

The mental health status of Turkish healthcare professionals during the COVID-19 pandemic: Risk and protective factors

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Summary

Background: During the pandemic, healthcare professionals were at high risk for both virus transmission and the development of mental disorders. This study aimed to analyse the impact of the COVID-19 pandemic on the mental health of healthcare professionals working in various healthcare institutions in Turkey.

Subject and methods: Between June 1st and 15th 2020, a convenient sample of 343 Turkish healthcare professionals (doctors, nurses, dentists, social workers/psychologists, health technicians, and administrative staff) via online Google Forms. Participants completed a structured questionnaire (32 questions), the Turkish version of the General Health Questionnaire (GHQ-28).

Results: The pandemic affected the mental health of almost half of healthcare professionals (47.8 %, GHQ-28 \geq 5.). The factors significantly affecting the GHQ-28 total score include gender, age, psychiatric medication use, finding adequate workplace measures, workplace psychosocial support, needing psychosocial support, exclusion/stigma, weekly working hours and increased workload. These factors are associated with increased somatic symptoms, anxiety, insomnia, depression and social functioning impairment.

Conclusions: The study highlights the importance of these factors in understanding and managing the mental health issues of healthcare professionals, particularly those on the front lines staff during the times of global health crises.

Keywords: COVID-19 pandemic – Turkish healthcare professionals – mental health.

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INTRODUCTION

Coronavirus (COVID-19) was declared an epidemic by the World Health Organization (WHO) in December 2019, about three months after the first case was seen in Wuhan, China (WHO 2020). The COVID-19 pandemic, with its high infectious potential and mortality rates, has caused panic and anxiety in affected countries and has been a great threat to global public health. When this study was conducted the number of cases was increasing in Turkey (179,831 confirmed cases in June in 2020; Turkish Republic of Health, 2023), as well as all over the world. According to most recent records, there were nearly 17,232,066 confirmed cases of COVID-19 and 102,174 deaths in Turkey (Turkish Republic of Health, 2023).

The COVID-19 pandemic has significantly impacted healthcare professionals, exposing them to new stressors such as infection risk, unconventional clinical roles, longer working hours, and increased childcare needs (Badahdah et al., 2020, Chirico et al., 2021). Healthcare professionals, especially frontline, faced more difficulties due to the increasing number of confirmed cases, workload, depletion of personal protective equipment, media

influence, and inadequate support (Greenberg et al., 2020, Kontoangelos et al., 2020, Pacutova et al., 2023, Pappa et al., 2020, Stuijzand et al., 2020.). Thus, healthcare professionals were at high risk for the development of mental disorders during the pandemic (Fiorillo & Gorwood, 2020, Jokić Begić et al., 2020, Kontoangelos et al., 2020, Putri et al., 2023). Similarly, previous outbreaks (such as SARS; Brooks et al., 2020, Lee et al., 2005, Maunder et al., 2003), studies have reported intense stress reactions, insomnia, anxiety, depression, and even suicidal tendencies among healthcare professionals (Badahdah et al., 2020, Burrowes et al., 2023, Chutiyami et al., 2022, Elbay et al., 2020, González-Sanguino et al., 2020, Lee et al., 2023, Li et al., 2021, Luo et al., 2020, Muller et al., 2020, Olaya et al., 2021, Santabárbara et al., 2021, Spoorthy et al., 2020, Stuijzand et al., 2020, Varghese et al., 2021). In this regard, all studies emphasised the need to protect the mental and physical well-being of healthcare professionals.

The evidence-based information is so important as to how healthcare professionals should be supported. However, at the time the study was conducted there were limited studies examining the effects of COVID-19 on the mental health of Turkish healthcare professionals (Elbay

et al., 2020, Hoşgör et al., 2020, Sahin et al., 2020). When systematic reviews and meta-analyses (Li et al., 2021, Luo et al., 2020, Muller et al., 2020, Pappa et al., 2020) were examined, it was reported that studies addressing the mental health of healthcare professionals in Turkey were quite limited. This study, therefore, aimed to evaluate the effect of the COVID-19 pandemic on the mental health of Turkish healthcare professionals working in various health institutions. In this respect, this study will fill an important information gap in the literature regarding the psychological effects of the COVID-19 pandemic on healthcare professionals in our country. This study will provide important results for future studies on healthcare professionals in other countries all over the world.

SUBJECTS AND METHODS

Study Design, Setting, and Participants

We adopted a cross-sectional survey design to assess the general mental health status of healthcare professionals. A convenient sampling strategy was used. As the Turkish Government recommended that the public minimise face-to-face interaction and isolate themselves at home, potential respondents were electronically invited by existing study respondents. The invitation to participate in the research also contained a link to the questionnaire on the Google Form. The online survey was first distributed to the researchers' immediate close circle and they were then encouraged to forward it to others. The inclusion criteria were that respondents work as active health professionals in public inpatient or outpatient health services provided by the Turkish Ministry of Health during the COVID-19 pandemic. Healthcare professionals on unpaid leave and medical leave during the pandemic have been excluded from the study.

