



ORIGINAL ARTICLE

Determination of stress, depression and burnout levels of front-line nurses during the COVID-19 pandemic

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ABSTRACT: All healthcare professionals, especially nurses, are affected psychosocially due to reasons such as uncertainty and work intensity experienced during the COVID-19 pandemic. In this descriptive study, it was aimed to determine the stress, depression and burnout levels of front-line nurses. Data were obtained from 705 nurses who worked at hospitals during the COVID-19 pandemic between May and July 2020, using a Personal Information Form, the Perceived Stress Scale, Beck Depression Inventory and Maslach Burnout Inventory. The data collection tools were sent online to nurse managers, requesting front-line nurses to answer the forms and scales. The nurses were mostly women and had bachelor's degrees, single and worked as nurses for between 1 and 10 years. They had high levels of stress and burnout and moderate depression. Those who were younger and had fewer years of work experience felt inadequate about nursing care and had higher levels of stress and burnout. More burnout was detected in nurses who had a positive COVID-19 test and did not want to work voluntarily during the pandemic. The authors suggest that preventive and promotive interventions in mental health should be planned and implemented to improve the mental health and maintain the well-being of front-line nurses during the pandemic, and to prepare nurses who may work during pandemics in the future.

KEY WORDS: COVID-19, depression, mental health, nurses, stress.

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INTRODUCTION

Severe acute respiratory syndrome (SARS) cases with unknown aetiology began to appear in Wuhan, China, towards the end of 2019 (Huang *et al.* 2020; Li *et al.* 2020). As a result of the local studies of China and the World Health Organization (WHO), it was confirmed that the pathogen causing this new pneumonia was coronavirus (SARS-CoV-2) and was named as coronavirus disease (COVID-19) (Catton, 2020). With the rapid increase of COVID-19 cases, the WHO identified the situation as a major public health threat (Pan *et al.* 2020). It is known that coronavirus disease affects all human body systems physiopathologically, especially the immune and respiratory system, which also causes negative social, economic and psychological effects (Badahdah *et al.* 2020). The sociologic effects of coronavirus disease include communication problems in the family, increased smoking and domestic violence and economic effects including the inability to work during quarantine and dismissal, and psychological effects include stress, anxiety, loneliness, depressive symptoms and burnout (Badahdah *et al.* 2020; Clay & Parker, 2020).

Among all healthcare professionals, nurses play an extraordinary role in combating COVID-19, which turned into a pandemic in a short time. During the pandemic, nurses, who spent intensive efforts by risking their lives in emergency departments, infection control units, intensive care units and COVID-19 patient wards, demonstrated their commitment to their profession and patients (Catton, 2020). In Wuhan, where the cases were first seen, nurses struggled with intensive work, insufficiency of resources and uncertainty. Therefore, it has been reported that nurses' levels of stress and fear increase with time, and they are affected psychologically during the pandemic. Further, they experience burnout due to uncertainty and intense work, and sometimes show insomnia and depressive symptoms (Pappa *et al.* 2020; Badahdah *et al.* 2020). Despite the COVID-19 pandemic, nurses suppressed these symptoms, used health or maladaptive coping mechanisms and performed well beyond their capacity during the pandemic. In the study conducted by Lai *et al.* (2020) in China, the rate of depression in healthcare professionals was 50%, anxiety 45% and insomnia 34% (Lai *et al.* 2020). In another study conducted by Badahdah *et al.* (2020) with 509 physicians and nurses, the rate of severe anxiety was found as 25.9% and high stress was 56.4% (Badahdah

et al. 2020). In another study conducted by Kang *et al.* (2020) with 994 health professionals, 36.9% of symptoms were identified as mental health disturbances (Kang *et al.* 2020; Xiang *et al.* 2020).

During the pandemic, nurses can be subjected to social isolation, discrimination and loneliness by others, besides the intense work stress. Living in isolation from family members and loved ones, working in high-risk areas and providing care to infected individuals may cause traumatic effects in the future (Kang *et al.* 2020b). Emotional and psychological problems with high stress negatively affect nurses' future cognitive functions and clinical decision-making processes. As a result, the risk of harm to patients and an increase in malpractice conditions are also a matter of concern (Xiang *et al.* 2020).

