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Determination of the Relationship between Stress and Burnout Levels in Nurses in the Covid-19 Pandemic

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Abstract

Objectives: This research was conducted as a descriptive cross-sectional study to determine the perceived stress and burnout levels of nurses in the Covid-19 pandemic.

Methodology: The universe of the research consists of 140 nurses working in the pandemic service and intensive care units of a city hospital. No sample calculation was made in the study, and all nurses who agreed to participate in the study were included in the sample. Number of nurses participating in the present study was 121 and the participation rate in the study was 86.42%. The data were collected between 01-31 May 2020 and the study was completed between 3 May and 30 July 2020. The data were collected from the participants using a personal information form, Maslach Burnout Inventory and Perceived Stress Scale.

Results: When the burnout score averages of the nurses were evaluated in the study, emotional high levels of exhaustion, depersonalization and personal achievement and nurses experienced severe emotional exhaustion. The mean score of the perceived stress scale of the nurses participating in the study was 32.96±4.76. In this study, a positive and moderately significant relationship was found between perceived stress and burnout level.

Conclusions: It was found as a result of the present study that nurses perceived stress and burnout levels were also high in the Covid-19 pandemic. It is important to measure the stress and burnout among nurses because their well-being has effects on the stability of the health work force and the quality of care provided.

Keywords: Nurses; Covid-19; Respiratory system

Introduction

Epidemics affect societies negatively in terms of social, economic and psychological aspects. Like other epidemics, the Covid-19 pandemic has had profound effects on the world [1]. Covid-19 virus first appeared in Wuhan city of China and is a public health problem that affects other countries over time and causes a pandemic.SARS-CoV-2 is a respiratory system disease and is transmitted through droplets. This virus, which spreads through droplets, spreads to different

areas of the body as a result of contact with the eye, nose and mouth mucous membranes of individuals [2]. Variables such as proximity of contact, duration of contact with the virus, use of protective equipment, and the amount of viral load in the secretions of the sick individual affect the transmission of the virus [3].

The SARS-CoV-2 virus has affected many working groups, institutions and organizations around the world, but the group most affected by this process has been healthcare professionals. As this process occurred acutely, it caught the health system physically and socially unprepared. While millions of people stay at home to reduce the risk of transmission, healthcare workers, on the contrary, are exposed to high risk to combat the pandemic [4].

Changes in working conditions due to the pandemic, increases in working hours, increased workload and struggle with an unknown disease away from routine cause work-based anxiety in nurses.

It is seen that nurses show signs of burnout due to the stress experienced [5]. In this process, covid-19 disease is constantly increasing among healthcare workers due to the fight against non-routine diseases, the density of hospitals, the absence of isolation rooms, and busy working hours. Health professionals are concerned about infecting family members, especially the elderly and infants with low immunity. The increase in hospital density and the presence of people who do not want to comply with the rules cause anxiety and stress. Staying in protective equipment for a long time, having difficulty in breathing and not meeting physical needs on time cause mental and physical exhaustion among nurses [6].

These negative conditions experienced during the pandemic process show that healthcare professionals experience mental health problems such as depression, anxiety, insomnia, anxiety, anger, and burnout. These situations experienced by nurses became inextricable and many people resigned and this caused negativities in the health system [7].

Although the epidemic seems to have been brought under control with the decrease in the number of cases, the physical and mental health of people has been affected by these adverse conditions, and it is predicted that this effect will cause many problems. Burnout is a basic concept that affects nurses' professionalization levels and professional lives. In addition, burnout syndrome increases the risk of medical errors. During the epidemic, nurses are at higher risk of contracting infection than the general population, and the possibility of burnout with life risks is high [8].

Elbay, et al. concluded that nurses experience depression, anxiety and stress. In addition, it was concluded that the stress, anxiety and depression symptoms of the nurses who were female, single, had an increase in working hours, had less work experience, and had a low level of social support, increased in this process [1]. In a study conducted in Wuhan, it was reported that health workers experienced burnout due to the high risk of infection, tiring and intense working conditions, isolation measures, discrimination, intervention with patients with negative emotions, and the necessity of contacting family members [9]. Erdoğan and Hocaoğlu concluded that during the covid-19 pandemic, some of the nurses preferred not to go to work due to the fear of being infected while following and treating the patients and exhibited avoidance behavior [6].