Data was collected during the so-called new normalisation period when pandemic restrictions began to be lifted. Therefore, data collection was collected between 1 June and 15 June, when this period began. All participants gave informed consent before completing the questionnaire. Overall, a convenience sample of 343 respondents accessed the online study.

The study was approved by the Social and Humanities and Art Research Ethics Committee of Baskent University (17162298.600-415).

Measures

The first part of the online questionnaire consisted of 32 questions, covering sociodemographic characteristics (age, gender, marital status, having children, educational status, profession, working city, working time, having a chronic disease, having a psychiatric disease etc.), work experiences, and COVID-19-related concerns.

The General Health Questionnaire (GHQ-28) was developed by Goldberg & Hillier (1979) to identify common acute mental problems in the community. It has been adapted to many different languages and cultures. Short forms with 30, 28, and 12 questions developed after the 60-question form were likewise found reliable. GHQ-28 was used in this study because it is a more reliable and widely used scale for evaluating people's mental health outside of large-scale trials and psychiatric clinics. Each question consists of 4 items scored on a four-point Likert Scale (0=never, 1= as often, 2=as often as ever, and 3= more often). It is common practice to calculate the total score by giving a "0" score to the first 2 columns and a "1" score to the last two columns. The Turkish validity and reliability study of the questionnaire was conducted by Kılıç (1996). The internal consistency Cronbach alpha of 0.84, women scored higher than men in Kılıç's study (1996). The cut-off point of GHQ28 is between 4 and 5. In the evaluation of the scale, those who score 4 and above are considered risky (Kılıç, 1996).

Statistical Analysis

All statistical analysis was conducted using the SPSS 25.0. Descriptive data are presented using arithmetic means and standard deviations. Differences between groups of participants were examined using a t-test and "One-Way ANOVA, where a criterion of $p < 0.05$ significance was used to determine the significance of the observed differences. Finally, a 4-step hierarchical regression analysis was used to determine which of the measured predictors are significant in explaining variance in mental health status. In the hierarchical regression analysis, GHQ-28 total score and subscale mean scores were used as dependent variables.

RESULTS

The study involved a diverse group of healthcare professionals, including nurses (32.7%, $n=112$), doctors (21.3%, $n=73$), dentists (8.7%, $n=30$), health technicians

(10.8%, n=37), social workers/psychologists (19.5%, n=67) and administrative staff (7%, n=24). The majority were women (78.1%, n=268) and married (72.3%), with a mean age of 40 years (SD=9.0, range 21–62). Most were employed in large cities (83.1%, n=285). 30.3% worked in pandemic hospitals (designated by the Ministry of Health with level 3 intensive care beds where patients diagnosed with COVID-19 were treated), 40% in general hospitals (hospitals providing outpatient or inpatient diagnostic, treatment and rehabilitation services with more than 100 beds) and 29.7% in primary healthcare settings such as GP surgeries and prehospital emergency services. The participants had work experience ranging from 1 to 35.6 years, with a mean of 17.5 years and weekly working hours ranging from 40 to 91 hours with a mean of 37.5 hours.

The pandemic harmed the mental health of almost half of healthcare professionals (≥ 5 47.8%). Table 1 lists the demographic characteristics of healthcare professionals.

Table 2 shows no significant difference in GHQ-28 total and subscale mean scores between participant groups based on marital status, educational status, and working city. However, females had significantly higher scores in GHQ-28 total score ($p = 0.001$), somatic symptoms ($p = 0.004$), anxiety and insomnia ($p = 0.000$), and social functioning ($p = 0.030$) impairment compared to males. Childless participants had greater social functioning impairment ($p = 0.048$). Nurses had significantly higher scores on the total GHQ-28 ($p = 0.020$), somatic symptoms ($p = 0.018$), and anxiety-insomnia ($p = 0.025$) compared to psychologists and social workers. Participants with chronic

Table 1. Demographic characteristics of healthcare workers

Variables		N=343	%
Gender	Women	268	78.1
	Men	75	21.9
Marital Status	Single	95	27.7
	Married	248	72.3
Having children	Yes	235	68.5
	No	108	31.5
Educational status	Associate degree	34	9.9
	Bachelor's degree	176	51.3
	Master's degree	133	38.8
Working city	Metropolitan city	285	83.1
	Non-metropolitan city	58	16.9
Profession	Physicians	73	21.3
	Dentists	30	8.7
	Nurses	112	32.7
	Health Technicians	37	10.8
	Social Workers/Psychologists	67	19.5
	Administrative Staff	24	7.0
	Institution of the healthcare worker	Pandemic Hospital	104
	Hospital	137	40.0
	Primary Healthcare Institution	102	29.7
		Min-Max	M -SD)
	Age	41.0 (21.0 – 62.0)	40.0 ± 9.0
	Work experience (in years)	18.0 (1.0 – 35.0)	17.5 ± 9.7
	Weekly working time (in hours)	40.0 (40.0 – 91.0)	37.0 ± 15.0
	Somatic Symptoms	0.0 (0.0 – 7.0)	1.5 ± 2.1
	Anxiety and Insomnia	1.0 (0.0 – 7.0)	2.5 ± 2.6
	Impairment in Social Functioning	1.0 (0.0 – 7.0)	1.8 ± 1.8
	Severe Depression	0.0 (0.0 – 7.0)	0.7 ± 1.3
	GHQ-28 score	4.0 (0.0 – 27.0)	6.5 ± 6.5
	≤4	179	52.2
	≥5	164	47.8