Nurses are constantly faced with stressful situations that cause emotional exhaustion while managing complex care and treatment processes. Particularly during the COVID-19 pandemic, it was seen that working for long periods in an environment with a high level of stress and uncertainty, relocating nurses' units or wards and increasing workload caused nurses to experience burnout more rapidly (Drennan & Ross, 2019). In addition, the incompatibility between the ideal expectations of the nursing profession and the situations encountered in real life also brings about burnout (Woo *et al.* 2020). Nurses experiencing burnout may display depressive and stressful symptoms, insomnia and problems with concentration and memory, which are very important in the clinical units (Pradas-Hernández *et al.* 2018).

Acute stress that occurs during the pandemic affects the general population. However, individuals working during the pandemic are more affected by stress and have difficulty in trying to maintain their well-being. Therefore, the mental health status of nurses who provide care during the COVID-19 pandemic becomes an important issue that needs to be addressed (Zhu *et al.* 2020).

Study aim

In this study, it was aimed to determine the stress, depression and burnout levels of front-line nurses during the COVID-19 pandemic. Consequently, the mental health status of nurses will be examined, which will make a positive contribution to the literature in preparing nurses psychologically who take part in this pandemic and future pandemic, and to organize preventive mental health services.

Research questions:

- What is the stress level of front-line nurses during the COVID-19 pandemic?
- What is the depression level of front-line nurses during the COVID-19 pandemic?
- What is the burnout level of front-line nurses during the COVID-19 pandemic?

METHODS

Design

This study was conducted in a cross-sectional and descriptive design.

Sample

The research was conducted to determine the stress, depression and burnout levels of front-line nurses working in nine education and research, three public, two university and five private healthcare institutions where COVID-19 cases were admitted between May and July 2020. Research questions were sent online via e-mail to the nurse managers of institutions/hospitals owing to the COVID-19 pandemic, and the participation of nurses working in their institutions was ensured. In all the institutions where the data were collected, 1830 nurses were working in COVID-19 units/wards. The sample comprised 713 nurses who agreed to participate and met the research criteria in the study in Istanbul. While reviewing the participants' data, eight nurses' forms that had missing data were excluded and statistical analysis was performed with 705 nurses. Only the participants accessed the research questions, and only the researchers had access to the data. Voluntary participation and data confidentiality were emphasized.

No personal information was requested from the participants. In studies that allow making later changes on the answer forms, the online Google form requires the person to enter their IP address manually (by filtering the IP addresses so that the most recent data can be accepted as current). In the present study, the IP address of the person was not requested because changes were not allowed on the answer forms. Thus, only the date/time information and the answers given to the questions after giving informed consent could be displayed. Apart from this, no other personal information was displayed.

Data collection

- 1. Personal Information Form:** The personal information form, which was created by the researchers in line with the literature, consisted of 19 questions about the sociodemographic characteristics of the individuals (6 questions) and the COVID-19 pandemic (13 questions).
- 2. Perceived Stress Scale (PSS):** The purpose of the PSS, developed by Cohen et al. (1983), is to measure how stressful an individual perceives events in daily life. The Turkish validity and reliability study was conducted by Eskin *et al.* (2013). The scale, which also includes the short forms called the PSS-4 and PSS-10, consists of 14 items and is a 5-point Likert type. The evaluation of the items ranges from 0 to 4 and is scored as 'Never = 0' and 'Very often = 4'. In the scale, items 4, 5, 6, 7, 9, 10 and 13 are scored in reverse. Scores that can be taken from the scale are between 0 and 56. High scores indicate that the individual's perceived stress level is high. The Cronbach alpha coefficient of the scale is 0.84 for the PSS (Eskin *et al.* 2013). In this study, the Cronbach alpha Coefficient for PSS was 0.85.
- 3. Beck Depression Inventory (BDI):** The BDI was developed by Aaron T. Beck et al. in 1978 and adapted into Turkish by Hisli in 1988. Its purpose is to measure the severity of the symptoms of depression occurring in an individual. The scale consists of 21 items in a 4-point Likert type and is scored between 0 and 3. The lowest score that can be obtained from the scale is 0, the highest score is 63; high scores indicate severe depression. In Hisli's study, the Cronbach alpha coefficient of the scale was 0.80 (Hisli, 1988; Hisli, 1989); in this study, it was 0.90.
- 4. Maslach Burnout Inventory (MBI):** The scale was developed by Maslach and Jackson (1981) and was adapted into Turkish by Ergin (1992). The purpose of the MBI is to determine levels of burnout. The scale consists of three subdimensions and 22 items and is in a 5-point Likert type. The evaluation of the scale is made as 'Never = 0' and 'Always = 4'. Scores from 0 to 32 can be obtained in the scale for the personal accomplishment subdimension, 0–20 for the depersonalization subdimension and 0–36 for the emotional exhaustion subdimension. Personal accomplishment measures an individual's feelings of worthless,