Hu, et al. during the COVID-19 outbreak in Wuhan, In the cross-sectional study in which nurses working in the ranks were examined in terms of burnout, anxiety and depression, 60.5% of the nurses experienced emotional exhaustion, 42.3% depersonalization, and 60.6% work burnout in the personal achievement sub-dimension.61% of the participants did not care for a patient with a contagious disease before. In the study, it was seen that nurses reported high levels of anxiety and depression in this period [10].

Colleague solidarity is the support of colleagues to each other and professional. In this sense, it is defined as the sharing of knowledge, technique and skills. Nurses often state that they need support in their work environment. It is emphasized that this support can be primarily from the management and colleagues. Nurses, who feel that they are supported, feel strong and sufficient and experience less burnout and stress [11].

Methods

Type of Study

This research was conducted as a descriptive cross-sectional study to determine the stress and burnout levels of nurses in the Covid-19 pandemic.

The Universe and Ample of the Study

The universe of the research consists of 140 nurses working in the pandemic service and intensive care units of a city hospital.

The Sample of the Research

No sample calculation was made in the study, and all nurses who agreed to participate in the study were included

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in the sample. Number of nurses participating in the present study was 121 and the participation rate in the study was 86.42%.

Collection of Research Data

The data were collected between 01-31 May 2020 and the study was completed between 3 May and 30 July 2020.The data were collected from the participants using a questionnaire through face-to-face interview technique.

Personal information form prepared by the researchers, "Maslach Burnout Inventory" which was developed by Christina Maslach and Susan Jackson in 1986 [12] and whose Turkish adaptation, validity and reliability study was conducted by Ergin in 1992 and "Perceived Stress Scale" which was developed by Kamarck and Mermelste in 1983 and adapted to Turkish by Eskin et al. in 2013 were used as data collection tools [13].

Although the original version of the Maslach Burnout Inventory consisting of 22 items is a 7-point Likert scale, the scale was adapted to a 5-point Likert type scale in the adaptation study conducted by Ergin considering that it was not suitable for Turkish culture. The questions are responded based on their severity as 1-Never, 2-Rarely, 3-Sometimes, 4-Mostly, 5-Always. Maslach Burnout Inventory is composed of 3 subscales; emotional burnout, depersonalization, and personal accomplishment. High scores taken from the emotional burnout and depersonalization subscales and low scores taken from the personal accomplishment subscale indicate that the employees are in a burnout state. In the Turkish adaptation study of the Maslach Burnout Inventory, Cronbach's alpha coefficients were calculated as 0.83 for emotional burnout subscale, 0.65 for depersonalization subscale and 0.72 for personal accomplishment subscale [13].

Perceived Stress Scale consisting of 14 items is used to measure how stresful certain situations are perceived in a person's life. The participants rate the scale items by evaluating them as Never (0), Almost never (1), Sometimes (2), Quite often (3) and very often (4). A high score refers to a high stres perception of a person. In the Turkish adaptation study, Cronbach's Alpha coefficient of the scale was calculated as 0.84 [14].

In the study, Cronbach's Alpha coefficient of the Maslach Burnout Inventory was calculated as 0.86 for emotional burnout subscale, 0.78 for the depersonalization subscale, and 0.76 for Personal accomplishment subscale. For the Perceived Stress Scale, the Cronbach's Alpha value was found as 0.74.

Analysis of Data

Data entry and analysis were made using the SPSS for Windows 25.0 statistical package program. Normality distribution for quantitative variables was tested with Kolmogorov-Smirnov test (p> 0.05). Chi-square test and Fisher's exact test were applied appropriately for categorical variables. Depending on the suitability condition, the continuous variables between two groups were compared with Student's t-test or Mann-Whitney U test. In the comparison of more than one group, Kruskal Wallis Test was applied.

Ethics of Research

Ethics committee approval was obtained from the non-interventional clinical research ethics committee of a university in order to conduct the study (2020-104/42).

Institutional permission was obtained from the institution where the research was conducted (62949364-754). The purpose of the research was written on the form prepared digitally and volunteerism was taken as basis. This study was conducted in accordance with the Principles of the Declaration of Helsinki.