Table 2. Correlation between socio-demographic characteristics of healthcare workers and their GHQ-28 total scores and mean subscale score

Variables	N (%)	Somatic Symptoms	Anxiety and Insomnia	Impairment in Social Functioning	Severe Depression	GHQ-28 total score
Gender						
Women	268/78.1	1.7 ± 2.2	2.8 ± 2.7	1.9 ± 1.9	0.8 ± 1.3	7.0 ± 6.7
Men	75/21.9	1.0 ± 1.7	1.5 ± 2.2	1.4 ± 1.6	0.5 ± 1.2	4.4 ± 5.4
<i>p</i> ^a		0.004**	0.000***	0.030*	0.144	0.001**
Marital Status						
Single	95/27.7	1.9 ± 2.3	2.7 ± 2.7	1.9 ± 2.0	0.9 ± 1.4	7.3 ± 7.0
Married	248/72.3	1.4 ± 2.0	2.4 ± 2.6	1.7 ± 1.7	0.6 ± 1.2	6.1 ± 6.3
<i>p</i> ^b		0.070	0.349	0.403	0.160	0.140
Having children						
No	108/31.5	1.6 ± 2.1	2.6 ± 2.7	2.0 ± 2.0	0.9 ± 1.4	7.1 ± 6.7
Yes	235/68.5	1.5 ± 2.1	2.4 ± 2.6	1.6 ± 1.7	0.6 ± 1.2	6.2 ± 6.4
<i>p</i> ^a		0.693	0.564	0.048*	0.073	0.207
Educational status						
Associate Degree ¹	34/9.9	1.4 ± 1.8	3.1 ± 2.8	1.7 ± 1.9	0.6 ± 1.3	6.8 ± 6.8
Bachelor's degree ²	176/51.3	1.6 ± 2.3	2.7 ± 2.7	1.8 ± 1.8	0.8 ± 1.3	6.9 ± 6.7
Master's degree ³	133/38.8	1.5 ± 2.0	2.1 ± 2.5	1.6 ± 1.8	0.6 ± 1.2	5.8 ± 6.1
<i>p</i> ^b		0.752	0.092	0.662	0.285	0.333
Working region						
Metropolitan city	285/83.1	1.5 ± 2.2	2.4 ± 2.6	1.7 ± 1.7	0.7 ± 1.2	6.3 ± 6.4
Non-metropolitan city	58/16.9	1.6 ± 2.1	2.8 ± 2.7	2.1 ± 2.1	0.8 ± 1.4	7.2 ± 6.9
<i>p</i> ^a		0.836	0.395	0.088	0.656	0.331
Profession						
Physicians ¹	73/21.3	1.4 ± 1.9	2.3 ± 2.5	1.7 ± 1.7	0.6 ± 1.3	6.0 ± 5.8
Dentists ²	30/8.7	1.2 ± 1.8	2.1 ± 2.0	1.5 ± 1.4	0.8 ± 1.3	5.6 ± 5.2
Nurses ³	112/32.7	2.0 ± 2.4	3.1 ± 2.7	2.0 ± 1.9	0.9 ± 1.4	7.8 ± 7.1
Health Technicians/Technicians ⁴	37/10.8	1.8 ± 2.3	2.8 ± 2.8	1.8 ± 1.8	0.7 ± 1.2	7.1 ± 6.6
Social Workers/Psychologists ⁵	67/19.5	0.8 ± 1.5	1.7 ± 2.5	1.5 ± 1.8	0.3 ± 0.8	4.4 ± 5.1
Administrative Staff ⁶	24/7.0	1.7 ± 2.6	2.8 ± 3.3	1.8 ± 2.3	1.1 ± 1.6	7.4 ± 9.0
<i>p</i> ^b		0.018*	0.025*	0.675	0.076	0.020*
Difference		Between 3 and 5	Between 3 and 5	--	--	Between 3 and 5
Having any chronic diseases?						
No	256/74.6	1.2 ± 1.9	2.2 ± 2.5	1.7 ± 1.8	0.7 ± 1.2	5.8 ± 6.1
Yes	87/25.4	2.3 ± 2.5	3.3 ± 2.8	2.0 ± 1.8	0.9 ± 1.4	8.4 ± 7.3
<i>p</i> ^a		0.000***	0.001**	0.203	0.158	0.001**
Do you take any psychiatric medication?						
No	305/88.9	1.2 ± 1.8	2.2 ± 2.5	1.6 ± 1.7	0.6 ± 1.1	5.7 ± 5.8
Yes	38/11.1	3.8 ± 3.1	4.5 ± 2.7	2.9 ± 2.1	1.6 ± 1.7	12.8 ± 8.2
<i>p</i> ^a		0.000***	0.000***	0.000***	0.000***	0.000***

* *p*<0.05; ** *p*<0.01; *** *p*<0.001; ^a: Independent Samples t Test; ^b: One-Way ANOVA

