

Specialist physicians battle against the COVID-19 pandemic: the relationship between specialist physicians working conditions and levels of burnout during the COVID-19 pandemic

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Abstract. – **OBJECTIVE:** This study was planned to determine the burnout levels of physicians during the COVID-19 pandemic, and to contribute to taking the necessary measures by determining the associated factors.

MATERIALS AND METHODS: This research was designed via Google Online Form as an online survey with questions of Sociodemographic Data Form, Maslach Burnout Inventory and Beck Anxiety Inventory and was conducted with 40 specialist physicians actively working at the Sakarya University Training and Research Hospital. The same questionnaire was re-applied online after two months, and 24 out of 40 physicians were accessed. The SPSS 25 (IBM, Armonk, NY, USA) program was used for the analysis of the data.

RESULTS: According to the Maslach Burnout Inventory applied in the pre-test, it was found that the feeling of personal accomplishment was high, emotional burnout was normal, and depersonalization was low. Anxiety and burnout were found to be positively correlated, and there were no statistically significant differences in the average values of the pre-and post-test Maslach Burnout Inventory and Beck Anxiety Inventory scores.

CONCLUSIONS: Detecting possible burnout in physicians working in a pandemic, identifying associated factors and taking required measures can be beneficial both for physicians and society from a biopsychosocial perspective.

Key Words:

COVID-19, Physician, Burnout, Anxiety.

a group of patients in Wuhan, China, has been declared as COVID-19 pandemic on February 11th, 2020, by the World Health Organization (WHO)¹.

The new coronavirus disease has become not only a common problem worldwide but also a threat that forces us from a biopsychosocial and economic perspective due to the unknowns it brings with it and the process of quarantine, social distancing, and necessary hygiene precautions.

In the face of this threat, health care professionals, who use all the means offered by humanity in the forefront, are at high risk for COVID-19 infection due to their presence in the same environment of the infected or suspected patients. It has been reported that conditions such as life changes, quarantine process, social distancing, feeling of uncertainty that occur after the announcement of the pandemic can negatively affect individuals from a physiological point of view, as well as from a mental point of view². In a study³ involving 1,257 health care professionals covering the pandemic period, 71.5% of the participants reported anxiety symptoms.

Burnout is defined as negative emotions such as long-term fatigue, exhaustion, hopelessness, and despair, seen in people working directly with people and exposed to intense emotional demands, which are reflected on the job or other people⁴. Being a health care professional is also considered a risk factor for burnout since the health care industry is a sector that serves people directly⁵. In a systematic review⁶ of physician burnout in the United States, it has been reported that the burnout rate in physicians exceeds 50%.

This study was designed to investigate the relationship between the COVID-19 pandemic and

Introduction

A new Coronavirus disease identified on January 13th, 2020, as a result of studies conducted on

working conditions with possible burnout in physicians and to investigate the causes of burnout in physicians who directly intervened in the crisis during this difficult period. A review of the causes identified will be of common benefit to both physicians and the people they serve.

Materials and Methods

Due to the COVID-19 pandemic, this research was designed as an online survey conducted with specialist physicians actively assigned to pandemic services at Sakarya University Training and Research Hospital in accordance with social distance rules. SPSS 25 (IBM, Armonk, NY, USA) package program was used for statistical analysis. The study data were evaluated using descriptive statistical methods such as mean, standard deviation, frequency distribution and percentage. Accuracy was calculated in the 95% confidence interval (CI), and $p < 0.05$ was considered statistical significance. The survey was prepared in the Google Online Forms section that each e-mail address can only participate once and was sent to e-mail addresses.

Sociodemographic Data Form

This form consists of questions for voluntary physicians related to their personal information and working conditions, such as age, gender, marital status, profession, working time, year in the specialist position, status of having children, habits of using protective equipment, smoking, alcohol and substance use, working conditions, mobbing and duty numbers.

Beck Anxiety Inventory

The Beck Anxiety Scale (BAI) consists of 21 items. The scale was developed by Brown, Epstein, Beck, and Steer. Its Turkish validity and reliability study⁷ was conducted in 1993, and the Cronbach's alpha internal consistency of this adaptation was calculated as 0.92. Cronbach's Alpha coefficient of the Turkish adaptation was calculated as .93. The higher total value taken from the scale indicates a higher level of anxiety, and lower values indicate lower level of anxiety.