depersonalization means a negative and mocking attitude towards others, and emotional exhaustion means that the individual feels tired and worn out. The higher the level of burnout, the lower the score from personal achievement, and the higher score from both emotional exhaustion and depersonalization. The Cronbach alpha coefficients of the subdimensions of the scale were 0.67, 0.72 and 0.83, respectively (Ergin, 1992; Duygun, 2001). In this study, the Cronbach alpha coefficient was found as 0.90 for personal achievement, 0.76 for depersonalization and 0.89 for emotional exhaustion.

Data analysis

Statistical analysis of the study was performed using the Statistical Package for the Social Sciences v. 24.0 software package (SPSS – IBM Corporation, New York, NY, USA). For descriptive analysis, percentage, average, frequency, minimum-maximum values, mean and standard deviation were used. Normal distribution was examined using the Kolmogorov–Smirnov and Shapiro–Wilk tests. For normally distributed data, an independent sample *t*-test was used for comparisons of independent two groups, and one-way analysis of variance (ANOVA) was used for comparisons of more than two independent groups. For non-normally distributed data, the Mann–Whitney *U* test was used for comparisons of two independent groups, and the Kruskal–Wallis *H* test was used for comparisons of more than two independent groups. The Levene variance homogeneity test was used to evaluate the significance between the above two groups, and the significance between groups was evaluated using one-way ANOVA post hoc advanced analysis. Results were evaluated at 95% confidence intervals and a significance level of $P < 0.05$.

Ethics

For research authorization, first, an application was made to the COVID-19 Scientific Research Platform under the Republic of Turkey Ministry of Health, General Directorate of Health Services on 1 May 2020 (No.: 2020-05-01T01_48_02), and the required approval was obtained. In addition, ethical approval was given by the University Non-Interventional Ethics Committee on 28 May 2020 (Decision No.: 2020/40-01). Before administering the research questions, an online informed consent form was created, which included an explanation of the research's purpose and the use and protection of personal data for scientific

research. All participants were first asked to read the explanation carefully, and then, their consent for the study was obtained by ticking the 'yes' box to indicate their willingness.

RESULTS

Table 1 shows the participants' sociodemographic/descriptive characteristics. The average age of the participants was 27.9 ± 6.5 years. Seventy-nine per cent of them were women, 57.4% were undergraduates, 66.5% were single, and 76.9% had no children. It was found that 75.2% had worked between 1 and 10 years and 37.2% worked in private hospitals.

The characteristics of the nurses' working situations during the COVID-19 pandemic are given in Table 2, and the most answered questions are summarized. It was determined that the participants worked for an average of 44.4 ± 24.1 days during the pandemic. Some 70.9% of the nurses lived alone at home, 36.0% worked in adult COVID-19 wards, and 48.1% worked day-night shifts equally. The majority (56.9%) of the nurses found that the isolation precautions taken in their institution/unit were sufficient, but 63.8% stated that it was difficult to find personal protective equipment. Some 60.9% regarded themselves as competent in patient care during the pandemic. Despite the isolation precautions, 86.2% were afraid about infecting themselves and/or others; 58.4% were tested for COVID-19 and 86.7% were negative; 83.1% stated that one of their colleagues had tested positive for COVID-19. At this time, 55.7% agreed to volunteer and 80.6% did not intend to quit. During the pandemic, the participants stated that the most difficult issue to deal with was coping with mental problems (25.5%).