Table 3. Correlation between working life of healthcare workers and their GHQ-28 total scores and mean subscale score

	N (%)	Somatic Symptoms	Anxiety and Insomnia	Impairment in Social Functioning	Severe Depression	GHQ-28 total score
Health institution of the employee						
Pandemic Hospital ¹	104/30.3	2.0 ± 2.4	3.1 ± 2.8	2.2 ± 2.0	1.0 ± 1.6	8.3 ± 7.4
Hospital ²	162/47.2	1.2 ± 2.0	2.0 ± 2.5	1.4 ± 1.6	0.6 ± 1.0	5.2 ± 5.8
Preventive Health-care Services ³	77/22.4	1.4 ± 2.0	2.7 ± 2.6	1.8 ± 1.8	0.6 ± 1.1	6.6 ± 6.0
p ^b		0.008**	0.001**	0.003**	0.024*	0.001**
Difference		Between 1 and 2	Between 1 and 2	Between 1 and 2	Between 1 and 2-3	Between 1 and 2
Which unit are you currently working at?						
Pandemic ward + ICU ¹	55/16.0	1.9 ± 2.3	3.0 ± 2.8	2.2 ± 1.9	1.3 ± 1.8	8.4 ± 7.6
Inpatient ward + Operating Room ²	61/17.8	2.0 ± 2.6	3.4 ± 2.8	2.0 ± 1.9	0.9 ± 1.3	8.3 ± 7.2
Outpatient diagnostic services ³	227/66.2	1.3 ± 1.9	2.1 ± 2.5	1.6 ± 1.7	0.5 ± 1.0	5.5 ± 5.8
p ^b		0.030*	0.001**	0.031*	0.000***	0.001**
Difference		Between 3 and 1-2	Between 3 and 1-2	Between 3 and 1-2	Between 3 and 1-2	Between 3 and 1-2
Do you think the measures taken in your workplace regarding the pandemic are sufficient?						
Sufficient	133/38.8	1.0 ± 1.6	1.7 ± 2.2	1.3 ± 1.6	0.4 ± 0.8	4.4 ± 5.0
Partially sufficient	181/52.8	1.7 ± 2.3	2.9 ± 2.8	2.0 ± 1.9	0.9 ± 1.4	7.4 ± 6.8
insufficient	29/8.5	3.0 ± 2.7	3.6 ± 2.8	2.4 ± 2.0	1.1 ± 1.7	10.1 ± 8.0
p ^b		0.000***	0.000***	0.001**	0.000***	0.000***
Difference		Between all	Between 1 and 2-3	Between 1 and 2-3	Between 1 and 2-3	Between 1 and 2-3
Do you feel safe to protect yourself from the virus in the healthcare facility you work for?						
I don't feel safe at all ¹	41/12.0	2.2 ± 2.5	3.2 ± 2.8	2.2 ± 2.1	1.1 ± 1.8	8.7 ± 7.8
I feel a little safe ²	170/49.6	1.4 ± 2.0	2.4 ± 2.6	1.7 ± 1.7	0.6 ± 1.2	6.1 ± 6.0
I feel pretty safe ³	78/22.7	1.1 ± 1.9	2.0 ± 2.5	1.4 ± 1.6	0.5 ± 1.0	5.0 ± 5.9
I am indecisive.	54/15.7	1.8 ± 2.5	3.0 ± 2.7	2.1 ± 2.1	1.0 ± 1.2	8.0 ± 7.1
p ^b		0.021*	0.048*	0.034*	0.027*	0.005**
Difference		Between 1 and 3	Between 1 and 3	Between 1 and 3	Between 1 and 3	Between 3 and 1-4
Have you been given in-service training or information about Covid-19 by the institution you work for?						
No	100/29.2	1.3 ± 2.0	2.5 ± 2.6	2.0 ± 1.9	0.6 ± 1.2	6.4 ± 6.5
Yes	243/70.8	1.6 ± 2.2	2.5 ± 2.6	1.7 ± 1.8	0.7 ± 1.3	6.5 ± 6.5
p ^a		0.189	0.965	0.118	0.461	0.875
How did your workload change compared to the pre-pandemic period?						
Increased ¹	99/28.9	2.8 ± 2.6	3.8 ± 2.8	2.2 ± 1.8	1.0 ± 1.4	9.7 ± 7.3
Decreased ²	170/49.6	0.9 ± 1.5	1.6 ± 2.2	1.5 ± 1.7	0.5 ± 1.1	4.6 ± 5.2
Not changed ³	74/21.6	1.3 ± 1.8	2.7 ± 2.7	1.7 ± 1.9	0.8 ± 1.4	6.5 ± 6.4
p ^b		0.000***	0.000***	0.027*	0.017*	0.000***
Difference		Between 1 and 2-3	Between all	Between 1 and 2	Between 1 and 2	Between 1 and 2-3
Have you benefited from any psychosocial support services at your workplace?						
No	339/98.8	1.5 ± 2.1	2.4 ± 2.6	1.7 ± 1.8	0.7 ± 1.2	6.3 ± 6.4
Yes	4/1.2	5.5 ± 1.3	6.5 ± 0.6	4.5 ± 2.6	2.5 ± 2.1	19.0 ± 5.8
p ^a		0.000***	0.002**	0.002**	0.004**	0.000***

* p<0.05; ** p<0.01; *** p<0.001; ^a: Independent Samples t Test; ^b: One-Way ANOVA

illnesses had a significantly higher total GHQ-28 score ($p = 0.001$), as well as higher scores for somatic symptoms ($p = 0.000$) and anxiety-insomnia ($p = 0.001$) compared to participants without chronic illnesses. In addition, participants taking psychiatric medication had higher GHQ-28 total scores and mean scores for all subscales than those not taking such medication ($p = 0.000$).

