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"I'm a hero, but…": An evaluation of depression, anxiety, and stress levels of frontline healthcare professionals during COVID-19 pandemic in Turkey

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Abstract

Purpose: It was aimed to evaluate depression, anxiety, stress symptoms of health professionals during the COVID-19 pandemic and to reveal the risk factors.

Design and Methods: Four hundred and sixteen professionals participated in this study. Data were collected online by Depression–Anxiety–Stress Scale.

Findings: A statistically significant, positive relationship was determined between professionals' perceptions of COVID-19 risk and scale scores.

Practice Implications: The professionals involved in the struggle against the COVID-19 have high levels of depression, anxiety, stress. It is recommended to revise the content to enable individuals to increase skills in coping with similar situations and to take measures to protect their health.

KEYWORDS

anxiety, COVID-19, depression, healthcare professional, pandemic, stress

1 | INTRODUCTION

Epidemic diseases are global health problems that affect a large number of people upon their emergence through the simultaneous transmission to others, often causing significant numbers of death, social and economic deterioration.[1] Mankind has been fighting epidemics such as measles, scarlet fever, HIV/AIDS, and Ebola for centuries. In the 2000s, severe acute respiratory syndrome (SARS, in 2003), new influenza H1N1 (swine flu, in 2009), and Middle East Respiratory Syndrome (MERS, in 2012) emerged.[2] In December 2019, a new type of coronavirus disease (COVID-19) emerged[3,4] in Wuhan, China, rapidly spread all over the world and declared as a pandemic by the World Health Organization (WHO). As the number of cases increases worldwide, countries have implemented various measures at national and international levels. Although the virus was first seen in China, when the number of cases and deaths was examined, the United States, Russia, England, Spain, and Italy were the countries most affected by this pandemic. According to the WHO data, as of July 15, 2020, the total number of cases in the world is 13,150,645 and the number of deaths is 574,464.[5] In Turkey, which ranks eighth in country rankings, the first case was reported on March 11, 2020, whereas the total number of reported cases was 144,749 and the number of deaths was 4,007 on the same date.[5] According to data released by the Minister of Health on April 29, 2020, a total of 7,428 healthcare professionals across Turkey have been infected with

COVID-19. This number corresponds to 6.5% of the total number of cases at that time.[6]

1.1 | Health workforce during pandemic

Pandemics have a major impact on countries' health systems, especially the workforce.[7,8] During pandemics, healthcare professionals struggle with the disease and provide patient care, even if they put themselves at risk.[9] They are in the high-risk group as a result of the exposed viral load. During the current pandemic, a growing number of healthcare professionals in the world and Turkey are infected with COVID-19.[10,11] Besides, several negative psychological consequences can emerge in healthcare professionals who provide care with limited periods of rest and an insufficient number of personal protective equipment (PPE), and are exhausted by the heavy burden of their professional duties during the COVID-19 pandemic without leaving aside the professional standards.[12,13] Previous experiences have also shown that in such periods, healthcare professionals may be concerned about an increase in workload and working hours, change in working units or institutions, risks of being infected, and spreading the virus to their families, and the fear of stigmatization.[8,14–20] This anxiety can cause healthcare professionals to work reluctantly and to consider resigning. Healthcare professionals can experience high levels of stress, anxiety, and depression that may have long-term psychological effects during these periods.[21]

Psychological changes, risk factors, and levels in healthcare professionals involved in fighting with epidemic diseases were investigated during SARS and MERS outbreaks. Studies have reported high levels of stress in healthcare professionals resulting in posttraumatic stress disorder (PTSD).[14,22,23] One month after the appearance of the COVID-19 pandemic, the incidence of PTSD symptoms was reported to be 7% in a study conducted with 253 individuals including healthcare professionals in one of the regions most affected by the pandemic in China.[24] In these outbreaks, factors such as the perception of infection risk, working in high-risk units, social stigma, and contact with infected patients are reported to be effective in psychological changes experienced by health professionals.[22,23,25] It is stated that clinicians on the frontline providing care to patients with COVID-19 are at high risk for anxiety and depression.[26] These symptoms may be related to factors such as being unable to cope with the deaths of colleagues reported in previous pandemic periods, losing control, feeling vulnerable, overworking, separation from families, and disruption of social support systems.[14] In addition, variables such as occupation, education, and gender have been found to affect symptoms of anxiety and depression developed during a pandemic.[27,28] It is also stated that the amount of family income and living with parents have a protective effect against anxiety symptoms.[29]

Although there are few studies to identify the mental health problems faced by healthcare professionals during the COVID-19 pandemic, current studies mostly focus on epidemiological research, prevention and control, diagnosis and treatment methods. However, it is important to determine the needs of healthcare professionals who enable the provision of health services, to reveal their psychological conditions, and to take the necessary measures. Therefore, this study conducted with healthcare professionals in Turkey is expected to contribute to closing this gap in the literature.

1.1.1 | Research questions

Regarding healthcare professionals who take an active role in healthcare provision during the COVID-19 pandemic process:

- At what level do they experience depression, anxiety, and stress?
- What are the experiences and needs regarding the COVID-19 process?
- What are the factors that are significantly different or related to depression, anxiety, and stress levels?
- What are the characteristics of those who report advanced depression, anxiety, and stress?

2 | METHODS

2.1 | Aim

The study was carried out to evaluate the pandemic-related problems and psychological state (depression, anxiety, and stress) of healthcare professionals who play an active role in healthcare provision during the COVID-19 pandemic. For this purpose, the answers to the following questions were sought in the research.

2.2 | Design

This is a descriptive, correlational, and cross-sectional study.