Table 3 includes the means and standard deviations obtained from the scales. The participants' total PSS mean score was 31.4 ± 8.7 , and the total BDI mean score was 16.0 ± 9.4 . The mean score of the MBI personal achievement subdimension was 11.4 ± 5.0 , the depersonalization subdimension mean score was 7.3 ± 4.5 , and the emotional exhaustion subdimension mean score was 18.9 ± 8.5 .

In Table 4, the comparison of the mean scale scores with the participants' characteristics is given.

In the participants' mean scores of PSS, there was no significant difference between them in terms of sex, volunteering and COVID-19 test results ($P > 0.05$). According to the participants' scores of PSS, those who worked for less than a year, employees in public hospitals and nurses who felt inadequate in their nursing

care experienced significantly more stress than their counterparts who had worked for longer, those who worked in other institutions and those who felt competent, respectively ($P < 0.05$). It was found that health-care professionals in public hospitals perceived stress more than those working in private hospitals, training and research hospitals, and university hospitals. When the nurses' feelings about whether their nursing care was adequate were examined, the mean PSS scores of those who did not feel adequate were significantly higher. As a result of the post hoc analysis, it was determined that nurses who felt inadequate in nursing care had higher perceived stress compared with nurses who felt competent.

The nurses' mean scores of BDI were compared in terms of sex, the working years, institution type, feelings of being self-sufficient while providing care and volunteering during the COVID-19, and there was no significant difference between them ($P > 0.05$). Nurses who had a high school degree and tested positive for COVID-19 exhibited more symptoms of depression ($P < 0.05$).

The participants' mean scores from the MBI personal accomplishment subdimension were compared, and there was no significant difference in terms of sex,

institution type and COVID-19 test results ($P < 0.05$). Nurses who had a high school degree and worked for 21 years and over, felt hesitant about the nursing care they provided, wanted to work voluntarily during the COVID-19 pandemic and felt more worthless ($P < 0.05$).

The participants' mean scores of the MBI depersonalization were compared, and there was no significant difference in terms of sex and nurses who felt inadequate about their nursing care ($P > 0.05$). Nurses who had a bachelor's degree and worked in a public hospital for between 1 and 10 years were more desensitized ($P < 0.05$). The mean scores of nurses who do not want to work voluntarily and had tested positive for COVID-19 were statistically significantly higher ($P < 0.05$).

The mean scores of the participants' MBI emotional exhaustion were compared, and there was no significant difference in feeling adequate about nursing care ($P > 0.05$). Nurses who were male, had a bachelor's degree, worked at a public hospital and had between 1- and 10-year experience had more emotional exhaustion ($P < 0.05$). Moreover, during the COVID-19 pandemic, nurses who did not want to work voluntarily and tested positive for COVID-19 felt more tired and distressed than others ($P < 0.05$).

TABLE 1: The participants' sociodemographic/descriptive characteristics ($n = 705$)

Variables	<i>n</i>	%
Sex		
Male	148	21.0
Female	557	79.0
Education Status		
High School	196	27.8
Graduate (Bachelor of Science degree)	405	57.4
Postgraduate (Master of Science and/or doctorate)	104	14.8
Marital Status		
Single	469	66.5
Married	236	33.5
Do you have children?		
Yes	163	23.1
No	542	76.9
How many years did you work as a nurse?		
Less than a year	51	7.2
1–10 years	530	75.2
11–20 years	88	12.5
21 years and above	36	5.1
What is the type of institution you work for?		
Public hospital	214	30.4
Private hospital	262	37.2
Education and research hospital	39	5.5
University hospital	190	27.0

DISCUSSION

It was determined that most of the participants were female and had bachelor's degrees, single, and their working period was between 1 and 10 years. The majority of the participants were women because in Turkey before 2007 only women could apply to be nurses. The reason why most of the nurses had bachelor's degrees is that nurse education has been university-based since 2007 in our country (Legal Gazette – Turkey, 2007). Also, the reason why most of them were single may be because the participants were young.

The study focuses on the levels of stress, depression and burnout of nurses who provide care during the COVID-19 pandemic. During the pandemic, there are also studies evaluating other psychosocial parameters such as anxiety and insomnia in healthcare workers (Pappa *et al.* 2020; Zhan *et al.* 2020). According to the findings of the study conducted by the International Council of Nurses (ICN) with the data of 30 countries, it was determined that 90,000 healthcare professionals were infected, and more than 260 nurses died due to COVID-19. When the statistical interpretation of the study is made globally, it is predicted that 6% of the infected cases are healthcare professionals (ICN, 2020).