Table 3 reveals no significant difference in GHQ-28 total and mean subscale score between participants who received in-service training about COVID-19 in the workplace and those who did not. Healthcare professionals in pandemic hospitals scored higher in GHQ-28 total, somatic symptoms, anxiety-insomnia, and social functioning impairment compared to general hospitals ($p = 0.001$, $p =$

0.008 , $p = 0.001$, $p = 0.003$, respectively). Moreover, depression levels were higher among those working in these hospitals ($p = 0.024$). Outpatient diagnostic services had lower GHQ-28 total scores compared to other areas. Workers who found pandemic measures inadequate had higher GHQ-28 total and subscale scores. Those feeling unsafe about virus protection experienced higher levels of somatic symptoms, anxiety-insomnia, social functioning impairment and depression ($p=0.021$, $p=0.048$, $p=0.034$, $p=0.027$, respectively). The study reveals that individuals feeling unsafe about virus protection have worse mental health, as indicated by the GHQ-28 total score ($p = 0.005$). Increased workload after the pandemic leads to higher GHQ-28 total scores ($p = 0.000$) and somatic symptoms ($p = 0.000$),

Table 4. Correlation between the pandemic experiences of healthcare workers and their GHQ-28 total scores and mean subscale score

	n / %	Somatic Symptoms	Anxiety and Insomnia	Impairment in Social Functioning	Severe Depression	GHQ-28 total score
Did you have to be separated from your family due to the risk of transmission during the pandemic?						
No	188/54.8	1.1 ± 1.7	2.2 ± 2.4	1.5 ± 1.7	0.7 ± 1.2	5.5 ± 5.9
Yes	155/45.2	2.0 ± 2.5	2.8 ± 2.8	2.0 ± 1.9	0.8 ± 1.3	7.6 ± 7.0
P ^a		0.000***	0.048*	0.021*	0.430	0.003**
Have you ever felt excluded / stigmatized because of the risk of transmission?						
No	197/57.4	1.0 ± 1.6	1.9 ± 2.4	1.3 ± 1.6	0.5 ± 0.9	4.7 ± 5.2
Yes	146/42.6	2.2 ± 2.5	3.3 ± 2.8	2.3 ± 2.0	1.1 ± 1.5	8.8 ± 7.3
P ^a		0.000***	0.000***	0.000***	0.000***	0.000***
Do you need psychosocial support for the pandemic process?						
No	292/85.1	1.2 ± 1.8	2.1 ± 2.4	1.6 ± 1.7	0.5 ± 1.1	5.4 ± 5.6
Yes	51/14.9	3.4 ± 2.8	4.7 ± 2.7	2.8 ± 2.2	1.7 ± 1.8	12.5 ± 8.0
P ^a		0.000***	0.000***	0.000***	0.000***	0.000***
Do you have the resources to receive psychosocial support during this process?						
No	3/0.9	1.3 ± 1.5	3.3 ± 3.5	1.7 ± 2.1	0.3 ± 0.6	6.7 ± 6.1
Yes	340/99.1	1.5 ± 2.1	2.5 ± 2.6	1.8 ± 1.8	0.7 ± 1.3	6.5 ± 6.5
P ^a		0.882	0.578	0.935	0.606	0.957
Have you had a Covid-19 test so far?						
No	241/70.3	1.4 ± 2.1	2.5 ± 2.6	1.7 ± 1.7	0.7 ± 1.3	6.2 ± 6.4
Yes	102/29.7	1.8 ± 2.2	2.6 ± 2.7	1.9 ± 1.9	0.8 ± 1.3	7.0 ± 6.7
P ^a		0.144	0.753	0.259	0.592	0.306
Have you been quarantined due to Covid-19 diagnosis or suspicion?						
No	322/93.9	1.5 ± 2.2	2.5 ± 2.6	1.7 ± 1.8	0.7 ± 1.3	6.5 ± 6.6
Yes	21/6.1	1.5 ± 1.5	1.7 ± 2.5	2.0 ± 1.9	0.6 ± 0.9	5.8 ± 4.8
P ^a		0.930	0.164	0.517	0.608	0.609
Has anyone in your neighborhood been quarantined for having a Covid-19 diagnosis or suspicion?						
No	163/47.5	1.3 ± 2.1	2.4 ± 2.6	1.5 ± 1.8	0.7 ± 1.2	5.9 ± 6.5
Yes	180/52.5	1.7 ± 2.2	2.6 ± 2.6	2.0 ± 1.8	0.7 ± 1.3	7.0 ± 6.4
P ^a		0.075	0.440	0.021*	0.766	0.111

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ^a: Independent Samples t Test

social functioning impairment, and severe depression. Increased workload was found to lead to higher social functioning impairment ($p = 0.027$) and severe depression ($p = 0.017$) in individuals compared to those with decreased workload. Individuals with decreased workloads experienced higher anxiety-insomnia levels ($p = 0.000$), and those receiving psychosocial support services in the workplace had higher GHQ-28 total and mean subscale scores.