2.3 | Sampling and participants

The data of the research was collected from 416 healthcare professionals working in healthcare organizations in 38 different cities of Turkey. Most of the healthcare professionals were employed in Istanbul (57.7%), Ministry of Health Hospitals (48.1%) having the status of the pandemic hospital (69.0%). The ages of the participants ranged from 20 to 60 years (*M*: 33.6; *SD*: 8.7). The participants were mostly in the 20- to 29-years age group (44.7%), married (50.0%), and female (79.1%). Healthcare professionals, most of whom were nurses (75.2%) and having a bachelor's degree (43.5%), generally worked in inpatient services (27.9%) and staff position (74.5%).

2.4 | Data collection procedures

The data were collected between April 16 and 20, 2020, by sharing the online survey created by the researchers on various social media platforms involving healthcare professionals. The online data collection tool

consists of three pages. On the first page of the data collection tool, health professionals were informed about the purpose, scope, and ethical aspects of the research. Those who agreed to provide data were able to move to the other pages of the data collection tool by clicking in the checkbox. There was a personal information form on the second page and the Depression–Anxiety–Stress Scale (DASS) on the third page.

2.4.1 | Personal information form

The form consists of 23 questions including two questions that query the city and type of the institution that the participants are employed, seven questions about their personal and professional characteristics, and four questions about their experience and needs during the COVID-19 process. The questions were prepared by the researchers in line with the literature.

2.4.2 | Depression–Anxiety–Stress Scale

The DASS is a 42-item instrument measuring current (within the past week) symptoms of depression, anxiety, and stress. The scale developed by Lovibond and Lovibond[30] and adapted to Turkish by Bilgel and Bayram[31] consists of three subscales including "Depression (DASS_D, 14 items)," "Anxiety (DASS_A, 14 items)," and "Stress (DASS-S, 14 items)." It is a 4-point Likert-type scale and items are scored between 0 and 3 ("did not apply to me at all"—0 point and "applied to me very much or most of the time"—3 points).[31] High scores from the scale indicate that individuals experience higher levels of depression, anxiety, and stress. Also, the scores obtained from the scale are evaluated according to the reference ranges given in Table 1 and are classified as "normal, mild, moderate, severe, and extremely severe."

It is reported that the internal consistency coefficients of the Turkish version of the scale are $\alpha = 0.92$ for DASS_D, $\alpha = 0.86$ for DASS_A and, $\alpha = 0.88$ for DASS_S.[31] The internal consistency coefficients of the measurements obtained in this study vary between $\alpha = 0.94$ and 0.96 (Table 1). Since the beginning of the COVID-19 pandemic, DASS has been used in different studies conducted with the general population,[32] working individuals,[33] and psychiatric patients.[34]

2.5 | Data analysis

The data of the research were analyzed with the IBM SPSS Statistics 21 program. Descriptive analyzes (frequency, percentage, minimum–maximum–mean scores, and standard deviation) were used to determine the demographic characteristics and scores of healthcare professionals. Correlation (Pearson Moment Correlation) analysis was used to determine the relationship between scores. Parametric (independent-samples t test, one-way analysis of variance, and post hoc Tukey honestly significant difference) or non-parametric (χ^2) comparative analyses were used to compare the measurements by demographic characteristics. The statistical results were considered significant at the level of $p < 0.05$.

2.6 | Ethical considerations

Ethical approval was obtained from the Ethics Committee of the Social and Human Sciences of Istinye University dated April 16, 2020, and numbered 2020/04-01. The first page of the online survey sent to health professionals included information on the purpose and scope of the research. An informed consent form was provided. Volunteers were asked to click on the checkbox before starting the survey. Thus, data were collected only from those who voluntarily agreed to provide data. Also, permission was obtained from the authors of the scale used within the scope of the research.

3 | FINDINGS

This section presents the results of the data analysis obtained from 416 healthcare professionals participating in the research in line with the research questions.

TABLE 1 Healthcare professionals' depression, anxiety, and stress scores (*N*: 416)

	DASS_D		DASS_A		DASS_S	
Possible range	0–42		0–42		0–42	
Cronbach's alpha	0.96		0.94		0.96	
Mean (*SD*)	15.90 (11.28)		12.17 (9.83)		17.38 (10.86)	
	RR	***n* (%)**	**RR**	***n* (%)**	**RR**	***n* (%)**
Normal	≤9	142 (34.1)	≤7	159 (38.2)	≤14	178 (42.8)
Mild	10–13	55 (13.2)	8–9	31 (7.5)	15–18	54 (13.0)
Moderate	14–20	74 (17.8)	10–14	74 (17.8)	19–25	82 (19.7)
Severe	21–27	70 (16.8)	15–19	58 (13.9)	26–33	69 (16.6)
Extremely severe	≥28	75 (18.1)	≥20	94 (22.6)	≥34	33 (7.9)

Abbreviations: DASS_A, Anxiety subscale; DASS_D, Depression subscale; DASS_S, Stress subscale; RR, reference range; *SD*, standard deviation; *n*, frequency; %, percent.

3.1 | Depression, anxiety, and stress levels of healthcare professionals

The mean DASS_D score of healthcare professionals was found as 15.90 ± 11.28, mean DASS_A score was determined as 12.17 ± 9.83, and mean DASS_S score was found as 17.38 ± 10.86. It was determined that the majority of healthcare professionals experienced severe or extremely severe depression (34.9%), one-third experienced severe or extremely severe anxiety (36.5%), and a significant portion experienced severe or extremely severe stress (24.5%) (Table 1).