TABLE 2: Introductory characteristics of participants' working situations during the COVID-19 pandemic (n = 705)

Variables	n	%
Which unit/ward/department do you work?		
Emergency department/ outpatient clinic	100	14.2
Adult intensive care unit	221	31.3
Adult inpatient ward	254	36.0
Child intensive care unit or inpatient ward	130	18.4
During the COVID-19 pandemic, which shift did you work?		
Mostly night shifts	194	27.5
Mostly day shifts	172	24.4
Day-night shift equally	339	48.1
Do you find the isolation precautions adequate during working at the COVID-19 units/wards?		
Yes	401	56.9
No	304	43.1
Have you had difficulty finding personal protective equipment?		
Yes	255	36.2
No	450	63.8
Do you find yourself competent in patient care during the pandemic?		
Yes	429	60.9
Undecided	234	33.2
No	42	6.0
Where did you stay during the COVID-19 pandemic?		
At home – alone	500	70.9
At home – with family	74	10.5
Accommodation provided by the institution, e.g. hotel, dormitory	119	16.9
At home – with friends and/or colleague	12	1.7
Did you fear infecting your family with coronavirus during this period?		
Yes	608	86.2
No	97	13.8
Have you been tested for COVID-19?		
Yes	412	58.4
No	293	41.6
If done, your COVID-19 test result (n = 412)		
Positive	55	13.3
Negative	357	86.7
Did you have a colleague (e.g. nurse, physician, technician) who tested positive for COVID-19?		
Yes	586	83.1
No	119	16.9
Would you volunteer to work during the COVID-19 pandemic?		
Yes	393	55.7
No	312	44.3
Have you thought about quitting during the COVID-19 pandemic?		
Yes	137	19.4
No	568	80.6
What problem did you experience most frequently during the COVID-19 pandemic? (n = 576)		
Fear of infecting myself or my family	96	16.7
Intense workload	76	13.2
Uncertainty and lack of information about COVID-19	85	14.8
Mental health problems (e.g. anxiety, anger, stress)	147	25.5
Problems of teamwork and hospital administration	94	16.3
Problems with equipment and patient care	78	13.5

TABLE 3: Distribution of means and standard deviations obtained from scales (n = 705)

Scales	n	Min.	Max.	Mean ± SD	Number of items
Perceived stress scale	705	0.0	56.0	31.4 ± 8.7	14
Beck depression inventory	705	0.0	63.0	16.0 ± 9.4	21
Maslach burnout inventory					
Personal accomplishment	705	0.0	32.0	11.4 ± 5.0	8
Depersonalization	705	0.0	20.0	7.3 ± 4.5	5
Emotional exhaustion	705	0.0	36.0	18.9 ± 8.5	9

In this study, it was found that the rate of those who had COVID-19 tests was 58.4%. Among those, 13.3% were positive, parallel with the current literature. The study contributes to the literature for planning psychosocial interventions that can be performed to healthcare professionals working at the front line.

In the literature, women are more likely to be at risk psychosocially than men (WHO, 2019). The fact that nurses, who account for a large proportion of healthcare professionals, are mostly women, increases this risk (Mo *et al.*, 2020). Zhang *et al.* found that female nurses caring for patients with COVID-19 had higher levels of stress and depression (Zhang *et al.* 2020). In this study, no statistically significant difference was found when the data were compared in terms of sex with stress, depression, personal achievement and depersonalization subdimensions of the MBI. This may be related to uncertain information about COVID-19. However, in terms of sex, it was determined that the mean emotional exhaustion subdimension scores of the MBI were significantly higher in men than in women. In the literature, it was seen that emotional exhaustion was higher in women than in men (El Ghaziri *et al.* 2019; Woo *et al.*, 2020). The reason why the result of this study was not in line with the literature is that the majority of the participants were women.

