



Research

Mental Health Problems in Renal Nurses During Novel Coronavirus Disease of 2019 Pandemic

Koronavirüs Hastalığı-2019 Pandemisinde Diyaliz Hemşirelerinin Ruh Sağlığı Sorunları

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ABSTRACT

Objective: The most important factor in facing the pandemic is to ensure the physical and mental health status of the healthcare workers. Studies have found serious stressors experienced by the hemodialysis incharge-nurses but report less burnout than the other nurses. Determining the mental distress of the hemodialysis incharge-nurses during the pandemic is important in determining the necessary precautions. The objective of this study is to determine the psychological complaints of the hemodialysis incharge-nurses during the pandemic.

Methods: The participants of the study are hemodialysis incharge-nurses who work in different provinces of Turkey. The data of the study were collected from April to June 2020. Beck Anxiety Inventory was used to measure the frequency of anxiety symptoms experienced by the individuals. Beck Depression Inventory was used to measure the 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-up with a traumatic life.

Results: In our study, we found Beck Anxiety Inventory mean score was 13.42 ± 11.28 , Beck Depression Inventory 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 , respectively. Finally, the mean Perceived Trauma Coping Scale trauma score was 63.05 ± 12.78 , the mean Perceived Trauma Coping Scale future score was 36.34 ± 8.65 , and the mean Perceived Trauma Coping Scale elasticity score was 71.94 ± 17.67 , respectively.

Conclusion: The findings of the study show the importance of the improvements to be made in reducing the depression and burnout levels of the nurses.

Keywords: Renal, COVID-19, nurse psychology, mental health

ÖZ

Amaç: Pandemi ile mücadelede en önemli faktör sağlık çalışanlarının beden ve ruh sağlığının sağlanmasıdır. Araştırmalar, diyaliz hemşirelerinin yaşadığı ciddi stresörler bulmuş, ancak diyaliz hemşirelerinde diğer hemşirelerden daha az tükenmişlik görülmüştür. Hemodiyaliz hemşirelerinin pandemi sırasında yaşadığı ruhsal sıkıntılarının belirlenmesi, alınması gereken önlemlerin belirlenmesi açısından önemlidir. Bu çalışmanın amacı, diyaliz hemşirelerinin pandemi sürecindeki psikolojik şikayetlerini belirlemektir.

Gereç ve Yöntem: Araştırmanın katılımcıları Türkiye'nin farklı illerinde çalışan diyaliz hemşireleridir. Araştırmanın verileri Nisan-Haziran 2020 tarihleri arasında toplanmıştır. Bireyin yaşadığı anksiyete belirtilerinin sıklığını ölçmek için Beck Anksiyete Envanteri kullanıldı. Depresyonun davranışsal belirtilerini ölçmek için Beck Depresyon Envanteri kullanıldı. İşyerinde tükenmişliği ölçmek için Maslach Tükenmişlik Envanteri kullanıldı. Travmatik yaşamla başa çıkma algısını değerlendirmek için Algılanan Travmayla Başa Çıkma Ölçeği kullanıldı.

Bulgular: Çalışmada Beck Anksiyete Envanteri puan ortalaması $13,42 \pm 11,28$, Beck Depresyon Envanteri puan ortalaması $11,88 \pm 9,57$, Maslach duygusal tükenme puan ortalaması $15,74 \pm 8,19$, Maslach Duyarsızlaşma ölçeği puan ortalaması $4,96 \pm 3,70$ ve Maslach Kişisel Başarısızlık ölçeği puan ortalaması $8,95 \pm 4,50$ idi. Son olarak, Algılanan Travmayla Başa Çıkma Ölçeği travma odağı puanı ortalaması $63,05 \pm 12,78$, Algılanan Travmayla Başa Çıkma Ölçeği gelecek odağı puanı ortalaması $36,34 \pm 8,65$ ve Algılanan Travmayla Başa Çıkma Ölçeği esneklik puanı ortalaması $71,94 \pm 17,67$ idi.

Sonuç: Araştırmanın bulguları, hemşirelerin depresyon ve tükenmişlik düzeylerinin azaltılmasında yapılacak iyileştirmelerin önemini göstermektedir.