Maslach Burnout Inventory

The scale was developed by Maslach and Jackson in 1981⁴. This scale is a five-point Likert-type scale and consists of 3 sub-dimensions: emotional burnout, feeling of personal accomplishment, and

depersonalization. The Turkish validity and reliability study⁸ of the scale was conducted in 1991. The test-retest reliability coefficients of the subscales were 0.67 for personal accomplishment, 0.83 for emotional burnout, and 0.72 for depersonalization. Ethics Committee Approval was obtained from the Ethics Committee of Sakarya University Faculty of Medicine with the number 71522473/050.01.04/226 on 20.05.2020.

Results

Evaluation of Participants in Terms of Sociodemographic Characteristics

Our study included 40 specialist physicians, who were actively working at Sakarya University Training and Research Hospital working, between May and July 2020. The average age of the participants was 40 ± 6.35 years, and sociodemographic data of the participants are presented in Table I.

In addition, 84.6% of the female physicians ($n=11$) and 88.9% of the males ($n=24$) reported having at least one child. When the duration in the profession of the physicians participating in the study was examined, 70% ($n=28$) was specialist for 7 years and above, 2.5% ($n=1$) was for 6 years, 10% ($n=4$) was for 4 years, 2.5% ($n=1$) was for 3 years, 7.5% ($n=3$) was for 2 years, and 7.5% ($n=3$) was working as specialist for 1 year.

Looking at the total time spent by physicians ($n=40$) in the profession, it was found that 70% ($N=28$) had been practicing medicine for more than 11 years, 15% ($n=6$) was 8-11 years, and 15% ($n=6$) was in the profession for 4-7 years.

It was found that 75% of physicians ($n=30$) never smoked, 20% ($n=8$) smoked sometimes, and 5% ($n=2$) smoked almost always. Moreover, 80% of the physicians was found to never consume alcohol, while 15% ($n=6$) was consuming sometimes, 2.5% often, and 2.5% ($n=1$) was almost always consuming alcohol.

Working Conditions before the COVID-19 Period

Of the 40 physicians who participated in the study, 75% was on duty in their branch clinic, and 25% were not on duty before the COVID-19 period.

It was found that 33.3% ($n=10$) of physicians who were on duty had 4 duties per month, 23.3% ($n=7$) had 5 duties, 13.3% ($n=4$) had 8 duties per month, 10% ($n=3$) had 3 duties per month, 6.7% ($n=2$) had 2 duties per month, 6.7% ($n=2$) had

Table I. Sociodemographic characteristics of participants.

Gender	N	Percentage (%)	Time Worked as a Specialist	N	Percentage (%)
Female	13	32.5	1 year	3	7.5
Male	27	67.5	2 years	3	7.5
Marital Status			3 years	1	2.5
Married	38	95	4 years	4	10
Single	2	5	6 years	1	2.5
Child			7 years and above	28	70
Yes	35	87.5	Total Time spent in the Profession		
No	5	12.5	1-3 years	1	2.5
Active Working Status			4-7 years	5	12.5
Yes	39	97.5	8-11 years	6	15
No	1	2.5	More than 11 years	28	70
Total	40	100	Total	40	100
Branches of Physicians Participating in the Study					
	N	Percentage (%)		N	Percentage (%)
Neurology	7	17.5	Ophthalmology	2	5
Emergency medicine	5	12.5	Otorhinolaryngology	1	2.5
Internal Medicine	5	12.5	Orthopedics and Traumatology	1	2.5
Physical Therapy and Rehabilitation	4	10	Medical Pathology	1	2.5
Urology	3	7.5	Dermatology	1	2.5
Cardiology	3	7.5	Pharmacology	1	2.5
General Surgery	2	5	Obstetrics	1	2.5
Anesthesiology and Reanimation	2	5	Histology and Embryology	1	2.5
Pulmonology	2	5			

1 duty per month, 3.3% (n=1) had 6 duties per month and 3.3% (n=1) had 10 duties per month.