The long duration of uncertainty in sudden events such as disasters and/or pandemics affects the stress level of individuals. In this study, stress levels were found to be higher in those who had just started their professional lives during the COVID-19 pandemic, those working in government institutions, and in nurses who felt inadequate regarding their nursing care. Studies showed that the symptoms of stress, depression and

TABLE 4: Comparison of the mean scale scores with the participants' characteristics (n = 705). The data were statistically significant (p<0.05) are bold

Variables	Perceived Stress Scale (PSS)		Beck Depression Inventory		Maslach Burnout Inventory (MBI)					
					Personal Accomplishment		Depersonalization		Emotional Exhaustion	
	Mean ± SD	U P	Mean ± SD	U P	Mean ± SD	U P	Mean ± SD	U P	Mean ± SD	U P
Sex										
Female	31.5 ± 8.9	40.78	16.0 ± 9.6	40.24	11.4 ± 5.1	40.49	7.1 ± 4.4	37.30	18.6 ± 8.6	36.31
Male	31.2 ± 8.0	0.845	16.2 ± 8.9	0.658	11.5 ± 4.6	0.741	7.9 ± 4.8	0.070	20.2 ± 8.4	0.026
Education Level										
High School	31.9 ± 8.9	1.008†	17.0 ± 8.8	6.178†	11.0 ± 4.7	2.275†	6.9 ± 4.1	2.139†	18.2 ± 8.3	3.546†
Graduate	31.3 ± 8.6	0.604	15.9 ± 9.8	0.041	11.6 ± 5.2	0.032	7.6 ± 4.7	0.034	19.4 ± 8.6	0.017
Postgraduate	31.2 ± 9.0		15.0 ± 9.2		11.5 ± 5.0		7.1 ± 4.5		18.3 ± 9.0	
How many years did you work as a nurse?										
Less than a year	32.3 ± 9.9	23.51†	19.4 ± 9.8	7.558†	11.2 ± 5.2	18.58†	7.3 ± 4.1	10.96†	19.3 ± 8.7	11.47†
1–10 years	32.2 ± 8.0	<0.001	16.0 ± 9.4	0.056	11.7 ± 4.9	<0.001	7.6 ± 4.5	0.012	19.4 ± 8.4	0.009
11–20 years	29.4 ± 9.7		15.3 ± 10.0		10.7 ± 5.2		6.5 ± 5.1		16.6 ± 8.9	
21 years and above	24.5 ± 10.6		14.2 ± 7.8		8.7 ± 5.0		5.7 ± 4.0		16.3 ± 8.6	
What is the type of institution you work for?										
Public Hospital	35.5 ± 7.7	14.74†	15.2 ± 9.2	6.973†	11.3 ± 4.4	0.890†	10.6 ± 4.4	17.75†	22.3 ± 7.2	63.29†
Private Hospital	33.1 ± 7.4	<0.001	16.9 ± 9.6	0.073	11.3 ± 4.8	0.828	6.8 ± 3.9	<0.001	18.7 ± 7.9	<0.001
Education & Research Hospital	26.9 ± 8.3		13.5 ± 7.3		11.3 ± 6.5		5.4 ± 3.4		17.8 ± 9.8	
University Hospital	25.6 ± 8.0		16.3 ± 10.0		11.8 ± 5.6		4.7 ± 3.3		15.6 ± 9.2	
Do you find yourself competent in patient care during the pandemic?										
Yes	30.9 ± 8.7	7.131†	16.0 ± 10.1	2.389†	11.5 ± 5.2	1.612†	7.1 ± 4.6	4.627†	18.4 ± 8.9	5.001†
Undecided	32.2 ± 8.4	0.028	15.8 ± 8.5	0.303	11.1 ± 5.0	0.044	7.6 ± 4.5	0.099	19.5 ± 8.1	0.082
No	33.5 ± 9.9		17.6 ± 8.3		11.9 ± 3.9		8.1 ± 3.9		21.1 ± 7.1	
Would you volunteer to work during the COVID-19 pandemic?										
Yes	31.7 ± 8.6	58.71	16.6 ± 9.8	57.19	11.1 ± 5.2	56.01	7.2 ± 4.5	58.68	18.3 ± 8.6	55.64
No	31.2 ± 8.8	0.334	15.4 ± 9.0	0.125	11.8 ± 4.8	0.048	7.5 ± 4.5	0.032	19.7 ± 8.5	0.035
COVID-19 test result (N:412)										
Positive	32.2 ± 8.6	87.03	18.4 ± 8.9	77.96	11.1 ± 4.6	96.76	7.3 ± 4.5	91.61	18.6 ± 9.3	95.57
Negative	30.6 ± 8.8	0.175	15.4 ± 9.0	0.014	11.3 ± 5.0	0.864	6.9 ± 4.6	0.042	18.3 ± 8.6	0.045