3.2 | Experience and needs of healthcare professionals regarding the COVID-19 process

It was determined that in addition to actively providing healthcare services during the COVID-19 pandemic, the healthcare professionals mostly had someone to look after (67.1%) and mostly had children (41.8%). Within the scope of the measures taken during the COVID-19 pandemic, some healthcare professionals were made to change their units (26.9%) and they were mostly transferred to other inpatient units (35.7%), critical units such as intensive care or emergency (33.9%) or units opened for directly providing care to suspected/cases of COVID-19 patients (30.4%). It was determined that most of the healthcare professionals had a change in the working pattern (71.2%) and this change was mostly an increase in working hours (42.9%). It was determined that most of the healthcare professionals provided care to those suspected of COVID-19 (71.9%), but only 44.2% provided care to COVID-19 positive patients. Participants mostly stated that they had COVID-19 positive people in their environment (71.6%) who were mostly their colleagues (55.5%). When they were asked about their primary needs during the COVID-19 process, the top three answers were; "I need psychological support (moral support and motivation resources) (71.9%)," "I need personal protective equipment (68.5%)," and "I need reliable information about the process (65.6%)" (Table 2).

3.3 | The comparison and relationship of DASS scores of the participants according to the characteristics

The differences in DASS scores according to the personal and professional characteristics of the healthcare professionals are presented in Table 3. In comparisons according to age group, gender, education level, profession, position, unit before the COVID-19 pandemic, change in the unit during the COVID-19 pandemic, change in the working pattern, the type of change in the working pattern, providing care to a patient suspected of COVID-19 and the presence of a COVID-19 positive individual in the environment, statistically significant differences were determined in the scores the participants received from the DASS components ($p < 0.05$; $p < 0.01$; $p < 0.001$). Accordingly, DASS_D, DASS_A, and DASS_S scores were significantly

TABLE 2 Healthcare professionals' experiences related to the COVID-19 (*N*: 416)

Variables	Groups	*n*	%
The presence of persons to look after	Yes	279	67.1
	No	137	32.9
Persons to look after (*n*: 279)[a]	Child	174	41.8
	Parent	98	23.6
	Other (disabled individuals, etc.)	36	8.7
Change in unit	Yes	112	26.9
	No	304	73.1
The unit after change (*n*:112)	Service	40	35.7
	Intensive care and emergency unit	38	33.9
	COVID-19 unit	34	30.4
Change in the working pattern	Yes	296	71.2
	No	120	28.8
Type of change in the working pattern (*n*: 296)	Longer working hours	127	42.9
	Flexible working	98	33.1
	Other (uncertain, shift, etc.)	71	24.0
Giving care to patients suspected of COVID-19	Yes	299	71.9
	No	117	28.1
Giving care to COVID-19 positive individual	Yes	184	44.2
	No	232	55.8
Presence of COVID-19 positive individual in the environment	Yes	298	71.6
	No	118	28.4
COVID-19 positive individual in the environment (*n*: 298)[a]	Colleague	231	55.5
	Neighbors or friends	71	17.1
	Family	16	3.8
	Patients	17	4.1
Needs during the COVID-19 pandemic[a]	I need psychological support (morale and motivation sources)	299	71.9
	I need protective equipment	285	68.5
	I need reliable information about the process	273	65.6
	I need immune booster supplements	238	57.2
	I need manpower support in the unit I work	162	38.9
	I need training about COVID-19	91	21.9
	I need financial support	82	19.7
	I need support for accommodation	79	19.0
	Other (administrator support, etc.)	17	4.1
	I don't need anything	17	4.1

TABLE 2 (Continued)

Variables	Groups	*n*	%
How much do you think you are at the risk of COVID-19 infection?	1–3 points	18	4.3
	4–6 points	79	19.0
	7–9 points	195	46.9
	10 points	124	29.8

Abbreviations: *n*, frequency; %, percent.
[a]Multiple answers were chosen.

higher in the 20- to 29-years age group, women, nurses and staff, and healthcare professionals who had a change in the working pattern, provided care to patients suspected of COVID-19, and had COVID-19 positive individuals in their environment. Besides, the DASS_D, DASS_A, and DASS_S scores of healthcare professionals who switched to a flexible working pattern during the COVID-19 pandemic and graduated from medical faculties and specialties were found to be significantly lower (Table 3).

There was no statistically significant difference ($p > 0.05$) in DASS scores of health professionals in terms of the city they work in, type of the institution, the status of the hospital being a pandemic hospital, their marital status, their spouse's occupation, having someone to look after during the COVID-19 pandemic, change in their unit, the unit they work in before and after COVID-19 process, and providing care to a COVID-19 positive patient.

The relationship between the characteristics of healthcare professionals and DASS components is presented in Table 4. Accordingly, the level of risk perceived by healthcare professionals in terms of possible COVID-19 infection and DASS_D ($r = 0.242$), DASS_A ($r = 0.267$), and DASS_S ($r = 0.273$) were significantly ($p < 0.001$) and positively related. Also, it was determined that there was a significant ($p < 0.05$) and positive relationship between the frequency of healthcare professionals following the COVID-19-related news on the social media and DASS_D ($r = 0.122$), DASS_A ($r = 0.138$), and DASS_S ($r = 0.150$). On the contrary, it was determined that the level of confidence of health professionals in the pandemic-related information shared in social media was not significantly related to DASS components ($p > 0.05$; Table 4).

3.4 | Characteristics of healthcare professionals reporting severe depression, anxiety, and stress levels

Frequency and percentage distributions of the characteristics of 75 healthcare professionals with an advanced level of DASS_D score, 94 with DASS_A score, and 33 with DASS_S score were examined in the study. Then χ^2 analysis was carried out to determine whether the distribution of these characteristics was statistically significant. According to the results of the analysis, those who were in the 20- to 29-years age group, women, nurses, those who provide care to patients suspected of COVID-19 and had a COVID-19 positive individual in their environment were found in significantly high frequency in all three components ($p < 0.05$; $p < 0.01$; $p < 0.001$). Also, staff members with high DASS_D scores; health professionals who changed their working pattern with high DASS_A scores, and those who had someone to look after with high DASS_S scores were found in statistically significantly high frequency ($p < 0.05$; $p > 0.01$; Figure 1).