Findings

Of the nurses, 88.3% were female, 60.3% were married, 48.7% had children 54.3% were living with their families, 22.3% were living alone, 14.3% were living with roommates, and 9.0% were living in a dormitory. 27 (23.3%) of the nurses had chronic diseases. 59.3% of the nurses had RT-PCR test from respiratory tract samples for COVID-19 disease while they did not have any symptoms.

Scale Sub-Dimensions	Ort ± SD	Min	Mak
Emotional burnout	28.4±6.97	2	35
Depersonalization	16.35±4.08	2	15
Personal accomplishment	21.8±4.20	5	31
Perceived Stress Scale	32.96±4.76	18	53

Table 1: Evaluation of Maslach Burnout İnventory Subscale and Perceived Stress.

Table 1 represents evaluation of Maslach burnout inventory subscale scores among the nurses. The mean emotional exhaustion score of the nurses was 28.4±6.97 (min=2, max=35) and depersonalization mean score of 16.35±4.08 (min=2, max=15) and personal. The mean achievement score was determined as 21.8±4.20 (min=5, max=31). When the burnout score averages of the nurses

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were evaluated in the study, emotional high levels of exhaustion, depersonalization and personal achievement and nurses experienced severe emotional exhaustion. The mean score of the perceived stress scale of the nurses participating in the study was 32.96±4.76. The minimum score is 18 and the maximum score is 53.

Table 2 presents evaluation of the Maslach burnout inventory subscale and Perceived stress scale scores of the healthcare professionals according to their demographic characteristics. A statistically significant difference was determined between the cases' scores from the Emotional burnout subscale of the Maslach Burnout inventory according to gender. This difference is caused by the higher scores of women from the emotional burnout subscale compared to men (p=0.041). Perceived stress scale scores were statistically significantly higher in women compared to men (p<0.001). Healthcare professionals with a chronic disease had statistically significantly higher scores of perceived stress scale compared to those without any chronic disease (p=0.022) (Table 2) (Mann-Whitney U test and Kruskal Wallis test were applied).

		Mean±SD	Median(min-max)	P*
Gender				
Emotional burnout	Female	24.82±7.63	25 (11 –44)	**0.041**
	Male	22.82±8.29	23 (9 –44)	
Depersonalization	Female	10.08±3.39	10 (5 –20)	0.713
	Male	10.09±3.92	9 (5 –22)	
Personal accomplishment	Female	28.40±3.99	29 (18 –37)	0.121
	Male	29.18±5.37	29 (8 –40)	
Perceived Stress Scale	Female	33.51±3.80	34 (18 –43)	**<0.001**
	Male	31.65±5.50	31 (16 –53)	
Marital Status				
Emotional burnout	Married	24.50±8.18	25 (9 –44)	0.24
	Single	23.64±7.81	23 (9 –44)	
Depersonalization	Married	10.09±3.74	9 (5 –21)	0.871
	Single	10.08±3.54	10 (5 –22)	
Personal accomplishment	Married	29.10±5.02	29 (8 –40)	0.285
	Single	28.47±4.33	29 (8 –38)	
Perceived Stress Scale	Married	33.12±4.76	34 (16 –48)	0.052
	Single	32.48±4.60	32 (18 –53)	
Presence of Children				
Emotional burnout	Yes	23.62±8.69	24 (9–43)	0.771
	No	24.13±7.66	23 (9 –44)	
Depersonalization	Yes	9.74±3.96	9 (5 –21)	0.108
	No	10.22±3.47	10 (5 –22)	
Personal accomplishment	Yes	29.41±5.44	29 (8 –40)	0.111
	No	28.45±4.23	29 (8 –38)	
Perceived Stress Scale	Yes	32.91±4.89	34 (16 –42)	0.165
	No	32.66±4.58	33 (18 –53)	
People living with				
Emotional burnout	Alone	23.07±8.19	25 (9–37)	0.379
	Family	25.10±7.93	25 (9 –44)	
	Roommate	20.03±7.86	18 (9 –44)	
	Dormitory	22.10±6.79	22 (9–40)	

