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Mental Health Problems in Renal Nurses During COVID-19 Pandemic

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ABSTRACT

Background: *The most important factor in fighting the pandemic is to ensure the physical and mental health of healthcare workers. Studies have found serious stressors experienced by hemodialysis nurses but report less burnout than other nurses.* ***Objectives:*** *Determining the mental distress of hemodialysis nurses during the pandemic is important in determining the necessary precautions. The objective of the study is to determine the psychological complaints of hemodialysis nurses during the pandemic.* ***Participants:*** *The participants of the study are hemodialysis nurses who work in different provinces in Turkey. The data of the participants who volunteered to participate in the study were collected in 3 months between April to June 2020.* ***Measurements:*** *Beck Anxiety Inventory was used to measure the frequency of anxiety symptoms experienced by the individual. Beck Depression Inventory was used to measure behavioral manifestations of depression. Maslach Burnout Inventory was used to measure burnout in the workplace. The Perceived Trauma Coping Scale was used to evaluate the perception of coping with the traumatic life.* ***Results:*** *In our study, we found BAI mean score was 13.42 ± 11.28, BDI mean score was 11.88 ± 9.57, Maslach emotional exhaustion mean score was 15.74 ± 8.19, Maslach depersonalization mean score was 4.96 ± 3.70, and Maslach personal failure mean score was 8.95 ± 4.50. Finally, the mean PACT trauma score was 63.05 ± 12.78, the mean future PACT score was 36.34 ± 8.65, and the mean PACT elasticity score was 71.94 ± 17.67.* ***Conclusion:*** *The findings of the study show the importance of improvements to be made in reducing the depression and burnout levels of nursess.*

Keywords: Renal, COVID, Nurses psychology, Nurses mental health

INTRODUCTION

Healthcare workers who have been working on the frontline since the outbreak of the pandemic are at great pressure and risk of infection. Factors such as lack of knowledge about COVID-19, high education level, having an infected family member or friend, especially the fear of being infected with the virus to himself and his colleagues, were found to be associated with increased anxiety levels [1]. Factors such as "infection stigma" towards healthcare workers, difficult ethical and moral decisions are made for patients due to insufficient resources, and fatigue as a result of long hours spent under personal protective equipment cause nurses to experience serious internal conflicts in this period [2]. Particularly, nurses are known to have a critical role during past outbreaks such as SARS and Ebola [3]. In these respects, it is underlined that one of the most important factors in fighting the pandemic is to ensure the physical and mental health of healthcare workers [4].

Hemodialysis nurses are actively involved in the treatment of patients receiving regular dialysis treatment due to kidney failure. Hemodialysis nursing, which requires special training and experience, is generally carried out in hemodialysis units, which are a very busy and crowded environment [5]. After the pandemic, the functioning of hemodialysis units has also been greatly affected. Patients with kidney failure, defined as a risk group in terms of COVID-19, need to be physically present in hemodialysis units to maintain their body functions [6]. It is very difficult to create the social distance environment required for protection from COVID-19 in hemodialysis units, so 35%-84% infection rates have been reported in dialysis unit workers. Also, COVID-19 infection was less common in patients who were on dialysis at home [7]. In pandemic conditions, it is difficult to maintain a balance between providing a good nursing service and

keeping dialysis patients safe. It is stated that it may be important to switch to home dialysis, use personal protective equipment, carry out follow-up visits with telemedicine, and keep the communication within the team intact [8].

Nurses in Turkey were found to have high levels of anxiety and depression [9]. These results seem to be consistent with the high level of depression and anxiety detected in nurses working in different countries of the World [10,11]. For this reason, interventions to protect the mental health of healthcare professionals are underlined [12]. It has been shown that improving the working conditions of nurses, mindfulness-based meditations, online group therapies, and training psychiatric nurses in this respect have been beneficial [13]. Studies on healthcare workers are useful for determining appropriate policies and identifying necessary psychological well-being interventions [2]. It is known that the mortality of the patients that hemodialysis nurses are responsible for is high in terms of COVID-19 [14]. For this reason, we think that they work in a stressful environment in terms of both their health and the patient group they work with, and therefore they face the risk of experiencing serious mental problems. Studies have found serious stressors experienced by nurses working in hemodialysis units, but renal nurses report less burnout than other nurses. Therefore, it is known that hemodialysis nurses are generally good at coping with workplace stressors [15]. We think that determining mental distress in this population is important in defining the necessary interventions.