In Table 4, participants separated from families due to transmission risk had higher GHQ-28 total scores, somatic symptoms, anxiety-insomnia, and impaired social functioning compared to those not separated ($p = 0.003$, $p = 0.000$, $p = 0.048$, $p = 0.021$, respectively). Healthcare professionals needing psychological support as a result

of feeling stigmatised by the risk of transmission had significantly higher GHQ-28 total scores and mean subscale scores ($p = 0.000$). Those with acquaintances in quarantine experienced greater social functioning impairment ($p = 0.021$). However, no significant difference was found based on testing status, quarantine status, or psychosocial support resources.

Table 5 presents four hierarchical regression analyses evaluating predictors of mental health indicators, including GHQ-28 total score and subscale mean scores. Stage one included sociodemographic characteristics, stage two health status, stage three work life, and stage four pandemic-related experiences. The first stage sociodemographic characteristics minimally influenced (0.4%) the

Table 5. Hierarchical regression analysis of the factors affecting GHQ-28 total score and mean subscale score

	Step	R	R 2	Adjusted R 2	F	P
GHQ-28 Total Score	1	0.22	0.05	0.04	5.536	0.001
	2	0.43	0.19	0.17	15.339	0.000
	3	0.47	0.22	0.20	10.690	0.000
	4	0.61	0.37	0.33	11.089	0.000
Somatic Symptoms	1	0.18	0.03	0.02	3.792	0.011
	2	0.45	0.20	0.19	16.973	0.000
	3	0.49	0.24	0.22	11.824	0.000
	4	0.61	0.38	0.34	11.499	0.000
Anxiety and Insomnia	1	0.21	0.04	0.04	5.285	0.001
	2	0.36	0.13	0.12	10.101	0.000
	3	0.40	0.16	0.14	7.023	0.000
	4	0.52	0.27	0.24	7.239	0.000
Impairment in Social Functioning	1	0.19	0.04	0.03	4.419	0.005
	2	0.32	0.10	0,09	7.428	0.000
	3	0.34	0.12	0,09	4.869	0.000
	4	0.44	0.19	0.15	4.569	0.000
Severe Depression	1	0.15	0.02	0.01	2.578	0.054
	2	0.31	0.10	0.08	7.115	0.000
	3	0.37	0.14	0.11	5.858	0.000
	4	0.49	0.24	0.20	5.957	0.000

- Independent variable: Socio-demographic characteristics (Your gender? Your age? Do you have children?)
- Independent variable: Socio-demographic characteristics + Health Status (Do you use any psychiatric medication? Do you have any chronic disease?)
- Independent variable: Socio-demographic characteristics + Health Status + Working Life (Which institution / organization do you currently work for? How long is your weekly working time? (In hours). What's your profession? Which unit are you currently working at?)
- Independent variable: Socio-demographic characteristics + Health Status + Working Life + Pandemic experiences (Do you feel safe in terms of virus protection in the health institution you work? Have you benefited from any psychosocial support services at your workplace?. Has anyone in your neighborhood been quarantined for having a Covid-19 diagnosis or suspicion?. How did your workload change compared to the pre-pandemic period?. Did you have to be separated from your family due to the risk of transmission during the pandemic?. D22- Do you need psychosocial support for the pandemic process?. Do you think the measures taken in your workplace regarding the pandemic are sufficient?. Have you ever felt excluded / stigmatized because of the risk of transmission?)
- Dependent Variable: GHQ-28 Total Score. Somatic Symptoms. Anxiety and Insomnia. Impairment in Social Functioning Severe Depression.

GHQ-28 total score, while pandemic experiences in the fourth stage had a greater impact (33%) on the GHQ-28 total score and all scale sub-dimensions more than the first three stages (stage two 17 %, stage three 20%).

In Table 6, the factors that significantly affect the GHQ-28 total score and its sub-dimensions according to the hierarchical regression analysis and their degree of influence are shown. The GHQ-28 total score is significantly influenced by factors such as gender, age, psychiatric medication use, finding adequate workplace measures, benefiting from workplace psychosocial support, needing psychosocial support, pandemic-related exclusion/stigma, weekly working hours and increased workload. Similarly, these factors increase somatic symptoms, anxiety-insomnia, and depression among participants, affecting their social functioning.

DISCUSSION

The results of this study, which aims to assess the impact of the COVID-19 epidemic on the mental health of Turkish healthcare professionals, show that the epidemic has more severely affected (≥ 5 , 47.8%) the mental health of Turkish healthcare professionals, unlike the countries reported in the early studies (rate of 12-39%) in the literature (Dai et al., 2020, J. Wang et al., 2019). Similarly, a systematic review and meta-analysis study showed that the prevalence of anxiety and depression is higher among Turkish healthcare professionals (Luo et al., 2020).