Anahtar Kelimeler: Böbrek hastalıkları, COVID-19, hemşire psikolojisi, ruh sağlığı

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INTRODUCTION

Healthcare workers who have been working on the frontline since the outbreak of the pandemic are at a great pressure, and risk of an infection is more among the population. Factors such as lack of knowledge about the coronavirus disease-2019 (COVID-19), high education level, having an infected family member or a friend, especially the fear of being infected with the virus to themselves and their colleagues, were found to be associated with the increased anxiety levels (1). Factors such as "infection stigma" toward the healthcare workers, difficult Ethical and moral decisions are made for patients due to the insufficient resources, and fatigue because of long hours spent wearing the personal protective equipment (PPE) cause nurses to experience the serious internal conflicts during this period (2). In these regard, it is underlined that one of the most important factors in fighting this pandemic is to ensure the physical and mental health of the healthcare workers stable (3).

Hemodialysis incharge-nurses are actively involved in the treatment of patients receiving a regular dialysis treatment due to the kidney failure. Hemodialysis nursing, which requires special training and experience, is generally carried out in the hemodialysis units which are very busy and crowded (4). After the pandemic, the functioning of the hemodialysis units has also been greatly affected. Patients with the kidney failure, defined as a risk group in terms of COVID-19, need to be physically present in the hemodialysis units to maintain their body functions (5). It is very difficult to create the social distance environment required to avoid the spread of COVID-19 virus in hemodialysis units, so 35-84% infection rates have been reported among the dialysis unit workers. Also, COVID-19 infection was less common in the patients who were on dialysis at home (6). In this pandemic conditions, it is difficult to maintain a balance between providing a good nursing service and keeping patients receiving the dialysis treatment safely.

High levels of depression and anxiety were detected in nurses working in the different countries of the world (7,8). For this reason, interventions to protect the mental health of healthcare professionals are marked (9). It has been shown that improving the working conditions of the nurses, mindfulness-based meditations, online group therapies, and training psychiatric nurses in this regard have been beneficial (10). Studies on healthcare workers are useful for determining the appropriate policies and identifying the necessary psychological well-being interventions (2). It is known that the mortality of the patients that the hemodialysis incharge-nurses are responsible for is high, in terms of the

COVID-19 (11). For this reason, we think that they work in a stressful environment in terms of their own health and the patient group they work with, and therefore they face the risk of experiencing the serious mental problems. Studies have found that the serious stressors experienced by the hemodialysis incharge-nurses, but renal nurses report less burnout than the other nurses. Therefore, it is known that the hemodialysis incharge-nurses are generally good at coping-up with the workplace stressors (12).

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

METHODS

Participants and Study Design

The authors have attempted to reach the hemodialysis incharge-nurses who work in the different provinces of Turkey. A study form (questionnaire) was sent to the hemodialysis incharge-nurses thru 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 through a consent form containing information about the study.

Measurement Tools

Sociodemographic data form was used for questioning basic information, such as age, gender, marital status, medical history, smoking, and alcohol use. In addition to these, we aimed to question the mental status after the COVID-19, and its relation to several parameters such as maintaining a healthcare service, approval from the society, fear of infection, and spread among the community.

Beck Anxiety Inventory (BAI) was used to measure the frequency of anxiety symptoms experienced by the individuals (13). It is a Likert-type self-rating scale scored between 0 and 3, consisting of 21 items. The higher the total score, higher the anxiety experienced by the person. 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) was used to measure the behavioral manifestations of depression (14). It is designed

to measure the severity of the depression and to monitor changes with a treatment. Depression-specific behaviors 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 best describe their current condition, and the result is obtained by the sum of these scores. The result of the scale is interpreted as: 0-9: minimal, 10-16: mild, 17-29: moderate, 30-63: severe.

The Maslach Burnout Inventory (MBI) was used to measure the workplace burnout (15). MBI is a seven-point Likert-type scale. This measurement tool comprises of 22 items and three subscales. Subscales such as: 1. emotional exhaustion: This subdimension of the scale expresses the feelings of being consumed by the one's job or occupation and being overburdened, 2. depersonalization: This subdimension of the scale defines the deprivation of emotion toward the people to whom the person serves, without considering that the people concerned are peculiar beings, 3. personal failure: This subdimension of the scale expresses the feelings of a person working with the people to overcome the situation with a sufficient success (16).