In our study, we aimed to determine the psychological complaints associated with COVID-19 in hemodialysis nurses. We investigate the hypothesis that anxiety, depression, and burnout levels are high in hemodialysis nurses, and there is a negative relationship between the perception of coping with trauma and these psychological parameters. In addition, we aim to determine whether social and physical conditions are effective in psychological complaints in hemodialysis nurses.

METHOD

Participants and Study Design

The authors have attempted to reach the hemodialysis nurses who work in different provinces in Turkey. A study form prepared on Google forms was sent to the hemodialysis nurses *via.* social media and mail groups. The data of the participants who volunteered to participate in the study were collected in 3 months between April 2020 and June 2020. At the beginning of the study, participants' online consent was obtained with a consent form containing information about the study. Only the complete forms by participants have been included in the study.

Measurement Tools

Sociodemographic data form: Sociodemographic data form questions basic information such as age, gender, marital status, medical history, smoking, and alcohol use. In addition to these, we aimed to question the mental effects of COVID-19, and its relation to several parameters such as maintaining healthcare service, approval from society, fear of infection, and infecting other people.

Beck Anxiety Inventory (BAI): It measures the frequency of anxiety symptoms experienced by the individual. It is a Likert-type self-rating scale scored between 0 and 3, consisting of 21 items. The higher the total score, the higher the anxiety experienced by the person. It has been designed by Beck, et al., and the validity and reliability study in Turkish was developed by Ulusoy, et al. [16,17]. The results are evaluated as follows: 8-15 points: mild anxiety, 16-25 points: moderate anxiety, 26-63 points: severe anxiety.

Beck Depression Inventory (BDI): It was developed by Beck, et al. to measure the behavioral symptoms of depression [18]. It is designed to measure the severity of depression and to monitor changes with treatment. Depression-specific behaviours and symptoms were described, and each sentence was scored between 0 and 3. It consists of 21 items and the items are listed from mild to severe. Patients are asked to mark the statements that best describe their current condition, and the result is obtained by the sum of the scores. The result of the scale is interpreted as 0-9: minimal, 10-16: mild, 17- 29: moderate, 30-63: severe. The Turkish validity and reliability study of the scale was conducted by Hisli, et al. [19].

Maslach Burnout Inventory (MBI): This scale, which is used to measure burnout in the workplace, was developed by Maslach and Jackson [20]. MBI is a seven-point Likert-type scale; this measurement tool comprises 22 items and three subscales. Subscales: 1. Emotional Exhaustion: This sub-dimension of the scale expresses the feelings of being consumed by one's job or occupation and being overburdened. 2. Depersonalization: This sub-dimension of the scale

defines the deprivation of emotion towards the people to whom the person serves, without considering that the people concerned are peculiar beings. 3. Personal Failure: This sub-dimension of the scale expresses the feelings of the person working with people to overcome the situation with sufficient success [21]. Its Turkish validity and reliability study with its three dimensions was conducted by Ergin [22].

Perceived Ability to Cope with Trauma Scale (PACT): It is a 5-point Likert-type scale developed by Bonano, et al. to evaluate the perception of coping with traumatic life [23]. The scale is composed of 20 items that ask participants to rate their ability to use different coping strategies on a 7-point scale (1=not at all able, 7=extremely able). Factor analysis that has been made by Bonanno, et al. indicated the presence of two subscales: Forward Focus and Trauma Focus. Forward Focus (12 items, α=0.91) was explained as the component that defines coping abilities related to maintaining plans and goals, attending to the needs of others, being optimistic, staying calm, reducing painful emotions, and being able to laugh. The Trauma Focus subscale (eight items, α=0.79) examines the ability to experience the emotional and cognitive significance of a possible traumatic event. These subscales were independently related to better adjustment, and each scale moderated the effect of trauma exposure. Last, flexibility is another sub-dimension of PACT that is calculated by the difference between the sum and the polarity of the other two subscales. The validity and reliability study of the Turkish adaptation made by Ari, et al. [24].