Similar to the results of this study in the literature, studies have shown that the COVID-19 pandemic has significantly impacted the mental health of healthcare professionals, leading to severe stress reactions, insomnia, anxiety, depression, and even suicidal tendencies (Aslanidis et al., 2023, Badahdah et al., 2020, Burrowes et al., 2023, Chutiyami et al., 2022, González-Sanguino et al., 2020, Lee et al., 2023, Li et al., 2021, Olaya et al., 2021, Putri et al., 2023, Santabárbara et al., 2021, Spoorthy et al., 2020, Varghese et al., 2021). A systematic review of 65 studies involving 97,333 healthcare professionals from 21 countries found that 27.7% of healthcare professionals experienced moderate depression during the pandemic, while 22.1% had anxiety and 21.5% had post-traumatic stress symptoms (Li et al., 2021). In Turkey, ranged from 64.7- 77.6 % of physicians had depression, 51.6- 60.2 % had anxiety, 50.4% had insomnia and 41.2- 76.4% had high levels of stress (Elbay et al., 2020, Şahin et al., 2020).

As demonstrated in previous studies, younger age and female sex have been identified as significant risk factors for the mental health of healthcare professionals

(Badahdah et al., 2020, Chutiyami et al., 2022, Hoşgör et al., 2020, Jokić Begić et al., 2020, Lai et al., 2020, Lee et al., 2023, Şahin et al., 2020; Solomou & Constantinidou, 2020, Y. Wang et al., 2021, Xiong et al., 2020). This is supported by previous studies that have found a negative correlation between age and symptoms of anxiety and/or depression (Christensen et al., 1999). This is because individuals have the opportunity to develop resistance to multiple and different stresses as they age, resulting in better emotional management (Birditt et al., 2005). Therefore, increasing age plays a protective role not only in the mental health of healthcare professionals but also in the mental health of the general public (Jokić Begić et al., 2020). The added burden experienced by healthcare professionals who also have caregiving responsibilities within their families may contribute to the higher prevalence of mental health issues in women. Research has consistently shown that women are at a higher risk of developing anxiety and depression, regardless of the pandemic (Lim et al., 2018). However, it is important to note that this does not diminish the severity of these issues or the need for proper support and treatment. Gender patterns in symptom distribution have remained consistent during the pandemic.

This study's results are consistent with previous research that found nurses experience more negative effects on their mental health than physicians during pandemics (Badahdah et al., 2020, Chutiyami et al., 2022, Lai et al., 2020, Luo et al., 2020, Pappa et al., 2020). Additionally, nurses were found to have more mental symptoms than physicians in previous pandemics (Brooks et al., 2020). Nurses face a higher risk of infection due to their frequent and close contact with patients, as well as their long working hours (Sarmasoğlu et al., 2020).

Similar to the findings of this study, studies have consistently shown that having a chronic disease and use psychiatric medication experience more negative effects on their mental health. This is supported by studies conducted on both the general population (Christensen et al., 1999, Luo et al., 2020, Solomou & Constantinidou, 2020) and healthcare professionals (Şahin et al., 2020). Also, consistent with previous literature, healthcare professionals who experienced an increased workload during the pandemic had poorer mental health (Elbay et al., 2020, Lai et al., 2020, Luo et al., 2020).

Healthcare professionals who work directly with COVID-19 patients in pandemic wards or hospitals experience higher levels of stress, depression, and anxiety compared to their counterparts who do not work with COVID-19 patients. This has been consistently demonstrated in previous research (Badahdah et al., 2020, Elbay et al., 2020, Lai et al., 2020, Luo et al., 2020, Şahin et al., 2020). The mental health of healthcare professionals

Table 6. Factors affecting GHQ-28 total score and mean subscale score and their degree of influence