4 | DISCUSSION

It is stated to be natural for healthcare professionals to feel under pressure during the COVID-19 pandemic. However, it is underlined that stress and related factors caused by this pressure cannot prevent healthcare professionals from doing their jobs. It is also stated that managing the mental health and psychosocial wellbeing of health professionals is as important as managing their physical health during this period.[35] Liu et al.[36] emphasized that the COVID-19 pandemic tests the endurance of health systems and healthcare professionals of countries. This study aims to evaluate the psychological conditions and needs of health professionals from the first Covid-19 case in Turkey to the rapid increase in the number of cases and to contribute to scientific literature with the results.

4.1 | Depression, anxiety, and stress levels of healthcare professionals

In the study, it was determined that a significant number of healthcare professionals experienced severe and extremely severe depression, anxiety, and stress. Thus, studies conducted in many countries during the COVID-19 pandemic indicate that healthcare professionals face various psychological symptoms. For instance, studies conducted in China demonstrate that healthcare professionals show very severe mental health symptoms,[26] the stress and anxiety levels they experience are correlated[37] and they have serious problems that continue even after the pandemic.[38] Similarly, studies conducted outside of China reported that healthcare professionals experienced symptoms of stress, depression, and anxiety associated with COVID-19.[39] All these psychological symptoms have also manifested themselves in recent epidemics (SARS, MERS, Ebola, etc.) that healthcare professionals have had to struggle.[22,40] On the contrary, considering the psychological responses of healthcare professionals during the COVID-19 pandemic, it is seen that the coping mechanisms have not been sufficiently improved since the recent experiences. Therefore, the psychological needs of healthcare professionals should be taken into consideration while determining the content of their professional and in-service training in preparation for possible outbreaks in the future. To provide cognitive therapies for the mental health of individuals in epidemics such as COVID 19, psychoeducation such as mindfulness-based cognitive therapy methods can be used on smartphones or computers. Such online platforms can be important for individuals to provide peer support to each other and to share solutions to difficulties.[41] In the globalizing world, all kinds of disasters, epidemics, and social events spread out of their geographies quickly. Globally, these situations cause a mental health hazard. Xiong et al.'s[32] study is a systematic review of the effect on the mental health of the

COVID-19 pandemic in eight countries (China, Spain, Italy, Iran, USA, Turkey, Nepal, and Denmark). And this study is reported to high anxiety, depression, and stress ratios. For this reason, reducing the adverse effects of epidemic diseases on mental health is a priority for countries to address. For this reason, long-term policies should be developed at the national and institutional levels for healthcare professionals in different cultures and communities to be prepared for such situations.

TABLE 3 The comparison of the DASS-42 scores according to the participant characteristics (*N*: 416)

Variables	*n*	DASS_D (*M* ± *SD*)	DASS_A (*M* ± *SD*)	DASS_S (*M* ± *SD*)
Age groups (*M*: 33.6 ± 8.74; *R*: 20–60)				
20–29 years[a]	186	18.24 ± 11.85	13.67 ± 10.06	19.42 ± 11.46
30–39 years[b]	101	15.08 ± 10.86	12.20 ± 9.89	16.98 ± 9.87
≥40 years[c]	129	13.17 ± 10.06	10.00 ± 9.08	14.75 ± 10.17
Test and significance		$F = 8.339$; $p < 0.001^{**}$	$F = 5.414$; $p = 0.005^{**}$	$F = 7.358$; $p < 0.001^{**}$
		a > c	a > c	a > c
Gender				
Female[a]	329	17.22 ± 11.38	13.31 ± 9.93	18.91 ± 10.76
Male[b]	87	10.90 ± 9.40	7.86 ± 8.14	11.60 ± 9.23
Test and significance		$t = 5.331$; $p < 0.001^{***}$	$t = 5.292$; $p < 0.001^{***}$	$t = 6.340$; $p < 0.001^{***}$
		a > b	a > b	a > b
Educational level				
Medical faculty[a]	57	11.39 ± 9.00	8.60 ± 8.56	13.05 ± 9.18
Grad./Post Grad.[b]	292	16.61 ± 11.23	12.68 ± 9.80	18.10 ± 10.86
MVHS/Assoc. D.[c]	67	16.64 ± 12.46	12.99 ± 10.45	17.94 ± 11.49
Test and significance		$F = 5.405$; $p = 0.005^{**}$	$F = 4.472$; $p = 0.012^{*}$	$F = 5.363$; $p = 0.005^{**}$
		b,c > a	b,c > a	b,c > a
Profession				
Nurse[a]	313	16.97 ± 11.41	13.20 ± 10.11	18.41 ± 10.98
Doctor[b]	57	11.39 ± 9.01	8.60 ± 8.56	13.05 ± 9.18
Other[c]	46	14.24 ± 11.54	9.61 ± 7.76	15.74 ± 10.69
Test and significance		$F = 6.643$; $p = 0.001^{**}$	$F = 7.265$; $p = 0.001^{**}$	$F = 6.637$; $p = 0.001^{**}$
		a > b	a > b	a > b
Position				
Manager[a]	106	13.17 ± 9.92	9.48 ± 7.46	15.26 ± 9.69
Staff[b]	310	16.84 ± 11.58	13.09 ± 10.37	18.11 ± 11.16
Test and significance		$t = -3.142$; $p = 0.002^{**}$	$t = -3.870$; $p < 0.001^{***}$	$t = -2.338$; $p = 0.020^{*}$
		b > a	b > a	b > a
Change in the working pattern				
Yes[a]	296	17.01 ± 11.09	13.05 ± 9.86	18.41 ± 10.67
No[b]	120	13.16 ± 11.31	10.01 ± 9.44	14.84 ± 10.96
Test and significance		$t = 3.193$; $p = 0.002^{**}$	$t = 2.885$; $p = 0.004^{**}$	$t = 3.068$; $p = 0.002^{**}$
		a > b	a > b	a > b
Type of change in the working pattern				
Flexible working[a]	98	13.93 ± 10.60	10.86 ± 9.73	15.72 ± 10.24
Increased working hours[b]	127	18.02 ± 11.15	13.98 ± 9.76	19.41 ± 10.22
Other[c]	71	19.48 ± 10.85	14.42 ± 9.86	20.34 ± 11.42
Test and significance		$F = 6.276$; $p = 0.002^{**}$	$F = 3.737$; $p = 0.025^{*}$	$F = 4.951$; $p = 0.008^{**}$
		a < b,c	a < b,c	a < b,c
Giving care to patients suspected of COVID-19				
Yes[a]	299	16.94 ± 11.37	13.02 ± 9.74	18.35 ± 10.75
No[b]	117	13.26 ± 10.63	10.02 ± 9.76	14.90 ± 10.81
Test and significance		$t = 3.021$; $p = 0.003^{**}$	$t = 2.822$; $p = 0.005^{**}$	$t = 2.945$; $p = 0.003^{**}$
		a > b	a > b	a > b

