no significant difference between having a child and the Maslach burnout scale (Murat, 2021).

In this study, a significant difference was found between the staff status variable and the personalization subscale of the Maslach Burnout Inventory ( $p<0.05$ ). When the studies in the literature are examined, it has been found in a study on the variable of staff status that the burnout levels of nurses working in different staff types during the COVID-19 pandemic were higher than the nurses working in different staff types when the COVID-19 pandemic was not present (Sarbooz Hoseinabadi, 2020). In this study, a significant difference was found between the stigma variable and the Emotional Exhaustion [EE] and Depersonalization [DP] subscales of the Maslach Burnout Inventory ( $p<0.05$ ). When the studies in the literature are examined, studies are available that show that health workers are exposed to stigmatization by the society in the COVID-19 pandemic, which supports this study (Paiano et al., 2020).

In the study, no significant difference was found in this study between education levels, years of work in the current hospital, years of work in the profession and the Maslach burnout level ( $p>0.05$ ). In the study, a significant difference was found in the personal accomplishment (PA) subscale of the Maslach Burnout Inventory in the employees working for 1-5 years, according to the variable of the nurses' working years in the profession ( $p<0.05$ ).

There are studies in the literature showing that there is no significant difference between the education level variable and Maslach Burnout Level, which supports this study ( $p>0.05$ ) (Sarbooz Hoseinabadi, 2020). Studies show that university graduate nurses are exposed to burnout more than those with other education levels during the COVID-19 pandemic ( $p<0.05$ ) (Murat et al., 2021). No studies were found in the literature showing whether there is a significant difference between the variable of working years in the hospital and the Maslach burnout level or not. According to studies, there is a significant difference between the variable of working years in the profession and the Maslach burnout level ( $p<0.05$ ) (Murat et al., 2021). A study showing this significant difference found that nurses working for 1-10 years were more exposed to burnout in the Emotional Exhaustion [EE] and Depersonalization [DP] subscales of the Maslach Burnout

Inventory (Murat et al., 2021). This study also determined that those with 1-5 years of professional experience in the COVID-19 epidemic had more personal success than others ( $p<0.05$ ), while there are studies in the literature showing that professional experience is not a significant factor by years (Sagherian, 2020). When the studies in the literature were examined, no study was found regarding the working time during the COVID-19 pandemic. In this respect, the working time in the COVID-19 pandemic is a data noteworthy. Studies have found that there is a significant difference between the variable of weekly working hours and the Maslach burnout level during the COVID-19 pandemic ( $p<0.05$ ) (Sagherian et al., 2020; Yörük & Güler, 2021). It was determined in a study that nurses and midwives working more than 49 hours a week were exposed to depression during the COVID-19 pandemic ( $p<0.05$ ) (Yörük & Güler, 2021). We see studies in the literature showing that there is a significant relationship between the variable of the unit that nurses work in during the COVID-19 pandemic and the Maslach burnout level ( $p<0.05$ ) (Sagherian et al., 2020; Damico et al., 2020).

In a study, it was found that nurses working in intensive care units were exposed to burnout more than those working in other services ( $p<0.05$ ) (Damico et al., 2020). There are studies in the literature showing that the COVID-19 pandemic negatively affects the working environment of nurses, which supports the findings of this study ( $p<0.05$ ) (Leskovic et al., 2020). Studies in the literature show that the general health status of the nurses working in the COVID-19 pandemic was negatively affected ( $p<0.05$ ) (Sagherian et al., 2020; Yörük & Güler, 2021) and the personal success of the nurses increased ( $p<0.05$ ) (Sagherian et al., 2020), which is consistent with this study.

### Limitations

As in all studies, this study has some limitations. First of all, this study was conducted in public hospitals. Therefore, private hospitals should also be included. Secondly, the level of burnout measured in the study is limited to the Maslach Burnout Inventory Measurement tool translated by Çam (1991). Thirdly, this study is limited because it was conducted in one province of Turkey. Another limitation is that there were nurses who did not participate in the study due to the risk of infection since the study was conducted through face-to-face

interviews and paper-and-pencil technique although necessary precautions were taken.

### Conclusion

According to the results of the study, it can be said that the COVID-19 pandemic, which affects the whole world, also causes burnout in nurses in our country. Since nurses are exposed to social stigma in the COVID-19 pandemic, further studies are needed to increase the social status of nurses. Nurses' working environments should be improved, and mental health intervention programs should be implemented urgently to improve the general health status of nurses. Attempts should be made to eliminate or reduce individual, familial, working environment-related, and environmental risk factors that cause burnout in nurses.

### Declarations

#### Ethics Approval and Consent to Participate

For research permission, application was made to the COVID-19 Scientific Research Platform affiliated to the T.R. General Directorate of Health Services of the Ministry of Health on February 16, 2021, and permission was obtained on February 17, 2021 (No:2021-02-16T13\_09\_03). Ethical approval was given by the non-interventional ethics committee of the university on April 7, 2021, numbered E-99166796-050.06.04-115424 (Approval Decision: 21-4T/51). Additionally, the ethics committee approval numbered (E-42056799-619) was obtained from T.R. İzmir Governorship Provincial Health Directorate. In addition, a special permit numbered E-13399118-799 was obtained for the study to be conducted in a training and research hospital, and a permit numbered E-27344949-100-77607 was obtained for it to be conducted in a faculty of medicine.

#### Consent for Publication

Verbal consent was obtained from the pregnant women who volunteered to participate in the study.

#### Availability of Data and Materials

The datasets used and/or analyzed in this study can be obtained from the corresponding author upon reasonable request.

#### Competing Interests

The author declares that no competing interests in this manuscript.

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Not applicable.

#### Authors' Contributions

Concept - A.U.T. Ö.K.; Design - A.U.T. Ö.K. Supervision - A.U.T. Ö.K.; Resource - A.U.T. Ö.K.; Materials - A.U.T. Ö.K.; Data Collection and/or Processing - A.U.T. Ö.K.; Analysis and/or Interpretation - A.U.T. Ö.K.; Literature Search - A.U.T. Ö.K.; Writing - A.U.T. Ö.K.; Critical Reviews - A.U.T. Ö.K. Other - A.U.T. Ö.K.

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