It was found that 85% of the physicians (n=34) experienced mobbing in the clinic they worked in before the COVID-19 period, and 15% (n=6) did not experience mobbing.

Evaluations on the Working and Living Conditions of Physicians during the COVID-19 Period

Physicians who participated in the study were asked whether they were working actively during the studied COVID-19 period, and 97.5% (n=39) was found to work actively, while 2.5% (n=1) was not working actively at that period.

The working conditions reported by specialist physicians during the COVID-19 period are shown in Table II. The proportion of specialist physicians who reported working outside their clinic was 17.5% (n=7).

Specialist physicians (n=40) were asked if they were satisfied with working in the COVID-19 service, and 50% (n=20) was found to be satisfied, 32.5% (n=13) was dissatisfied, and 17.5% (n=7) was undecided.

In addition, the specialist physicians were asked whether they were satisfied with the working conditions and current earnings of the clinical branch they studied, and 65% (n=26) was found to be satisfied, 17.5% (n=6) was not satisfied, and 17.5% (n=6) was found to be undecided. It was found that 55% (n=22) was satisfied with their current earnings, 32.5% (n=13) was dissatisfied, and 12.5% (n=5) was undecided in this regard.

It was found that 65% (n=26) of physicians had no increased workload due to the COVID-19 outbreak, while 27.5% (n=11) had increased workload, and 7.5% (n=3) was undecided in this regard.

It was found that 15% (n=6) of the specialist physicians participating in the study report-

ed that they had a suspicion of COVID-19, and 85% reported that they did not have a suspicion of COVID-19. Of the physicians who were not suspected of COVID-19 (n=34), 67.6% was male (n=23). It was found that 55% (n=22) of 40 physicians reported that they have not had PCR test, and 45% reported that they have had their PCR test. Yet, it was found that the proportion of physicians who reported that chest CT was performed due to suspected COVID-19 was 15% (n=6).

It was found that 5% of the physicians (n=2) reported having problems due to staying in places such as hotels or apart hotels, 5% was undecided, and others did not have any problems. During the COVID-19 outbreak, the locations that physicians used for accommodation during the quarantine process are shown in Figure 1.

In the COVID-19 outbreak, physicians (n=40) were asked about the frequency of using equipment such as masks, gloves, glasses, disposable aprons, and it was found that 62.5% of the physicians (n=25) use the equipment at all times, and 37.5% was using them when necessary. While

the proportion of physicians who reported having problems due to the equipment used was 67.5% (n=27), the proportion of physicians who had no problems was 32.5%. In those who reported dissatisfaction with working at the COVID-19 service, this figure was 38.5%, while in the group of physicians who reported being undecided, it was 14.5%.

In the sociodemographic data form, physicians were asked when they last took annual leave, and it was found that 82.5% (n=33) took annual leave 6 months before and earlier, 12.5% (n=5) was 5 months ago, 2.5% (n=1) took 1 month ago, and 2.5% (n=4) was found to took annual leave 3 months ago.

Evaluation of the Beck Anxiety Inventory and Maslach Burnout Inventory

When the participants' BAI score was examined, the lowest BAI score in the pre-test (n=40) was 0, the highest score was 37 and the BAI average was 10.9 ± 9.8 points, while in the post-test (n=28) the lowest was 0, and the highest score was

Table II. Numerical data on the working conditions of physicians during the COVID-19 period.

Number of shifts during the COVID-19 Period/month	N	Percentage (%)	Valid Percentage (%)
2	5	12.5	13.2
3	1	2.5	2.6
4	6	15.0	15.8
5	7	17.5	18.4
6	6	15.0	15.8
7	7	17.5	18.4
8	3	7.5	7.9
9	3	7.5	7.9
Total*	38	95.0	100.0
Physician on duty during the COVID-19 Period			
Yes	38	95.0	95.0
No	2	5.0	5.0
Providing Care for COVID-19 Patient at his/her Service			
Yes	33	82.5	82.5
No	7	17.5	17.5
COVID-19 Period Shift System			
Off with 24-hour intervals	14	35.0	35.0
Off with 36-hour intervals	8	20.0	20.0
Off with 48-hour intervals	5	12.5	12.5
Off with 72-hour intervals	13	32.5	32.5

* N was taken as n=38 due to the presence of 2 specialist physicians who reported that they were not on shifts.