TABLE 3 (Continued)

Variables	*n*	DASS_D (*M* ± *SD*)	DASS_A (*M* ± *SD*)	DASS_S (*M* ± *SD*)
Presence of COVID-19 positive individual in the environment				
Yes[a]	298	17.32 ± 11.54	13.36 ± 10.05	18.69 ± 11.09
No[b]	118	12.32 ± 9.74	9.19 ± 8.58	14.08 ± 9.55
Test and significance		$t = -4.466$; $p < 0.001^{***}$	$t = -4.249$; $p < 0.001^{***}$	$t = -4.229$; $p < 0.001^{***}$
		a > b	a > b	a > b

Note: Only variables that make a significant difference are included in the table.
Abbreviations: Assoc. D., Associate Degree; DASS_A, Anxiety subscale; DASS_D, Depression subscale; DASS_S, Stress subscale; F, one-way analysis of variance; Grad/Post Grad. D., graduate and postgraduate degree; *M*, mean; MVHS, medical-vocational high school; *SD*, standard deviation; *n*, number; *R*, range; *t*, independent-samples *t* test.
$^{*}p < 0.05$.
$^{**}p < 0.01$.
$^{***}p < 0.001$.

4.1.1 | Depression, anxiety, and stress levels of healthcare professionals according to their experience and needs regarding the COVID-19 process

This section discusses the relationship of answers given by healthcare professionals to research questions about their experiences and needs regarding the COVID-19 pandemic with depression, anxiety, and stress levels. According to the results of the research, the majority of the healthcare professionals participating in the study had family members (children, parents, etc.) that they had to look after. The healthcare professionals were worried about these people and complained about not being able to see them, on the contrary, they were afraid of infecting them. In the literature, it is stated that healthcare professionals may have an intense fear of carrying the virus and in some cases, they indeed infected their families, friends, or colleagues with the virus.[22,42] This anxiety can become so serious that an incident in Italy has been reported that a nurse has ended her life with the worry of infecting others.[43]

Research states that healthcare professionals giving care to COVID-19 positive or suspected individuals during the pandemic have a high risk of being infected and this triggers psychological problems.[42] Indeed, in this study, most of the healthcare professionals stated a high risk of being infected and the need for protection. It was determined that what the healthcare professionals participating in the research needed the most were psychological support, PPE, and reliable information about the process. International studies similarly demonstrated that healthcare professionals frequently demand adequate PPE, support for caring family members, and access to up-to-date information.[44] Purgato et al. (2018)[45] emphasize the importance of publishing official updates regularly during times of crisis and following social media to reduce exposure to misleading information. In cases where these requirements are not met, it is stated that the confidence of health professionals in themselves as well as the healthcare system may weaken.[44] Various initiatives in this context have been implemented by the Ministry of Health in Turkey and the public was daily informed by the Minister of Health. In this context, with a notice issued across the country on

TABLE 4 The relationship between DASS-42 scores and participant characteristics (*N*: 416)

Variables	*M* ± *SD* Range	DASS_D *r*	DASS_D *p* Value	DASS_A *r*	DASS_A *p* Value	DASS_S *r*	DASS_S *p* Value
Perceived risk level of COVID-19 in terms of the possibility of infection	7.87 ± 2.05 1–10	0.242	0.000**	0.267	0.000**	0.273	0.000**
Frequency to follow COVID-19 progress and news	8.80 ± 1.66 1–10	0.005	0.919	0.022	0.660	0.038	0.435
Frequency to follow COVID-19 news on social media	8.21 ± 2.20 1–10	0.122	0.013*	0.138	0.005*	0.150	0.002*
Level of confidence in COVID-19 information shared on social media	5.51 ± 2.00 1–10	0.027	0.585	0.014	0.778	0.037	0.452

Abbreviations: DASS_A, Anxiety subscale; DASS_D, Depression subscale; DASS_S, Stress subscale; *M*, Mean; *SD*, standard deviation; *r*, Pearson correlation coefficient.
$^{*}p < 0.05$.
$^{**}p \leq 0.001$.