Data Analysis

The compliance of the variables to normal distribution was examined using histogram graphics and the Kolmogorov-Smirnov test. Mean, standard deviation, and median values were used while presenting descriptive analyses. Categorical variables were compared using the Pearson Chi-Square Test. In cases where the data did not show normal distribution, groups of 2 were evaluated with the Mann Whitney U test, and groups more than 2 were evaluated with the Kruskal-Wallis test. Spearman Correlation Test was used in analysing the measurement data with each other. The situations where the p-value was less than 0.05 were evaluated as statistically significant results.

Ethical Considerations

The study was performed following the declaration of Helsinki and approval for this study was obtained from the Clinical Research Ethics Board of İstanbul Education and Research Hospital (26/06/2020-2454). The board decided that the need for informed consent was not necessary.

RESULTS

A total of 129 people, 111 females (86.05%) and 18 males (13.5%) participated in the study. The average age of the participants was determined as 27.80 (± 7.48). The average number of children owned was 0.3 (± 0.7), the average number of people living in the same household was 4.12 (± 2.88), and the average length of professional experience was 69.58 months (± 212.47). The socio-demographic characteristics of the participants are detailed in Table 1.

Table 1 Socio-demographic characteristics of participants

		n	%
Gender	Female	111	(86.05)
	Male	18	(13.95)
Marital Status	Single	87	(67.44)
	Married	33	(25.58)
	Divorced	5	(3.88)
	Other	4	(3.10)
Living with	Alone	10	(7.75)
	Nuclear Family	70	(54.26)
	Extended Family	5	(3.88)
	Housemate	25	(19.38)
	Other	19	(14.73)

Smoking	No	73	(56.59)
	Yes	56	(43.41)
Change in The Amount of Smoking After COVID-19	Decrease	10	(7.75)
	Same	97	(75.19)
	Increase	22	(17.05)
Alcohol Consumption	No	125	(96.90)
	Yes	4	(3.10)

When the psychiatric backgrounds of the participants and the variables associated with COVID-19 were questioned, 16 of the participants (12.4%) had a history of psychiatric disorders, whereas 113 people (87.60%) did not. Considering the diagnoses of psychiatric disorders in the medical history, 6 people had Anxiety Disorder, 5 people had Major Depression, 1 person had Obsessive Compulsive Disorder and 1 person had Bipolar Disorder. Eleven people had a family history of psychiatric disorders. While 4 people had a history of suicide before the COVID-19 pandemic, 2 people had attempted suicide after the COVID-19 pandemic. While 60 people (46.51%) said that they were given enough information about COVID-19, 63 people (48.84%) said that they were partially given and 6 people (4.65%) stated insufficient information. While he said that he could reach enough materials while working with 62 people, 58 people stated that he could partially reach and 9 people stated that they could not reach enough materials. Also, 28 people had physical illnesses. Access to personal protective equipment was found to be 62 (4.65%), 58 (44.96%), and 9 (6.98%), respectively, as sufficient, partially sufficient, and insufficient.

When examining whether there were people with COVID-19 in the family of the participants, it was found that 8 people (6.2%) had COVID-19 in their family, 4 of them were followed up on an outpatient clinic, 3 were treated in the inpatient service, and 1 person was treated in intensive care. In addition, 8 of its participants stated that a relative died due to COVID-19. During the pandemic process, some participants changed their physical contact with their families. 11 people (8.53%) did not fully isolate themselves, 40 people (31.01%) said that they lived in the same environment but reduced contact, 20 people (15.50%) said that they lived in a different environment, but they met with their family, and 58 people (44.96%) said that they completely isolated themselves.

During the pandemic period, 94 (72.87%) of the participants were actively continuing to provide healthcare services. The results of the psychological factors such as fear of getting sick, fear of infecting someone else, being affected by the appreciation of the society, the possibility of seeking psychological help, and the effect of the pandemic on their personal development are given in Table 2.