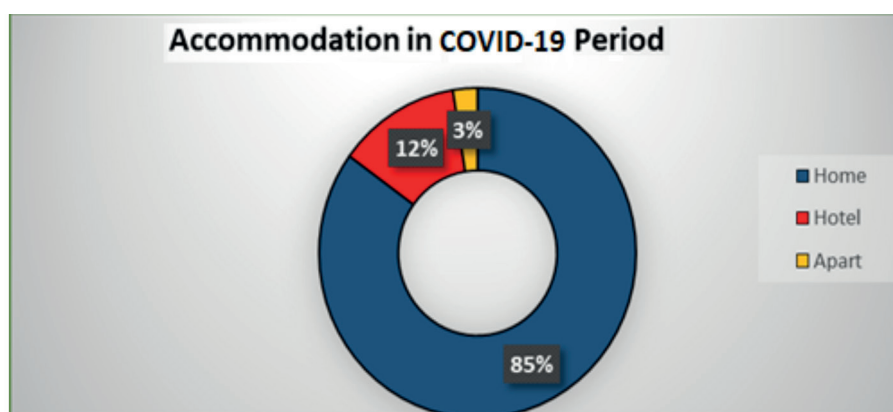


Figure 1. Locations used for accommodation during the COVID-19 period.

36, and the average BAI score was 10.11 ± 9.98 . In the pre-test, 23.1% of the females ($n=3$) had no anxiety symptoms, 30.8% had mild ($n=4$), 23.1% had moderate, and 23.1% had severe anxiety. In the pre-test, 55.6% of males ($n=15$) had no anxiety at all, 25.9% had mild ($n=7$), 14.8% had moderate ($n=4$), and 3.7% ($n=1$) had severe anxiety.

Looking at the Maslach Burnout Inventory (MBI) scores of the participants, in the pre-test ($n=40$), the lowest MBI score was 0, the highest score was 61 and the average MBI score was 33.28 ± 13.75 , while in the post-test ($n=28$) the lowest was 7, the highest score was 67, and the average MBI score was 30.86 ± 17.54 . The mean scores of the participants were 18.23 ± 8.28 (normal level) for EE-1, 8.35 ± 5.20 (high level) for PA-1, and 6.15 ± 4.56 (low level) for DP-1. The average values in the second stage were 16.25 ± 9.19 (low level) for EE-2, 8.58 ± 5.74 (high level) for PA-2, and 6.25 ± 5.02 (low level) for DP-2. There was a statistically significant difference between the mean values of PA-1 [$F=0.091$, $t=2.440$, $p=0.019$] and BAI-1 [$U=95.000$, $z=-2.331$, $p=0.020$] according to the gender variable. In females, the average values of PA-1 ($X=11.08$, $SD=4.36$) and BAI-1 ($X=15.69$, $SD=2.71$) were higher than in males ($X=7.04$, $SD=5.13$, $X=8.59$, $SD=1.76$). However, there was no statistically significant difference between the mean values of EE-1 [$F=1.922$, $t=1.580$, $p=0.122$], DP-1 [$F=0.149$, $t=-1.110$, $p=0.274$] and MBI-1 [$F=1.183$, $t=1.467$, $p=0.151$] in terms of the gender variable (Table III).

In terms of the variable of having a child, there was no statistically significant difference in the mean values of EE-1 [$F=3.069$, $t=1.106$, $p=0.276$], DP-1 [$F=1.539$, $t=-.233$, $p=0.817$], MBI-1 [$F=4.529$, $t=.853$, $p=0.483$] and BAI-1 [$F=0.212$, $t=.945$,

$p=0.350$]. There was a statistically significant difference in the mean value of PA-1 in terms of the variable of having children [$U=39.500$, $z=-1.967$, $p=0.049$]. In those who have children ($X=8.94$, $SD=0.84$), the average value of PA-1 was higher (Table III).