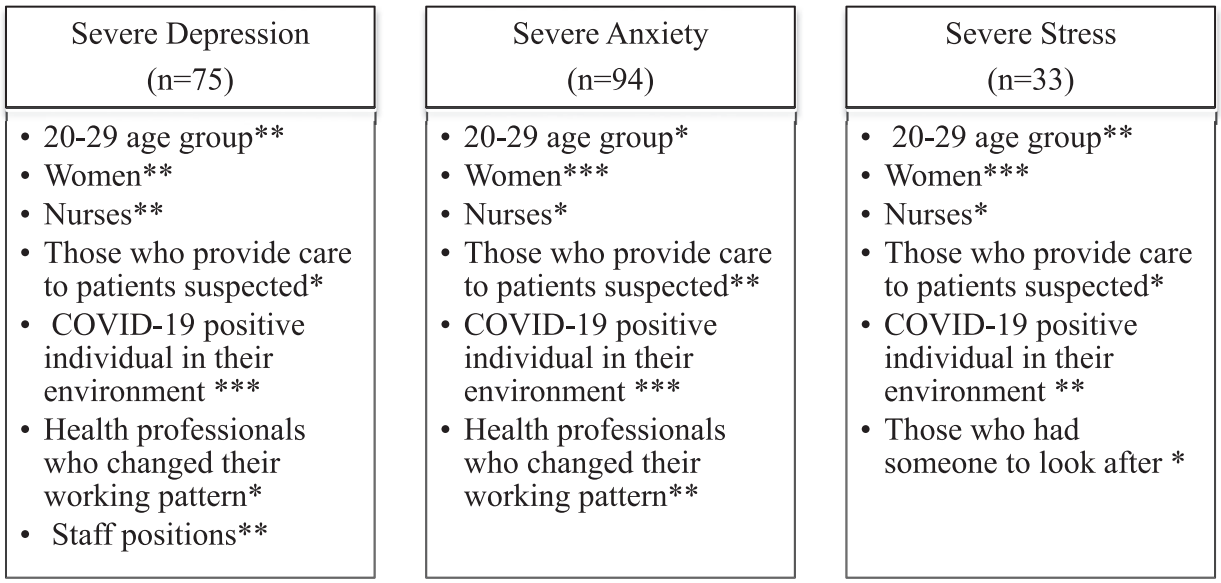

FIGURE 1 The statistically significant characteristic's of the healthcare professionals who had very high-level depression, anxiety, and stress

March 20, 2020, all private and public hospitals that have second and third level intensive care units and at least one staff specialist in infectious diseases and clinical microbiology, internal diseases, or chest diseases were given the status of a pandemic hospital.[46,47] In addition, health professionals were prohibited from resigning from their institutions and their leave and retirement procedures were ceased for 3 months after March 27, 2020.[48] By opening vacancies for 14,500 healthcare professionals within the Ministry of Health, the workload of the workforce in the field has been reduced. With the initiative of civil society organizations and local authorities, various hotels and accommodation facilities were provided for social isolation of healthcare professionals to reduce their anxiety about carrying the virus to their families. In their report published in March 2020, the International Labor Organization reported for providing child care services for working parents in all countries where schools and nurseries have been closed, including Japan, Germany, and Italy.[49]

In addition to national regulations, healthcare organizations have implemented their measures at the institutional level. Under these conditions, the units, working hours, or working patterns of some healthcare professionals have been changed. Though some healthcare professionals have started working longer, some of them have switched to flexible working patterns. However, according to the results obtained from this study, some of these changes negatively affected the psychology of healthcare professionals. It was found that employees who had changes in their working patterns and had to work longer or in shifts had higher DASS scores.

In the literature, it is reported that change in working patterns and alternating shifts include various risks for the wellbeing of employees such as sleep deprivation, increased family stress, and mood swings.[50] Providing intense care for those suspected of COVID-19 and the presence of COVID-19 positive individuals in the environment due to the change in working institution or unit is also significantly affecting factors.[42] reported that healthcare professionals working in high-risk units with infected patients, or having family or friends who have been infected with the virus, have higher PTSD symptoms compared to those not having these experiences.

Apart from regulations regarding work life, personal and professional characteristics of healthcare professionals also made a significant difference in DASS scores. According to the results of this study, young and women employees, nurses and staff had higher scores. Due to the nature of healthcare services, the fact that staff and nurses have more direct contact with patients, and nurses are mostly women, may be effective in this result. It is also possible that healthcare professionals at a younger age are more likely to be affected by the process. In fact, studies in the literature demonstrated that variables such as age, gender, occupation, type of activities, weekly working hours are effective on the psychological status of healthcare professionals.[4,37–39] According to the findings reported in the studies, especially women, those with chronic or psychological diseases, those with a COVID-19 positive patient in their environment,[4,38,39] those with children and longer weekly working hours are at high risk.[37] These studies emphasized the intense pressure and risk factors that the nurses experience due to their professional roles and duties.

One of the points that should be emphasized during the epidemic is to provide reliable information. Besides the roles of traditional and social media platforms in information access, their potential to create disinformation should be taken into consideration. In this study, health professionals' need for reliable information regarding the process is an issue that comes to the fore. The frequency of following the progress and news related to pandemic has been high among healthcare professionals. However, the frequency of following news in traditional media was not found related to DASS component scores. On the contrary, the frequency of following the news in social media, a more free and uncontrollable resource compared to traditional media, increases depression, anxiety, and stress levels, although slightly. It is believed that the triggering effect of social media faded in the later stages of the epidemic with the increase in formal communication channels. In fact, current and accurate information (treatment processes, the local status of the epidemic, etc.) related to the pandemic is reported to be associated with lower levels of stress, anxiety, and depression.[27] During the process, principal institutions at both international (WHO, International Council of Nurses, etc.) and national level (Ministry of Health, Turkish Medical Association, Turkish Nurses Association, Intensive Care Nurses Association, etc.) publish various reports and guides and played an active role in meeting the information needs of health professionals.

5 | CONCLUSIONS

Understanding the sources of stress, anxiety and fear may primarily guide the development of effective approaches to support healthcare professionals. The most reliable information on this issue can be obtained by directly asking and getting the answers. Using this approach, the study aimed to determine the psychological conditions, needs, and variables affecting the healthcare professionals. The results of the study showed that healthcare professionals should be supported educationally to manage extraordinary situations like epidemics. Taking measures to protect the physical and psychological health of professional members and candidates is among the primary duties of both educators and managers.