Table 2 Factors that mentally affect the participants

		n	**%**
Providing Health Care	No	35	(27.13)
	Yes	94	(72.87)
Mental Difficulty during Health Service	No	30	(23.26)
	Partially	52	(40.31)
	Reasonable	32	(24.81)
	High	15	(11.63)
Fear of Infection	No	17	(13.18)
	Partially	62	(48.06)
	Yes	50	(38.76)
Community Appreciation	No	51	(39.53)
	Partially	45	(34.88)
	Yes	33	(25.58)

Being Affected by the Lack of Appreciation	No	50	(38.76)
	Partially	42	(32.56)
	Yes	37	(28.68)
Fear of Infecting Someone	No	23	(17.83)
	Partially	59	(45.74)
	Yes	47	(36.43)
Psychological Consultation or Help	No	35	(27.13)
	Partially	47	(36.43)
	Yes	47	(36.43)
Personal Development	Negative	37	(28.68)
	Same	45	(34.88)
	Positive	47	(36.43)

Evaluation of the Scale Results Used in our Study Gives the Following Results

BAI mean score was 13.42 ± 11.28, BDI mean score was 11.88 ± 9.57, Maslach emotional exhaustion mean score was 15.74 ± 8.19, Maslach depersonalization mean score was 4.96 ± 3.70, and Maslach personal failure mean score was 8.95 ± 4.50. Finally, the mean PACT trauma score was 63.05 ± 12.78, the mean future PACT score was 36.34 ± 8.65, and the mean PACT elasticity score was 71.94 ± 17.67. The mean BAI scores mean BDI scores, mean scores of the MBI and its subscales, and the mean scores of the PACT and its subscales were compared with non-parametric variables. The variables that were found statistically significant as a result of the analyses made with the Mann-Whitney U test were as follows: In the comparison made by gender, the mean BAI mean scores were found to be higher in women (14.52) than men (6.61) (p=0.002). In the comparison made according to smoking, the mean BAI scores of non-smokers (14.75) were found to be higher than those of smokers (11.68) (p=0.002). BDI mean scores of those who provide healthcare services (12.76) were found to be higher than those who did not (9.51) (p=0.034). The average BDI score was found to be higher in patients with a family history of psychiatric disorders (20.00) than those without (11.12) (p=0.006), again, the average BAI score was found in those with a family history of psychological disorders (20.64) compared to those without (12.75) was higher (p=0.058). The mean PACT future score was higher in those with a medical illness history (39.29) compared to those without a medical illness (35.52) (p=0.051).

The comparisons in which significant results were detected on the Kruskal-Wallis Test were as follows; In the comparison made according to marital status, the mean PACT future score was found to be higher in divorced patients (44.20) than in those who were married (33.85) (p=0.047). PACT flexibility mean scores were found to be higher in divorced patients (88.40) than married ones (66.61) (p=0.038). In the comparison made according to whom they live with, the Maslach personal failure means score was found to be lower in those living alone (9.50) than those living with a nuclear family (9.03) and those living with others (10.00) (p=0.030).

BDI mean score was higher (p=0.004) in those with insufficient PPE (17.11) than those with partially (13.28) and sufficient PPE (9.81). The mean BAI score was found to be lower in those who think they have no mental difficulty in providing health services (8.60) than those who think they have partial (13.04), reasonable (17.75), and high difficulties (15.13) in providing health services (p=0.002). Similar results have been obtained from BDI scores: the mean BDI score was found to be lower in those who think that there is no mental difficulty (8.63), those who think it is partially (10.54), those who think they have reasonable difficulty (16.19), and those who think they always have difficulty (13.80) (p=0.007). The comparison of groups affected by the feeling of not being appreciated enough by society and those who were not affected are given in Table 3. The mean BDI scores of those who had the fear of transmitting the disease to their relatives (10.79) were lower than those who partially survived (11.42) and those who did not (15.26) (p=0.0046).

Table 3 Comparison of groups according to the state of being affected by the appreciation of the society

	The feeling of not being appreciated enough from the society									p-value
	No			Partially			Yes			
	Mean	S.D.	Median	Mean	S.D.	Median	Mean	S.D.	Median	
BAI Score	11.44	± 11.93	7.00	11.95	± 8.75	10.50	17.76	± 12.02	14.00	0.009
BDI Score	10.36	± 10.65	8.50	12.38	± 8.23	11.00	13.35	± 9.42	13.00	0.136
MBI-EE	16.12	± 8.43	17.50	13.62	± 7.77	13.00	17.62	± 8.02	19.00	0.085
MBI-D	5.24	± 3.36	5.00	4.05	± 3.67	2.50	5.62	± 4.07	5.00	0.067
MBI-PF	8.50	± 3.66	8.00	9.60	± 5.84	9.00	8.81	± 3.75	9.00	0.639
PACT-TF	65.36	± 13.24	68.00	61.26	± 14.00	65.00	61.97	± 10.33	63.00	0.172
PACT-FF	37.76	± 10.07	37.00	36.02	± 7.71	33.50	34.78	± 7.39	35.00	0.277
PACT-F	74.44	± 20.50	74.00	71.05	± 16.35	66.00	69.57	± 14.78	70.00	0.434