Statistically significant difference was found between the mean values of MBI-1 [$F=0.212$, $t=-2.031$, $p=0.049$] and PA-1 [$F=2.206$, $t=-2.554$, $p=0.015$] according to the variable of suspected COVID-19. The mean values of MBI-1 ($X=34.5$, $SD=13.54$) and PA-1 ($X=9.18$, $SD=5.09$) were higher in those who are not suspected of COVID. No difference was found between the mean values of EE-1 [$F=0.125$, $t=-1.035$, $p=0.307$], DP-1 [$F=0.467$, $t=-1.262$, $p=0.215$], BAI-1 [$F=0.000$, $t=-.240$, $p=0.812$] according to the suspected COVID-19 variable (Table III).

According to the variable of satisfaction from working conditions of the trained clinical branch, statistically significant differences were found in the mean values of EE-1 [$F(2.37)=4.971$, $p=0.012$] and MBI-1 [$F(2.37)=3.714$, $p=0.034$]. A Post-Hoc test was performed to determine which groups differed. Similarly, no statistically significant difference was found between the mean values of DP-1 and PA-1 [$F(2.37)=1.178$, $p=0.319$] according to the same variable. According to the Levene test, it was assumed that the variance was not uniformly distributed due to $p=0.045$ for the mean value of DP-1. The p -value for DP-1 was found as $p=0.452$ according to the Welch test. A statistically significant difference was found in the mean value of BAI-1 [$X^2=14.846$, $p=0.001$] in terms of the same variable. The Mann-Whitney U test was used to determine whether there is a differentiation between the groups. A statistically signifi-

Table III. Comparison of sociodemographic characteristics of participants with BAI-1, MBI-1 and sub-scale scores.

Variables	BAI-1	MBI-1	EE-1	DP-1	PA-1
Gender	U=95.000 z=2.331 p=0.020	F=1.183 t=1.467 p=0.151	F=1.922 t=1.580 p=0.122	F=.149 t=-1.110 p=0.274	F=.091 t=2.440 p=0.019
Having Children	F=.212 t=.945 p=0.350	F=4.529 t=.853 p=0.483	F=3.069 t=1.106 p=0.276	F=1.539 t=.233 p=0.817	U=39.500 z=-1.967 p=0.049
Concerns about Mobbing	U=95.500 z=-.247 p=0.805	F=5.462 t=1.171 p=0.288	F=3.259 t=.976 p=0.335	F=16.198 t=1.858 p=0.119	F=3.649 t=.697 p=0.490
Satisfaction with the working Conditions of his/her Clinic	$\chi^2=14.846$ p=0.001	F(2,37)=3.714 p=0.034	F(2,37)=4.971 p=0.012	W(2,9.415)=0.864 p=0.452	F(2,37)=1.178 p=0.319
Satisfaction with Working at COVID-19 Service	$\chi^2=3.597$ p=0.166	F(2,37)=1.353 p=0.271	F(2,37)=5.793 p=0.006	F(2,37)=.248 p=0.781	F(2,37)=.726 p=0.543
Satisfaction with Current Earnings	F=.260 p=0.773	F=1.478 p=0.241	F=.973 p=0.388	$\chi^2=4.810$ p=0.090	F=.779 p=0.466
Shift System	$\chi^2=.739$ p=0.691	$\chi^2=2.327$ p=0.312	F=1.260 p=0.303	F=2.066 p=0.152	F=.829 p=0.487
Suspected COVID-19	F=0.000 t=.240 p=0.812	F=0.212 t=2.031 p=0.049	F=0.125 t=-1.035 p=0.307	F=0.467 t=1.262 p=0.215	F=2.206 t=-2.554 p=0.015
Workload	$\chi^2=2.368$ p=0.306	F=.568 p=0.571	F=2.081 p=0.139	$\chi^2=4.543$ p=0.103	F=2.405 p=0.104
Working at his/her Clinic	U=80.000 z=-1.267 p=0.205	U=110.000 z=-.196 p=0.845	F=.459 t=-.183 p=0.855	U=102.500 z=-.468 p=0.640	F=1.357 t=1.430 p=0.254

Table IV. Evaluation of the relationship between BAI and MBI scales.