5.1 | Implications for Nursing Practice

It is very important to meet employees' needs of support to understand and normalize the strong feelings including depression, anxiety, and stress that healthcare professionals experience during the COVID-19 pandemic. Multidisciplinary teams, involving psychiatrists, psychiatric nurses, clinical psychologists, and other mental health professionals, should be established by health authorities to meet their needs for psychological support. Besides, issues including clear and transparent information flow, effective communication, and clear distribution of tasks should be addressed primarily by the managers of health institutions. In this way, it may be possible to eliminate the feeling of uncertainty and fear that cause psychological symptoms in healthcare professionals.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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REFERENCES

1. Madhav N, Oppenheim B, Gallivan M, Mulembakani P, Rubin E, Wolfe N. Pandemics: Risks, impacts, and mitigation. *Disease Control Priorities: Improving Health and Reducing Poverty*. 3rd ed. The International Bank for Reconstruction and Development/The World Bank; 2017.
2. Kim Y. Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. *Am J Infect Control*. 2018;46(7):781–787. https://doi.org/10.1016/j.ajic.2018.01.012
3. Huang L, Ming Xu F, Rong Liu H. Emotional responses and coping strategies of nurses and nursing college students during COVID-19 outbreak. *medRxiv*. 2020:1–17. In press. https://doi.org/10.1101/2020.03.05.20031898
4. Zhu Z, Xu S, Wang H, et al. COVID-19 in Wuhan: immediate psychological impact on 5062 health workers. *medRxiv*. 2020:1–23. https://doi.org/10.1101/2020.02.20.20025338
5. WHO, May 29, 2020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019. Accessed May 9, 2020.
6. Euronews, April 29, 2020. https://tr.euronews.com/2020/04/29/sagl-k-bakan-koca-covid-19-la-mucadelede-gelinen-son-noktay-degerlendiriyor. Accessed May 10, 2020.
7. Ives J, Greenfield S, Parry JM, et al. Healthcare workers' attitudes to working during pandemic influenza: a qualitative study. *BMC Public Health*. 2009;9:56.
8. Seale H, Leask J, Po K, MacIntyre CR. "Will they just pack up and leave?"—attitudes and intended behaviour of hospital health care workers during an influenza pandemic. *BMC Health Serv Res*. 2009;9:30. https://doi.org/10.1186/1472-6963-9-30
9. Borghese L, Di Donato V, Ruotolo N, Fiegender J. Nearly 1 in 10 of Italy's infected are health care workers. *CNN*. March 22, 2020. https://edition.cnn.com/world/live-news/coronavirus-outbreak-03-22-20/h_e27a10efe9dfe61900b2ae658. Accessed May 10, 2020.
10. Gamio L. The workers who face the greatest coronavirus risk. *The New York Times*. March 15, 2020. https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirusworker-risk.html?action=click&module=Top%20Stories&pgtype=Homepage. Accessed May 10, 2020.
11. Ministry of Health, General Directorate of Health Services. 2020. https://dosyamerkez.saglik.gov.tr/Eklenti/36992,covid-19-salgini-suresincepersonel-ayrilislaripdf.pdf?0&_tag1=414F7E70F2963685A3903E3529587A84645DE24E. Accessed May 10, 2020.
12. Stockman F, Baker M. Nurses battling coronavirus beg for protective gear and better planning. *The New York Times*. March 5, 2020. https://www.nytimes.com/2020/03/05/us/coronavirus-nurses.html. Accessed October 5, 2020.