Kruskal-Wallis Test, S.D.: Standart Deviation, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, MBI-EE: Maslach Burnout Inventory-Emotional Exhaustion, MBI-D: Maslach Burnout Inventory-Depersonalization, MBI-PF: Maslach Burnout Inventory-Personal Failure, PACT-FF: Perceived Ability to Cope with Trauma Scale-Forward Focus, PACT-TF: Perceived Ability to Cope with Trauma Scale-Trauma Focus, PACT-F: Perceived Ability to Cope with Trauma Scale-Flexibility

When it was investigated whether there was a person or a centre that participant could consult or get psychological help, it was seen that there was a statistical significance between yes (7.60), partially (13.09), and no (16.00) answers in terms of BDI scores (p=0.008). Also, the MBI score was lower in those who said "yes" (17.16) than those who said "partially" (13.96), and "no" (15.63) (p=0.008). The relationship of the impact of the pandemic on personal development with psychological factors is shown in Table 4. The mean PACT future scores of those who had the fear of transmitting the disease to their relatives (34.45) were lower than those who had moderate fear (37.81) and those who had no fear (36.43) (p=0.005).

Table 4 Comparison of groups according to the status of the pandemic affecting personal development

	Personal Development									p-value
	Negative			Same			Positive			
	Mean	S.D.	Median	Mean	S.D.	Median	Mean	S.D.	Median	
BAI Score	16.38	± 12.80	12.00	11.22	± 9.60	9.00	13.19	± 11.23	12.00	0.169
BDI Score	16.76	± 10.74	16.00	10.20	± 8.47	9.00	9.64	± 8.32	8.00	0.002
MBI-EE	16.22	± 8.99	17.00	16.00	± 7.95	17.00	15.11	± 7.90	15.00	0.748
MBI-D	4.49	± 3.54	4.00	5.20	± 3.71	5.00	5.11	± 3.86	5.00	0.637
MBI-PF	9.51	± 5.38	8.00	8.64	± 4.30	9.00	8.79	± 3.94	9.00	0.995
PACT-TF	63.54	± 13.43	65.00	63.42	± 12.49	66.00	62.32	± 12.78	65.00	0.837
PACT-FF	35.68	± 9.30	35.00	37.24	± 8.66	34.00	36.00	± 8.21	36.00	0.725
PACT-F	70.38	± 19.59	70.00	73.29	± 17.70	66.00	71.87	± 16.28	72.00	0.727

Kruskal-Wallis Testi, S.D.: Standart Deviation, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, MBI-EE: Maslach Burnout Inventory-Emotional Exhaustion, MBI-D: Maslach Burnout Inventory-Depersonalization, MBI-PF: Maslach Burnout Inventory-Personal Failure, PACT-FF: Perceived Ability to Cope with Trauma Scale-Forward Focus, PACT-TF: Perceived Ability to Cope with Trauma Scale-Trauma Focus, PACT-F: Perceived Ability to Cope with Trauma Scale-Flexibility

The correlations between the scales have been examined with Spearman Correlation Test. A highly significant negative correlation was found between MBI scores and PACT trauma scores (r= -0.388, p<0.001), a significant negative relationship was found between MBI depersonalization scores and PACT scores (r= -0.217, p=0.013), a highly significant negative correlation was found between MBI personal failure scores and PACT scores (r= -0.373,

p<0.001). There was a significant positive relationship between the MBI depersonalization scores and PACT future scores (r=0.175, p=0.048). Details of the correlations between the scales have been presented in Table 5.