The Perceived Ability to Cope with Trauma (PACT) scale was used to evaluate the perception of coping-up with the traumatic life (17). The scale is composed of 20 items that ask participants to rate their ability to use the different coping strategies on a seven-point scale (1= not at all able, 7= extremely able). Factor analysis that has been made by the Bonanno et al. (17) indicated the presence of the two subscales: Forward Focus and Trauma Focus. Forward Focus (12 items, $\alpha=0.91$) was explained as the component that defines the coping abilities related to maintaining plans and goals, attending to the needs of others, being optimistic, staying calm, reducing the painful emotions, and being able to laugh. The Trauma Focus subscale (eight items, $\alpha=0.79$) examines the ability to experience the emotional and cognitive significance of a possible traumatic event. These subscales were independently related to better the adjustment, and each scale moderated the effect of a trauma exposure. Last, flexibility is another subdimension of the PACT, which is calculated by the difference between the sum and polarity of the other two subscales.

Statistical Analysis

The compliance of the variables to a normal distribution was examined using the histogram graphics and the Kolmogorov-Smirnov test. Mean, standard deviation, and median values were used while presenting the descriptive analyzes. Categorical variables were compared using the Pearson's chi-squared test. In cases where the data did not

show a normal distribution, groups of two were evaluated with the Mann-Whitney U test, and groups >2 were evaluated with the Kruskal-Wallis test. Spearman correlation test was used in analyzing the measurement data with each other. The situations where the p-value was <0.05 were evaluated as statistically significant.

Ethical Considerations

The study was performed in accordance with the Declaration of Helsinki, and approval for this study was obtained from the Clinical Research Ethics Board of University of Health Sciences Turkey, Istanbul Training and Research Hospital (decision no: 2454, date: 26.06.2020). The board decided that the need for informed consent was not necessary.

RESULTS

Out of 129 people, a total of 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) years. The average number of the 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 the professional experience was 69.58 (± 212.47) months. The sociodemographic characteristics of the participants are detailed in Table 1.

A total of 16 of the participants (12.4%) had a history of psychiatric disorders, whereas 113 people (87.60%) did not. Considering the diagnoses of the psychiatric disorders in the medical history, six people had anxiety disorder, five people had major depression, one person had obsessive compulsive disorder, and one person had bipolar disorder. Eleven people had a family history of psychiatric disorders. While four people had a history of suicide before the COVID-19 became pandemic, two people had attempted suicide after the COVID-19 pandemic. While 60 people (46.51%) said that they were given enough information about the COVID-19, 63 people (48.84%) said that they were partially given, and 6 people (4.65%) stated insufficient information. While they said that they could reach enough materials while working with the 62 people, 58 people stated that they could partially reach, and 9 people stated that they could not reach enough materials. Also, 28 people had physical illnesses. Access to the PPE 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 a COVID-19 in the family of the participants, it was found that eight people (6.2%) had COVID-19 in their family, four of them were followed up on an outpatient clinic, three were

treated in the inpatient service, and one person was treated in intensive care unit. In addition, eight of its participants stated that a relative died due to the COVID-19. During the pandemic process, some participants limited their contact with their families and could not be in close contact with them for a while. A total of 11 people (8.53%) did not fully isolate themselves, 40 people (31.01%) said that they lived in the same environment but had a reduced contact, 20 people (15.50%) lived in a different environment, but they met their family, and 58 people (44.96%) completely isolated themselves.

During this pandemic period, 94 (72.87%) of the participants were actively continuing to provide the 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 a psychological help, and the effect of the pandemic on their personal development are given in Table 2.

The 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, respectively. Finally, the mean PACT trauma score was 63.05±12.78, the mean PACT future score was 36.34±8.65, and the mean PACT elasticity score was 71.94±17.67, respectively. 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 the nonparametric variables. In the comparison made by the gender, the mean BAI mean scores were found to be higher in women (14.52) than the men (6.61) (p=0.002). In the comparison made according to smoking, the mean BAI scores of nonsmokers (14.75) were found to be higher than those of the 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 the psychiatric disorders (20.00) than those without (11.12) (p=0.006), again, the average BAI score was

Table 1. Sociodemographic characteristics of participants

		Number (n)	Percentage (%)
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)
Smoking	Other	19	(14.73)
	No	73	(56.59)
Change in the amount of smoking after COVID-19	Yes	56	(43.41)
	Decrease	10	(7.75)
	Same	97	(75.19)
Alcohol consumption	Increase	22	(17.05)
	No	125	(96.90)
	Yes	4	(3.10)

COVID-19: Coronavirus disease-2019

Table 2. Factors that mentally affecting the participants

		Number (n)	Percentage (%)
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)

found in those with a family history of the 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) ($p=0.051$).

In the comparison made according to marital status, the mean PACT future score was found to be higher in the divorced patients (44.20) than in those who were married (33.85) ($p=0.047$). The PACT flexibility mean scores were found to be higher in the divorced patients (88.40) than the married ones (66.61) ($p=0.038$). In the comparison made according to whom they live with, the Maslach personal failure mean 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) ($p=0.030$).