13. Xie J, Tong Z, Guan X, Du B, Qiu H, Slutsky AS. Critical care crisis and some recommendations during the COVID-19 epidemic in China. *Intensive Care Med*. 2020;46:837–840. https://doi.org/10.1007/s00134-020-05979-7
14. Maunder RG, Lancee WJ, Balderson KE, et al. Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerg Infect Dis*. 2006;12(12):1924–1932. https://doi.org/10.3201/eid1212.060584
15. McAlonan GM, Lee AM, Cheung V, et al. Immediate and sustained psychological impact of an emerging infectious disease outbreak on health care workers. *Can J Psychiatry*. 2007;52(4):241–247. https://doi.org/10.1177/070674370705200406
16. Chiang HH, Chen MB, Sue IL. Self-state of nurses in caring for SARS survivors. *Nurs Ethics*. 2007;14(1):18–26. https://doi.org/10.1177/0969733007071353
17. Hope K, Massey PD, Osbourn M, Durrheim DN, Kewley CD, Turner C. Senior clinical nurses effectively contribute to the pandemic influenza public health response. *Aust J Adv Nurs*. 2011;28(3):47. Accessed May 10, 2020.
18. Koh Y, Hegney D, Drury V. Nurses' perceptions of risk from emerging respiratory infectious diseases: a Singapore study. *Int J Nurs Pract*. 2012;18(2):195–204. https://doi.org/10.1111/j.1440-172X.2012.02018.x
19. Chew NW, Lee GK, Tan BY, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun*. 2020;S0889-1591(20):30523–30527. https://doi.org/10.1016/j.bbi.2020.04.049
20. Tan BY, Chew NW, Lee GK, et al. Psychological impact of the COVID-19 pandemic on health care workers in Singapore. *Ann Intern Med*. 2020;173, M20-1083 https://doi.org/10.7326/M20-1083
21. Lee AM, Wong JG, McAlonan GM, et al. Stress and psychological distress among SARS survivors 1 year after the outbreak. *Can J Psychiatry*. 2007;52(4):233–240. https://doi.org/10.1177/070674370705200405
22. Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Compr Psychiatry*. 2018;87:123–127. https://doi.org/10.1016/j.comppsych.2018.10.003
23. Tam CWC, Pang EPF, Lam LCW, Chiu HFK. Severe acute respiratory syndrome (SARS) in Hong Kong in, 2003: stress and psychological impact among frontline healthcare workers. *Psychol Med*. 2003;34(7):1197–1204.
24. Liu N, Zhang F, Wei C, et al. Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: gender differences matter. *Psychiatry Res*. 2020;287:112921. https://doi.org/10.1016/j.psychres.2020.112921
25. Styra R, Hawryluck L, Robinson S, Kasapinovic S, Fones C, Altın WL. Impact on health care workers employed in high-risk areas during the Toronto SARS outbreak. *J Psychosom Res*. 2008;64(2):177–183. https://doi.org/10.1016/j.jpsychores.2007.07.015
26. Lai J, Ma S, Wang Y, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*. 2020;3(3):e203976. https://doi.org/10,1001/jamanetworkopen.2020.3976
27. Wang C, Pan R, Wan X, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health*. 2020;17(5):1729. https://doi.org/10.3390/ijerph17051729
28. Mowbray H. In Beijing, coronavirus 2019-nCoV has created a siege mentality. *Br Med J*. 2020:368. https://doi.org/10.1136/bmj.m516
29. Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res*. 2020;287:112934. https://doi.org/10.1016/j.psychres.2020.112934
30. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behav Res Ther*. 1995;33(3):335–343. https://doi.org/10.1016/0005-7967(94)00075-u
31. Bilgel N, Bayram N. Turkish version of the depression anxiety stress scale (DASS-42): psychometric properties. *Noropsikiyatr Ars*. 2010;47(2):118–126.
32. Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: a systematic review. *J Affect Disord*. 2020;277:55–64. https://doi.org/10.1016/j.jad.2020.08.001
33. Tan W, Hao F, McIntyre RS, et al. Is returning to work during the COVID-19 pandemic stressful? A study on immediate mental health status and psychoneuroimmunity prevention measures of Chinese workforce. *Brain Behav Immun*. 2020;S0889-1591(20):30603–30606. https://doi.org/10.1016/j.bbi.2020.04.055
34. Hao F, Tan W, Jiang L, et al. Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. *Brain Behav Immun*. 2020;S0889-1591(20):30626–30627. https://doi.org/10.1016/j.bbi.2020.04.069
35. WHO. Mental health and psychosocial considerations during the COVID-19 outbreak. March 18, 2020. https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf. Accessed May 09, 2020.
36. Liu S, Yang L, Zhang C, et al. Online mental health services in China during the COVID-19 outbreak. *Lancet Psychiatry*. 2020;7:e17–e18. https://doi.org/10.1016/s2215-0366(20)30077-8
37. Mo Y, Deng L, Zhang L, et al. Work stress among Chinese nurses to support Wuhan for fighting against the COVID-19 epidemic. *J Nurs Manag*. 2020;28:1002–1009. https://doi.org/10.1111/jonm.13014
38. Kang L, Ma S, Chen M, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: a cross-sectional study. *Brain Behav Immun*. 2020;87:11–17. https://doi.org/10.1016/j.bbi.2020.03.028
39. Bohlken J, Schömig F, Lemke MR, Pumberger M, Riedel-Heller SG. COVID-19 pandemic: stress experience of healthcare workers-a short current review. *Psychiatr Prax*. 2020;47(4):190–197. https://doi.org/10.1055/a-1159-5551
40. Park DJ, Dudas G, Wohl S, et al. Ebola virus epidemiology, transmission, and evolution during seven months in Sierra Leone, *Cell*. 2015;161(7):1516–1526. https://doi.org/10.1016/j.cell.2015.06.007
41. Ho CS, Chee CY, Ho RC. Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. *Ann Acad Med Singapore*. 2020;49(3):155–160.
42. Xiang YT, Yang Y, Li W, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry*. 2020;7:228–229. https://doi.org/10.1016/s2215-0366(20)30046-8
43. *Daily Mail*, March 25, 2020. https://www.dailymail.co.uk/news/article-8150503/Italian-nurse-34-kills-testing-positive-coronavirus.html. Accessed September 5, 2020.
44. Shanafelt T, Ripp J, Trockel M. Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *JAMA*. 2020;323:2133. https://doi.org/10.1001/jama.2020.5893
45. Purgato M, Gastaldon C, Papola D, Papola van Ommeren M, Barbui C, Tol WA. Psychological therapies for the treatment of mental disorders in low- and middle-income countries affected by humanitarian crises. *Cochrane Database of Systematic Reviews*. 2018;7:1–12. 10.1002/14651858.CD011849.pub2
46. Medimagazin, March 20, 2020. https://www.medimagazin.com.tr/guncel/genel/tr-saglik-bakanligi-pandemi-hastanesini-tarif-etti-iste-o-kriterler-11-681-87329.html. Accessed May 10, 2020.
47. Ministry of Health, Patient Rights and Medical Social Services Department, 2020. https://hasta.saglik.gov.tr/TR,64565/pandemi-hastaneleri.html. Accessed May 10, 2020.

48. Medimagazin, March 27, 2020. https://www.medimagazin.com.tr/guncel/genel/tr-saglik-calisanlarina-istifa-kisitlamasi-3-ay-boyunca-gorevden-ayrilma-istekleri-karsilanmayacak-11-681-87547.html. Accessed May 10, 2020.
49. International Labour Organization (ILO). COVID-19 and the world of work: Impact and policy responses. March 2020. https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/briefingnote/wcms_738753.pdf. Accessed September 5, 2020.
50. Books C, Coody LC, Kauffman R, Abraham S. Night shift work and its health effects on nurses. *Health Care Manag (Frederick)*. 2017;36(4):347–353. https://doi.org/10.1097/hcm.0000000000000177

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