Table 5 Correlation analysis of BAI, BDI, MBI, and PACT

	BAI	BDI	MBI-EE	MBI-D	MBI-PF	PACT-FF	PACT-TF	PACT-F
BAI	1							
BDI	0.725**	1						
MBI-EE	-0.031	-0.064	1					
MBI-D	-0.019	-0.043	0.733**	1				
MBI-PF	0.073	0.059	0.292**	0.304**	1			
PACT-FF	0.106	0.077	-0.388*	-0.217**	-0.373*	1		
PACT-TF	0.158	0.089	0.096	0.175**	-0.047	0.207*	1	
PACT-F	0.143	0.099	0.047	0.146	-0.102	0.271**	0.959**	1

Spearman Correlation Test, *<0.01, **<0.05, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, MBI-EE: Maslach Burnout Inventory-Emotional Exhaustion, MBI-D: Maslach Burnout Inventory-Depersonalization, MBI-PF: Maslach Burnout Inventory-Personal Failure, PACT-FF: Perceived Ability to Cope with Trauma Scale-Forward Focus, PACT-TF: Perceived Ability to Cope with Trauma Scale-Trauma Focus, PACT-F: Perceived Ability to Cope with Trauma Scale-Flexibility

DISCUSSION

Burnout syndrome is a complex phenomenon associated with a stressful work environment. It was first described by Freudenberger in 1974 for healthcare workers, and it is defined as a condition that results from working for a long time in environments with intense emotional demands, accompanied by symptoms such as physical wear, negative attitudes towards employees, and different parts of life [25]. The most prominent features of burnout, along with physical, emotional, and mental signs and symptoms include fatigue, lack of motivation, helplessness and hopelessness, negative attitude towards others, and active withdrawal from the immediate environment [26]. Many stress factors can cause burnout in hemodialysis nurses: providing care for patients with end-stage renal disease, working in a technical environment that requires frequent physical effort, coping with the increasing expectations of patients, complex dialysis techniques, complex modern dialysis machines, intensive activities during the initiation and termination of dialysis sessions, life-threatening complications, implementation of infection control policies and procedures, emergency interventions, an increasing number of patients and job demands, verbal and/or physical conflicts [27].

In a study conducted in Turkey, when the scores of the BMI sub-dimensions of hemodialysis nurses were evaluated, the emotional exhaustion score was found to be 25.08 ± 6.65 (medium), depersonalization score 9.63 ± 3.19 (low), and personal success score 30.29 ± 3.60 (high) [28]. In another study, the mean emotional exhaustion score was 16.25, the mean depersonalization score was 4.67, and the mean personal achievement score was 22.83 [29]. When the results of these studies are evaluated together, it can be said that the burnout status of hemodialysis nurses is similar to those working in other clinics. In another study, it was reported that there was no significant relationship between the working unit and burnout [30]. The reason for different results between the unit and burnout may be related to the working conditions in the specific unit, staff's morale levels, and lack of clear and understandable job descriptions [31]. Negative factors such as the increasing number of elderly patients, increasing care demands, extra responsibilities, staff shortage, and overworking, may affect nurses physically and mentally, but also lead to burnout [32]. Most of our participants are women, as the nursing profession is generally preferred by women. In addition, it is known that psychological problems related to COVID-19 are more common in female healthcare workers [33]. However, it is not possible to explain the high rates we obtained in our study with only this data.

Hemodialysis nurses are a group of healthcare workers that deal with the treatment of dialysis patients and have received training in this field. Hemodialysis patients are connected to dialysis machines for at least 4 hours 3 days a week due to chronic disease processes and are followed up by the same nurse group for years. In addition, they also serve distressed patients with acute kidney failure. In the study conducted by Klersy, et al., the relationship between burnout and the quality of life of physicians and nurses working in the hemodialysis unit was examined,

and it was generally found to be low in both groups [34]. However, it has been observed that nurses experience more burnout than doctors. Karkar, et al. are aimed to determine the type and level of stress, stress management skills, work performance, and the amount of burnout of hemodialysis nurses [35]. They found mild stress and moderate burnout in most hemodialysis nurses in their study. Malfunction in dialysis machines, needle sticks, challenging patient groups, and long working hours are among the stressful reasons [35]. After the COVID-19 pandemic, this workload increased exponentially, and they had to serve patients with COVID-19 in close contact with protective equipment, and more frequent complications and the need for intensive intervention emerged in these patients with poor hemodynamics. Despite the increase in the workload, the lack of educated new staff to help them significantly increased their anxiety risk of infecting themselves, their friends, and their families during this process. It is known that nurses are on the verge of exhaustion during the COVID-19 pandemic [36]. A study conducted in the early days of the epidemic found a relationship between higher anxiety levels and the lack of knowledge about COVID-19 in healthcare workers, higher education level, having infected family members or friends. Also, this study highlights how vulnerable health workers working in the front line are to stress and depression [1].