Spearman's rho		EE-1	DP-1	PA-1	MBI-1	BAI-1
EE-1	r	1				
	p	.				
	N	40				
DP-1	r	.422**	1			
	p	0.007	.			
	N	40	40			
PA-1	r	0.233	0.268	1		
	p	0.147	0.095	.		
	N	40	40	40		
MBI-1	r	.817**	.707**	.597**	1	
	p	0.000	0.000	0.000	.	
	N	40	40	40	40	
BAI-1	r	.612**	0.17	.402*	.573**	1
	p	0.000	0.293	0.010	0.000	.
	N	40	40	40	40	40

* Correlation is significant at 0.005 level. ** Correlation is significant at 0.005 level.

cant difference was found between the satisfied and non-satisfied groups [$U=41.500$, $z=-2.190$, $p=0.029$]. The average value of BAI-1 ($X=15.43$, $SD=11.45$) in the dissatisfied group was higher than in the satisfied group ($X=6.50$, $SD=6.27$) (Table III).

A statistically significant difference was found between the satisfied group and the undecided group ($U=11.000$, $z=-3.537$, $p<0.001$). In the indecisive group, the average value of BAI-1 ($X=22.71$, $SS=8.01$) was higher. No statistically significant difference was found between the group that reported dissatisfaction with the conditions and the group that reported indecision in terms of the mean value of BAI-1 ($U=15.000$, $z=-1.214$, $p=0.225$) (Table III).

A statistically significant difference was found in the mean value of EE-1 ($F(2,37)=5.793$, $p=0.006$) in terms of the satisfaction with working in the COVID-19 service. A Post-Hoc Tukey HSD test was performed to determine the groups that differed significantly. It is given by the acronym Mean Difference (MD). A significant difference was found between the group that was not satisfied with working in the COVID-19 service and the satisfied ($MD:8.023$, $p=0.012$) and undecided ($MD=9.637$, $p=0.023$) groups. The average value of EE-1 in the group that is not satisfied with the COVID-19 service was higher than in both groups. No statistically significant difference was found in the mean values of PA-1, MBI-1, BAI-1

and DP-1 in terms of satisfaction with working in the COVID-19 service (Table III).

No statistically significant difference was found in the mean values of BAI-1, MBI-1, EE-1, DP-1 and PA-1 according to the shift system, satisfaction/dissatisfaction from current earnings, thoughts about increased workload, and whether or not work in their own clinical branch (Table III)

It was found that there was a positive, moderately significant correlation between the MBI-1 and BAI-1 scales ($r=.573$, $p<0.001$) (Table IV).

There was a positive and very high level significant correlation between MBI-1 and EE-1 ($r=0.817$, $p<0.001$), a significant, and high level correlation between MBI-1 and DP-1 sub-scale ($r=0.707$, $p<0.001$), and a positive, moderately significant correlation between MBI-1 and PA-1 sub-scale ($r=0.597$, $p<0.001$). It was found that there was a significant, positive and high level correlation between BAI-1 and EE-1 ($r=0.612$, $p<0.001$), and a positive, moderately significant correlation between BAI-1 and PA-1 ($r=0.402$, $p=0.010$). A positive, moderately significant correlation ($r=0.422$, $p=0.007$) was found between EE-1 and DP-1 scales (Table IV).

Evaluation after Two Months

In the second phase of the study, 60% of the physicians were accessed. All physicians continue to work actively in their clinics.

Table V. Evaluation of the pre- and post-test MBI and BAI relationship.

Spearman's rho		BAI-1	BAI2	MBI-1	MBI-2
BAI-1	r	1			
	p	.			
	N	40			
BAI2	r	.653**	1		
	p	0.001	.		
	N	24	24		
MBI-1	r	.573**	.732**	1	
	p	0.000	0.000	.	
	N	40	24	40	
MBI-2	r	.423*	.531**	.495*	1
	p	0.039	0.008	0.014	.
	N	24	24	24	24

Correlation is significant at 0.005 level. ** Correlation is significant at 0.005 level.

Table VI. Evaluation of the pre- and post-test MBI and sub-scales.