		B	t	P	VIF
GHQ-28 Total Score	Your gender?	-0.164	-3.482	0.001	1.134
	Your age?	-0.115	-2.227	0.027	1.381
	Do you take any psychiatric drugs?	0.191	3.925	0.000	1.213
	Do you think the measures taken in your workplace regarding the pandemic are sufficient?	0.141	2.840	0.005	1.269
	How did your workload change compared to the pre-pandemic period?	-0.108	-2.320	0.021	1.111
	Have you ever felt excluded / stigmatized because of the risk of transmission?	0.175	3.438	0.001	1.323
	Do you need psychosocial support for the pandemic process?	0.218	4.404	0.000	1.259
	Have you benefited from any psychosocial support services at your workplace?	0.112	2.429	0.016	1,085
Somatic Symptoms	Your gender?	-0.122	-2.621	0.009	1.134
	Do you have any chronic disease?	0.129	2.752	0.006	1.148
	Do you take any psychiatric drugs?	0.229	4.735	0.000	1.213
	How long is your weekly working time? (In hours)	0.115	2.330	0.020	1.275
	How did your workload change compared to the pre-pandemic period?	-0.180	-3.897	0.000	1.111
	Have you ever felt excluded / stigmatized because of the risk of transmission?	0.138	2.736	0.007	1.323
	Do you need psychosocial support for the pandemic process?	0.180	3.669	0.000	1.259
	Have you benefited from any psychosocial support services at your workplace?	0.110	2.399	0.017	1,085
Anxiety and Insomnia	Your gender?	-0.187	-3.708	0.000	1.134
	Do you take any psychiatric drugs?	0.116	2.238	0.026	1.213
	Do you think the measures taken in your workplace regarding the pandemic are sufficient?	0.134	2.519	0.012	1.269
	How did your workload change compared to the pre-pandemic period?	-0.102	-2.045	0.042	1.111
	Have you ever felt excluded / stigmatized because of the risk of transmission?	0.138	2.542	0.011	1.323
	Do you need psychosocial support for the pandemic process?	0.215	4.059	0.000	1.259
	Your gender?	-0.115	-2.164	0.031	1.134
Impairment in Social Functioning	Your age?	-0.165	-2.815	0.005	1.381
	Do you take any psychiatric drugs?	0.147	2.680	0.008	1.213
	Have you ever felt excluded / stigmatized because of the risk of transmission?	0.162	2.833	0.005	1.323
	Do you need psychosocial support for the pandemic process?	0.116	2.067	0.040	1.259
	Do you take any psychiatric drugs?	0.144	2.692	0.007	1.213
Severe Depression	Which unit are you currently working at?	-0.138	-2.256	0.025	1.605
	Do you think the measures taken in your workplace regarding the pandemic are sufficient?	0.140	2.566	0.011	1.269
	Did you have to be separated from your family due to the risk of transmission during the pandemic?	-0.108	-1.972	0.049	1.282
	Have you ever felt excluded / stigmatized because of the risk of transmission?	0.146	2.615	0.009	1.323
	Do you need psychosocial support for the pandemic process?	0.205	3.765	0.000	1.259

is significantly protected by their perception of the adequacy of measures taken in their units and their sense of safety regarding virus protection (Elbay et al., 2020, Enli et al., 2020, Luo et al., 2020).

In this study, it was found that the general mental health of those who needed psychosocial support and benefited from any psychosocial support service was significantly worse. Kang et al. (2020) found that individuals with mild or fewer mental symptoms preferred to receive psychosocial support services from media sources, while those with more severe symptoms required services directly from professionals such as psychologists and psychiatrists. These findings are consistent with our study. Healthcare professionals often rely on their own abilities to manage mental health concerns instead of seeking professional assistance (Shanafelt et al., 2020). Obtaining mental health support presents a difficulty for healthcare professionals, as indicated by another study (Xiang et al., 2020). It should be noted that the process may have adversely affected the mental health of participants who required psychosocial support, resulting in an increased demand for such services due to their lower psychological resilience. Previous studies have emphasized the importance of psychological flexibility in comprehending the acute and long-term challenges faced by healthcare professionals during the pandemic and effectively managing them (Dawson et al., 2020).

This study unequivocally demonstrates that healthcare professionals who reported experiencing exclusion or stigma due to transmission risk had worse mental health outcomes. Numerous previous studies have consistently reported that healthcare professionals faced significant stigma during the COVID-19 pandemic and previous pandemics due to the fear of transmission (Bagcchi, 2020, Brooks et al., 2020, Mostafa et al., 2020, Taylor et al., 2020, Yilmaz et al., 2021). Healthcare professionals have faced stigmatizing attitudes, including social exclusion, insults, harassment, physical assault, and being prevented from using public transport or asked to move from their home or neighbourhood, not only in developing countries such as Bangladesh, India, Mexico, and Malawi but also in developed countries like the USA and UK (Bagcchi, 2020; Mostafa et al., 2020, Yilmaz et al., 2021). It is evident that these incidents are unacceptable and must be addressed with urgency. Healthcare professionals experience negative behaviours that increase their stress and negatively affect their mental health. It is crucial to take protective measures against stigma for healthcare professionals and support them.

CONCLUSION

In conclusion, the COVID-19 pandemic has a significant psychological impact on the mental health of healthcare professionals. Health leaders must develop and implement intervention programs to support and protect healthcare professionals during this challenging period. Certain groups, such as young people, women, nurses, chronic patients, those taking psychiatric medications, those in need of psychosocial support, and front-line healthcare professionals, are particularly sensitive when it comes to intervention programs. It is crucial to keep this in mind when designing and implementing such programs. Authorities must prioritize the safety and well-being of employees. Healthcare professionals' mental health must be protected by ensuring that the measures taken at their workplaces are sufficient, they feel safe about protecting themselves from the virus, and they feel adequately supported. It is crucial to ensure that these protective factors are in place. To enhance the safety and well-being of healthcare professionals during the pandemic, authority figures must recognize the challenges they face and implement measures such as providing psychosocial support services and hiring more personnel to reduce their workload and stress. Public awareness campaigns should also be conducted to mitigate the impact of exclusion or stigmatization on healthcare professionals.

The results of this study are consistent with the results of previous studies on the effects of the pandemic on the mental health of healthcare professionals. Some of the results can apply to other public emergencies such as another pandemic and natural disaster. This study highlights to need for developing policies and procedures in the event of a public health emergency to protect the healthcare workforce in the future.

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