†χ² Chi-square test; Kruskal–Wallis H test, One-way ANOVA, Post hoc: Tamhane's T2 test, P < 0.05

anxiety were higher in healthcare professionals compared with society; healthcare professionals and those working in the administrative units of the hospital were monitored for stress levels, as well as symptoms such as anxiety, depression and insomnia, and it was found that they were more common in healthcare professionals (Liu *et al.* 2020a; Pappa *et al.* 2020; Zhang *et al.* 2020). In the studies conducted by Huang and Zhao (2020) and Lai *et al.* (2020), stress levels were found to be high in healthcare professionals who just started to work and those at young ages (Huang & Zhao, 2020; Lai *et al.* 2020). Most of the time, nurses live isolated in separate places in order not to infect their relatives/families during the COVID-19 pandemic (Mo *et al.* 2020). This situation can be expected to negatively affect the psychosocial status of nurses. In Dai *et al.* (2020) study conducted in Wuhan, it was stated that

the stress rate of front-line healthcare professionals living in isolation from their relatives was 39.1% (Dai *et al.* 2020). The level found in this study is high and is in line with the findings in the literature.

In two studies conducted in China, it was observed that healthcare professionals experienced high levels of severe depression (Lai *et al.* 2020; Liu *et al.* 2020a). Lu *et al.* (2020) found that the anxiety and depression levels of healthcare professionals working in areas with high risk for COVID-19 were higher than in other individuals working in hospitals, but not as healthcare professionals, and also healthcare professionals working in areas with low risk for COVID-19 (Lu *et al.* 2020). In a study conducted by Ni *et al.* (2020) with 214 healthcare professionals, it was found that the anxiety and depression rates of healthcare professionals were higher than in the general population (Ni *et al.* 2020).

In this study, the level of depression was evaluated using the BDI and the mean scale score was 16.0 ± 9.4 , which was evaluated as mild depression (Smarr & Keefer, 2011). The presence of mild depression symptoms may become severe in the future. The levels of depression in the present study are unlike other studies in the literature. It is thought that the reason of mild depression seen in the participants of this study may be because the data were collected within a short time from the onset of the COVID-19 pandemic.

Exposure to stress in business life over an extended period is defined as burnout, a psychological, emotional and physical stress condition seen in individuals because of work. Individuals who experience burnout over time begin to think of exhaustion in emotional terms, have negative thoughts about their professional skills and abilities, and negative attitudes towards patients. In the study, it was found that nurses who did not feel sufficient about the nursing care experienced personal accomplishment burnout, those who worked in public hospitals and tested positive for COVID-19 experienced depersonalization burnout, and also male nurses who worked in public hospitals and tested positive for COVID-19 experienced emotional exhaustion burnout. However, it was observed that Bachelor's graduates, those who had worked for between 1 and 10 years, and nurses who did not want to work voluntarily during the pandemic had higher scores from the sub dimensions of the MBI (personal accomplishment, emotional exhaustion, depersonalization); in other words, they were more negatively affected. When the studies conducted with healthcare professionals during COVID-19 are examined, in the Jalili *et al.* study (2020), the burnout rate was 53%; in the Hu *et al.* study (2020), the emotional exhaustion rate was 60.5%, depersonalization was 42.3%, and personal accomplishment was 60.6% (Jalili *et al.* 2020; Hu *et al.* 2020). Wu *et al.* (2020) found that nurses working in COVID-19 wards experienced more burnout in the field of personal success compared with nurses working in other wards (Wu *et al.* 2020).

It is known that nurses, who are mentally, emotionally and spiritually strong, play a critical role both in the prevention of transmission and in the nursing care of patients during global pandemics such as COVID-19 (Jackson *et al.* 2020). In this study, we aimed to determine the stress, depression, and burnout levels of front-line nurses who risked their own lives for the recovery of sick individuals. Qualitative studies have been conducted on the subject.