	Avg	N	DoF		Avg	DoF	t	df	p
EE-1	15.63	24	8.096	EE-1 - EE-2	-0.625	7.45895	-0.41	23	0.685
EE-2	16.25	24	9.19475						
DP-1	5.17	24	4.3	DP-1 - DP-2	-1.08333	4.42244	-1.2	23	0.242
DP-2	6.25	24	5.02386						
PA-1	9.38	24	5.701	PA-1 - PA-2	0.79167	5.77836	0.671	23	0.509
PA-2	8.5833	24	5.74772						
MBI-1	30.1667	24	14.60693	MBI-1 - MBI-2	-0.91667	14.66708	-0.306	23	0.762
MBI-2	31.0833	24	17.85428						

Specialist physicians were asked again if they were satisfied with their current earnings, and 41.7% was found to be satisfied (n=10), 54.2% (n=13) was dissatisfied, and 4.2% (n=1) was undecided. When the shift systems of physicians were re-evaluated, it was found that 79.2% (n=19) was working with 24 hours off, 12.5% (n=3) was working with 72 hours off, and 8.3% (n=2) was working with 48 hours off schemes.

When the use of materials such as masks, gloves, disposable aprons was questioned, it was found that 50% (n=12) was using them under the necessary conditions, 37.5% (n=9) was using them almost always, and 12.5% (n=3) was using them sometimes. It was found that 70.8% (n=17) of the physicians had problems due to using equipment such as masks and gloves, while 29.2% (n=7) had no problems in this regard.

A high level of statistically significant correlation was found between the mean scores of BAI-1 and BAI-2 in the positive direction (r=0.653, p=0.001). There was a moderate statistically significant correlation between MBI-1 and MBI-2 mean scores (r=0.495, p=0.014) (Table V).

In the second stage, an increase was observed in the EE[t(23)=-0.41, p=0.685], DP[t(23)=-1.2,

p=0.242], MBI[t(23)=-0.306, p=0.762] average scores of 24 specialist physicians, and a statistically significant difference was found. While there was a decrease in the mean score of PA in the second stage, no statistically significant difference was found (t(23)=0.671, p=0.509)(Table VI).

In the second stage, the average BAI value applied was found as 11.04±10.39, with the lowest score being 0 (16.7%) and the highest score being 36 (4.2%).

No statistically significant difference was found between the BAI-1 and BAI-2 scale score averages (z=-0.888, p=0.375) (Table VII).

Due to the small number of physicians participating in the study, the factors that cause burnout could not be analyzed in this study.

Discussion

This study is a two-month follow-up study that investigates the level and possible causes of burnout in specialist physicians working as a pandemic physician due to the COVID-19 outbreak at Sakarya University Training and Research Hospital.

Table VII. Pre- and post-test BAI assessment.

BAI2 - BAI1	N	Average Rank	Sum of Ranks
Negative Ranks	12a	9.75	117
Positive Ranks	7b	10.43	73
Equal	5c		
Total	24		z=-.888
a BAI-2 < BAI-1	b BAI-2 > BAI-1	c BAI-2 = BAI-1	p*=0.375

*Wilcoxon Test

Our study was organized as an online survey and 40 specialist physicians could be reached in the first stage, while 60% of 40 specialist physicians could be reached in the second stage. In a survey using MBI in 2013, the return rate was reported as 78%⁹. Moreover, in a meta-analysis¹⁰ of studies using MBI, it was found that the return rates in the survey studies ranged from 21-100%. The 60% return rate in our study appears to be consistent with the literature data.

In this study, it was found that PA score was higher in females, in those who had children, and in those who were not suspected of COVID-19. A study of burnout studies in which participants were health workers showed that the PA score varies depending on the gender variable. In a study conducted in Turkey, it was reported that PA score significantly varied compared to the gender variable and was higher in males¹¹. In another study¹², it was found that the PA score did not show a significant difference in terms of the gender variable. Yet, another study¹³ conducted in Turkey found that women experience emotional burnout, while men experience a decrease in the feeling of personal accomplishment more¹³. Our study seems to be compatible with the literature data in this regard.