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Depersonalization	Alone	10.89±4.15	11 (5 –19)	0.117
	Family	10.37±3.46	10 (5 –22)	
	Roommate	8.09±2.90	7 (5 –16)	
	Dormitory	9.63±4.01	9 (5 –21)	
Personal accomplishment	Alone	27.21±5.29	28 (8 –34)	0.696
	Family	28.45±4.13	29 (8 –38)	
	Roommate	30.51±5.14	31 (19 –39)	
	Dormitory	29.80±5.58	29 (21–40)	
Perceived Stress Scale	Alone	33.09±3.65	34 (25 –41)	0.115
	Family	32.87±4.70	33 (16 –48)	
	Roommate	31.45±5.82	31 (18 –53)	
	Dormitory	33.50±4.71	33 (20–43)	
Presence of a chronic disease				
Emotional burnout	Yes	22.41±8.73	21,5 (12 – 41)	0.221
	No	24.12±7.89	24 (9 –44)	
Depersonalization	Yes	9.54±3.41	9 (5 –17)	0.462
	No	10.13±3.63	10 (5 –22)	
Personal accomplishment	Yes	29.97±3.38	29 (23 –37)	0.316
	No	28.64±4.71	29 (8 –40)	
Perceived Stress Scale	Yes	34.79±4.13	34 (26 –48)	**0.022**
	No	32.56±4.67	33 (16 –53)	

Table 2: Evaluation of Maslach Burnout Inventory Subscale and Perceived Stress Scale Scores According to Demographic Characteristics.

Table 3 shows evaluation of Maslach Burnout inventory subscale and Perceived Stress Scale scores according to the voluntary follow-up of COVID-19 disease, status of receiving training and testing status. The scores of the healthcare professionals working voluntarily in COVID-19 service from the Personal accomplishment subscale of the Maslach Burnout Scale were determined to be statistically significantly higher than the employees who did not work voluntarily (p=0.040). Although they did not have any disease symptom, the scores of the healthcare professionals, who tested for COVID-19 disease, from the Emotional burnout and depersonalization subscales of the Maslach Burnout inventory, were found to be statistically significantly higher (p=0.025 and p=0.017, respectively). Additionally, perceived stress scale scores of these healthcare professionals were statistically significantly higher (p=0.044) (Table 3) (Mann-Whitney U test was applied).

		Mean±SD	**Median(min-max)**	**P***
Gender				
Emotional burnout	Female	24.82±7.63	25 (11 –44)	**0.041**
	Male	22.82±8.29	23 (9 –44)	
Depersonalization	Female	10.08±3.39	10 (5 –20)	0.713
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Presence of Children				
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	Roommate	31.45±5.82	31 (18 –53)	
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Presence of a chronic disease				
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Perceived Stress Scale	Yes	34.79±4.13	34 (26 –48)	**0.022**
	No	32.56±4.67	33 (16 –53)	

Table 3: Evaluation of Maslach Burnout Inventory Subscale and Perceived Stress Scale Scores According to the Voluntary Follow-Up Of COVID-19 Disease, Status of Receiving Training and Testing Status.

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In this study, a positive and moderately significant relationship was found between perceived stress and burnout level. Accordingly, it can be said that as the perceived stress level increases, the level of burnout will also increase (Table 4).

Scales	r	p
Perceived Stress Scales		
Maslach Burnout Scales	0.45	**0.000**

Table 4: Correlation between Perceived Stress Scale and Maslach Burnout Scale.
**p<0.05

Discussion

The study focuses on the levels of stress and burnout of nurses who provide care during the COVID-19 pandemic. It was revealed in the present study that working in COVID-19 pandemic also caused emotional burnout in nurses as well as factors such as excessive workload, increased responsibility, and insufficient self-care which were the strongest determinants of emotional burnout. DuringCOVID-19pandemicperiod, healthcare professionals have to work at an intense pace and under the risk of transmitting infection. During this process, nurses have faced many situations that would increase their stress and burn outlevels. In the literature, it was determined that nurses have a high level of stress in many different countries during the COVİD-19 pandemic [15,16].

Nursing is stressful and emotionally demanding with patient cares requiring a lot of effort, limited time and over workload. Besides, the business resources are often insufficient to cope with these demands effectively [17]. Therefore, nurses are particularly susceptible to burnout. In two European epidemiological studies, it was reported that burnout affected approximately 25% of all nurses. In the literature, it was determined that the occupational group having the highest burnout level among healthcare professionals was nursing [18].