In a study by Karatas, et al., which aimed to determine the effect of the COVID-19 pandemic on dialysis centre staff, a significant amount of anxiety and depression were found in healthcare workers serving in hemodialysis units during the pandemic [37]. It was determined that the gender, occupation, type of hospital, frequency of encountering COVID-19 patients, and their status of serving these patients affected their anxiety and depression levels [37]. In addition, the anxiety of the patient group in which hemodialysis nurses work has increased compared to before. This patient group, to whom they provide emotional support most of the time, has a fear of getting sick and knows that the risk of death is higher than the general population. Furthermore, due to the more complex course of the COVID-19 symptoms in this group, the diagnosis may be delayed, the risk of transmission increases and dialysis centres have been defined as risky areas in this sense. The fact that the patients whom hemodialysis nurses have followed for years became infected with COVID-19 and sometimes the death of the patient, significantly increases anxiety, and the feeling of losing people they know creates a depression in healthcare workers. The decrease in social activities and support, the uncertainties about the pandemic, and being away from the family elders and children increase the risk of physical and mental burnout syndrome in this process. The fact that we found a significant decrease in the depression and burnout levels of nurses who knew that they could receive psychological support shows the importance of interventions on this issue.

Strengths and Limitations of this Study

This study included nurses working in as many dialysis centres as possible. The most important limitation of our study is that the data is obtained online. The study was carried out during the period of partial quarantine due to the COVID-19 pandemic. For this reason, an online questionnaire with a volunteer sample was applied to collect data quickly. However, the use of an online questionnaire with a volunteer sample results in biased responses and limits the generalizability of the findings.

This study is limited in scope. The majority of the participants were from dialysis centres in Istanbul. This limited the generalization of our findings to regions less affected by the pandemic. In addition, dialysis centres are not separated in terms of patient density with COVID-19 infection.

All hemodialysis nurses in the dialysis centres within the scope of the study were reached. For this reason, the sample of the study is gender, age, years of experience, etc. and this increases the representativeness of the findings.

As with all survey studies, social desirability and recall bias are potential limitations of this study.

In addition, the study was a cross-sectional study, lacking longitudinal follow-up. Therefore, further research will be required for the long-term impact of these symptoms on these populations.

86% of the sample was female, which is consistent with the demographics of the health workforce for Turkey. It is unclear whether the findings are a direct result of COVID-19, as other factors have been neglected. However, this study was done with a large number of very different healthcare professionals. Therefore, the results are likely to be valid internally and the relationships among common variables are likely to be reliable.

CONCLUSION

During the COVID-19 pandemic, healthcare workers made an extraordinary effort and performed critical tasks during

this period. Therefore, in the fight against the pandemic, the protection of the physical and mental health of healthcare workers has become extremely important.

Hemodialysis nurses serving in hemodialysis units are actively involved in the treatment of patients undergoing regular dialysis treatment due to renal failure. Therefore, hemodialysis nurses are in close contact with patients for a long time, and they establish emotional bonds with them during the treatment process and observe their deaths. Although working under the conditions of the COVID-19 pandemic further increases the anxiety and burnout symptoms of healthcare workers, it was seen in this study that hemodialysis nurses were successful in coping with these problems. However, the hemodialysis nurse group, which works hard, needs to be supported due to this troublesome process and the uncertain conditions caused after it. To provide better health care to all dialysis patients, it is extremely important to keep the mental health and motivation of healthcare workers at the highest level and to manage their feelings of exhaustion and anxiety during the pandemic period. For this, psychological support units should be established, social activities should be planned with their families, and conditions should be created to ensure that family members are not affected by the pandemic. In addition, detailed information should be given to health personnel about the pandemic and the materials for protection from the pandemic should be provided in full, cooperation between employees should be increased, working times should be shortened and financial support should be increased.

DECLARATIONS

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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