In our study, the mean value of PA was higher in physicians who had children. Being a family member, having a family, is known to have a positive effect on burnout¹⁴. As stated in the literature, the high score of the MBI-PA sub-scale, which evaluates the feeling of personal accomplishment, is associated with a low level of burnout¹⁵. A study¹⁶ investigating the effect of having children on burnout on health care professionals concluded that burnout was higher in those who did not have children, and emotional burnout was less in individuals who had children. In our study, one of the reasons of low level of burnout may be due to the presence of a high level of feeling of personal accomplishment. In a process such as a pandemic, having children or, in other words, a sense of responsibility caused by being a caregiver may have led individuals to stand strong in the face of the difficulties experienced and therefore experience less burnout. In our study, feelings of personal success and anxiety levels were found to be positively correlated. Although the existence of family support may seem to help health care professionals cope with anxiety, many other factors, such as the current situation and economic reasons, can lead to continuation of anxiety¹⁷.

Anxiety levels were found to be higher in individuals who were dissatisfied with the working conditions of the trained clinical branch than in

the satisfied group. A study¹⁸ conducted on a sample of assistant physicians in Turkey showed that working over 8 hours may be associated with a general burnout manifestation that can lead to emotional burnout and depression. Although the physicians in our study were asked questions that investigated working conditions before and after the COVID-19 pandemic, it was not directly questioned what conditions they were dissatisfied with. In this study, dissatisfaction with working conditions provides us a clue as to why physicians experience anxiety, even though they have a low level of burnout and a high sense of personal accomplishment. In our study, physicians were asked whether they experienced anxiety or any problems due to the protective equipment used, and it was found that 67.5% reported that they experienced problems due to the permanent use of protective equipment. In physicians who reported dissatisfaction with working in the COVID-19 service, this figure was 38.5%, while in the group who reported being undecided, it was 14.5%. During the study period, these and similar difficulties could have led to emotional burnout. A study¹⁹ has reported that emotional burnout may be accompanied by a process such as increased working time and the use and replacement of protective equipment. For such reasons, our study may also have higher levels of emotional burnout in our physicians who reported that they were not satisfied with working on the COVID-19 service.

According to the MBI applied at the first stage of our study, it was found that there was a normal level of emotional burnout, low level of depersonalization and high level of feeling of accomplishment, and therefore physicians were found to experience low levels of burnout. A recent study²⁰ investigating burnout in health care professionals in Turkey, which involved 338 people, also reported that feeling of personal accomplishment scores were high, and emotional burnout and depersonalization were low.

In our study, the average value of BAI was higher in female physicians than in male physicians. In female physicians, this figure was 76.1%, while in male physicians, the proportion of those who experience anxiety was 44.4%. An international study²¹ of 407 participants found that females experienced higher levels of anxiety in the COVID-19 pandemic than males. In a study²² of 204 health care professionals investigating the psychological effects and risk factors of the COVID-19 pandemic in 2020, female gender, being single and having a chronic disease were evaluated as the risk factors, and the symptoms of

anxiety were found to be higher in females²². Another study²³ investigating burnout on healthcare professionals during the COVID-19 pandemic reported higher rates of anxiety, fear, and depression in females compared to males. Although the place of the female workforce in the medical sector has increased, it is known that female physicians assume housework and child care more than male physicians²⁴. It seems likely that the current and new responsibilities arising from the COVID-19 pandemic have increased anxiety levels in female physicians.

Advantages and Limitations of the Study

One of the biggest advantages of our study is that physicians were accessed immediately after the date when COVID-19 infection was considered a pandemic, and the effect of the pandemic on working conditions could be studied almost immediately. Another advantage is that our study did not violate social distance rules, thanks to its application as an online survey. Finally, another advantage is that with the elimination of the pandemic working conditions, the same online survey was re-applied 2 months later and became a follow-up study.

The limited study sample is one of the biggest drawbacks of our study. Another limitation is that face-to-face meetings could not be held due to the social distance rule due to the pandemic.

Conclusions

Both in pandemic and normal conditions, detecting burnout in health care professionals and providing ergonomic conditions by identifying existing causes will improve both the individual robustness of health care professionals and the quality of the service offered to the community. In order to see the desired benefit or preserve this benefit, comprehensive studies on the subject are needed.

Conflicts of Interest

The authors declare no conflicts of interest.

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