Nurses expressed their anxiety as follows:

'Although I have worked in the Department of Infectious Diseases, a lot of knowledge still needs to be learned because this is a new infectious disease. We also need to train new colleagues. I feel anxious.' (Sun *et al.* 2020).

'I am very tired and stressed when I am working in the infection ward, but I can barely help the patients. . .and then we are overworked, which is physically tiring' (Tan *et al.* 2020).

'...And the other thing is fear, fear of everything, of being infected, of infecting the people around you, and of an outbreak of the virus...' (Tan *et al.* 2020).

They expressed their concerns for their relatives as follows:

'I have set aside life and death, but I am worried about the children and the elderly in the family...' (crying)' (Sun *et al.* 2020).

Although nurses mentioned their difficult moments in professional life in the studies, they showed that they were aware of their professional responsibilities with the following statements:

'Saving lives is the responsibility of nurses and I like this profession more' (Sun *et al.* 2020).

'First-line work involves facing many difficulties, addressing urgent tasks in an orderly manner, and playing a strong organizational and coordination role...' (Tan *et al.* 2020).

'We must try our best to win this battle. As healthcare providers, we are at the forefront. I fight for my family, and I fight more for this society' (Liu *et al.* 2020b).

In line with the information in the literature, it is seen that nurses should be strengthened during the pandemic. Issues such as fear of transmission, stress, anxiety and maintaining mental well-being should be handled carefully. In particular, inappropriate coping strategies that individuals can develop for these issues can make the process more difficult in the future. As a result of a study conducted in China after the SARS pandemic, it was found that alcohol abuse and dependence among healthcare workers increased (Wu *et al.* 2008).

It may be suitable for nurses to benefit from mindfulness and/or cognitive behavioural therapy during the pandemic (Alikhani *et al.* 2020; Greenberg *et al.* 2020). In addition, mental health hotlines should be used to provide psychosocial support to healthcare professionals working in COVID-19-related fields (Chen *et al.* 2020). In Turkey, the Istanbul Provincial Health

Directorate launched the Mental Health Program for Coronavirus (KORDEP) as of April. The programme provides psychosocial counselling and mental health services by phone or online for people affected by the COVID-19 pandemic, especially healthcare professionals (Turkey Ministry of Health, 2020). With these interventions, it is predicted that the quality of nursing care will increase as a result of the psychosocial strengthening of nurses (Xiao *et al.* 2020).

Limitations

The stress levels measured in the study are limited to measurements obtained using the PSS developed by Eskin *et al.* (2013), the depression measured in the study is limited to the measurement obtained using the BDI developed by Hisli (1988;1989), and the burnout level measured in the study is limited to the measurement obtained using the MDI developed by Ergin (1992). One of the other limitations is that the research data were collected at the beginning of the COVID-19 pandemic in Turkey, so sufficient time should be allowed to elapse for the emergence of depressive symptoms. It is recommended to conduct quantitative and qualitative studies with nurses who have been caring for COVID-19 patients for a longer period.

CONCLUSION

As a result of the study, which defined the psychosocial experiences of front-line nurses' during COVID-19, high levels of stress and burnout, and moderate depression were determined. Nurses' psychological and social experiences should be determined during the COVID-19 pandemic. It is important to realize this destruction in nurses, especially considering that the pandemic will be a long process. It is emphasized that to improve the mental health of nurses and to maintain their well-being, psychological interventions, individually and/or within groups, should be planned and performed immediately. Making mental healthcare plans and conducting psychological interventions will be an important investment in terms of maintaining the mental health and well-being of nurses for possible pandemics in the future.

RELEVANCE FOR CLINICAL PRACTICE

This study has implications for better understanding the front-line nurses' well-being and mental health during the COVID-19. The findings of this study are nurses' stress, and burnout level found high, and

depression level found mild/moderate during the COVID-19. The research findings show that taking care of patients during pandemics like COVID-19 affects all the health care professionals particularly nurses. Practical suggestions for improvement nurses' mental health are monitoring the mental health parameters of nurses, also, providing some services such as child care or home care for seniors to help nurses in daily life. This might support nurses in dealing with psychological, sociological and emotional problems that are faced in pandemics.

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