Kaya et al., found that emotional burnout and stress levels of female healthcare professionals working in the primary care were higher compared to men [19]. In the literature, it was seen that emotional burnout was higher in women than in men [20]. The similar result that was also found in the present study can be explained by the fact that while women are expected to suppress their emotions, men are allowed to release negative emotions, especially under heavy working conditions and stress. Another reason may be that most of the participants were women.

Stress scale scores of nurses having a chronic disease were found to be higher compared to those without any disease. It is known that the presence of a chronic disease in COVID-19 infection negatively affects the prognosis. Especially, hypertension, diabetes mellitus, chronic obstructive pulmonary disease and malignancy have been found to increase the death risk [21,22]. It is believed that the COVID-19 transmission risk and more severe course of the infection in the presence of a chronic disease may have an effect on high stress levels in nurses. On the other hand, during the COVID-19 outbreak, healthcare workers have developed psychological problems such as depression, anxiety, stress, posttraumatic stress disorder (PTSD), and poor sleep quality, which, in turn, are significantly associated with physical symptoms such as headache, lethargy, fatigue, etc [23,24]. Nurses, like other healthcare workers, have had psychological crises and mental health issues, necessitating hospitals to provide psychological support, train them on coping mechanisms, improve their ability to control and regulate their emotions, and provide assurance that the COVID-19 pandemic will eventually come to an end. Furthermore, frontline nurses who were not trained for COVID-19 or who worked part-time reported a higher fear of COVID-19, which, in turn, was associated with increased psychological distress, decreased job satisfaction, and increased professional and organizational turnover intents [25].

It was determined that the emotional burnout, depersonalization, and stress levels of the nurses, giving test from the respiratory tract samples without COVID-19 infection symptoms, were higher as expected.

Various studies on the healthcare professionals showed that both situational factors (for example, professional role, and organization) and demographic factors (for example, age, marital status, and education) can contribute to burnout [26,27]. In the present study, when the marital status, having children status, people living with and receiving training about COVID-19 disease were considered, they were seen not to affect emotional burnout, depersonalization, and personal accomplishment or stress levels. Burnout and job satisfaction of having children.

When the effect on it is examined; childless the average score of the Maslach Burnout Scale was found to be high in individuals. Since many nurses have preferred to live alone during pandemic period apart from their home and the people they live with, it is believed that these demographic characteristics do not affect their burnout and stress levels.

It has been shown that there is a correlation between the excessive workload, uncertainty of job description, conflict between professional groups, emotional burnout and depersonalization. However, personal accomplishment

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was not found to have an effect on burnout. It was concluded in the present study that working voluntarily in pandemic services was effective in the high personal accomplishment feelings of healthcare professionals. This explains that lack of previous experience, knowledge, training, and education lead to poor response and application of precautionary and preventive measures of COVID-19 and to psychopathology and mental health problems. Frontline healthcare workers who directly diagnose, treat, and care for COVID-19 patients, particularly nurses in emergency and critical care settings, reported higher levels of burnout, psychological burden, and COVID-19-related psychopathology [28].

This study found positive correlations between burnout and stress. Our study was in concordance with earlier studies.

Conclusion and Recommendations

During the COVID-19 pandemic, the workload of the nurses increased even more, since they are in direct contact with COVID patients, their risks of being infected increased and they had a difficult process both physically and mentally. It was found as a result of the present study that their stress and burnout levels were also high in this period. It is important to measure the burnout among nurses because their well-being has effects on the stability of the health work force and the quality of care provided.

Efforts and measures should be undertaken to reduce job-related stress and burnout during the emergence of contagious diseases. Furthermore, administrative, psychological, and emotional support during pandemic disease should be ensured, as should stress management programs and hospital resources for the treatment of corona diseases. Furthermore, universal evidence suggests adopting multipronged evidence-based strategies to address burnout, such as Protection Motivation Theory (PMT) hence, efforts should be made to reduce stress and burnout by promoting and enhancing positive coping strategies and mechanisms based on previous experiences that successfully enhanced resilience against pandemic.

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