The BDI mean score was higher ($p=0.004$) in those with insufficient PPE (17.11) than those having 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 the health services (8.60) than those who think they have partial (13.04), reasonable (17.75), and high difficulties (15.13) in providing the health services ($p=0.002$). Similar results have been obtained from the 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 a reasonable difficulty (16.19), and those who think they always have difficulty (13.80) ($p=0.007$). The comparison of the groups affected by the feeling of not being appreciated enough by the 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) ($p=0.0046$).

When it was investigated whether there was a person or a center that participant could consult or get a 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 the 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 impact of the pandemic on a personal development with the 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 a moderate fear (37.81), and those who had no fear (36.43) ($p=0.005$).

A highly significant negative correlation was found between the MBI scores and PACT trauma scores ($r: -0.388, p<0.001$), a significant negative relationship was found between the MBI depersonalization scores and PACT scores ($r: -0.217, p=0.013$), a highly significant negative correlation was found between the 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 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
	No			Partially			Yes			
	Mean	SD	Median	Mean	SD	Median	Mean	SD	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, SD: Standard 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

DISCUSSION

Burnout syndrome is a complex phenomenon associated with a stressful work environment. It was first described by the Freudenberger for healthcare workers, and it is defined as a condition that results from working for a long time in the environments with the intense emotional demands, accompanied by the symptoms such as: physical wear, negative attitudes toward employees, and different parts of the life (18). The most prominent features of burnout, along with a physical, emotional, and mental signs and symptoms include fatigue, lack of motivation, helplessness and hopelessness, negative attitude toward others, and active withdrawal from the immediate environment (19).

Many stress factors may cause burnout in the hemodialysis incharge-nurses: Providing care for patients with an end-stage renal disease, working in a technical environment that requires frequent physical effort, coping-up with the increasing expectations of the 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 the patients and job demands, verbal and/or physical conflicts (20).

In a study conducted in Turkey, when the scores of the MBI subdimensions of the hemodialysis incharge-nurses were evaluated, the emotional exhaustion score was found to be

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

	Personal development									p
	Negative			Same			Positive			
	Mean	SD	Median	Mean	SD	Median	Mean	SD	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 test, SD: Standard 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

Table 5. Correlation analysis of Beck Anxiety Inventory, Beck Depression Inventory, Maslach Burnout Inventory, and Perceived Ability to Cope with Trauma

	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

25.08±6.65 (medium), depersonalization score 9.63±3.19 (low), and personal success score 30.29±3.60 (high), respectively (21). 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, respectively (22). When the results of these studies are evaluated together, it could be said that the burnout status of the hemodialysis incharge-nurses is like those working in the other clinics. In another study, it was reported that there was no significant relationship between the working unit and burnouts (23). The reason for different results between the unit and burnouts may be related to the working conditions in the specific unit, staff's morale levels, and the lack of clear and understandable job descriptions (24). Negative factors such as the increasing number of the elderly patients, increasing care demands, extra responsibilities, staff shortage, and overworking, may affect the nurses physically and mentally, but also leads to burnout (25). Most of our participants are women, as the nursing profession is generally preferred by the women. In addition, it is known that the psychological problems related to COVID-19 are more common in the female healthcare workers (26). However, it is not possible to explain the high rates we obtained in our study only with this data.

Hemodialysis incharge-nurses are a group of healthcare workers that deal with the treatment of patients receiving a dialysis and have received training in this field. Patients receiving the hemodialysis are connected to dialysis machines for at least four hours for three days a week due to a chronic disease process and are followed up by the same nurse group for years. In addition, they also serve distressed patients with an acute kidney failure. In the study conducted by Klersy et al. (27), the relationship between the burnout and the quality of life of physicians and nurses working in the hemodialysis unit was examined, and it was generally found to be lower in both the groups. However, it has been observed that the nurses experience more burnouts than the doctors. Karkar et al. (28) aimed to determine the type and level of the stress, stress management skills, work performance, and the amount of burnout of hemodialysis incharge-nurses. They found mild stress and moderate burnouts in most hemodialysis incharge-nurses in their study. Malfunction in the dialysis machines, needle sticks, challenging patient groups, and long working hours are among the stressful reasons (28). After the COVID-19 pandemic, this workload increased exponentially, and they had to serve patients with the COVID-19 in close contact with a PPE, and more frequent complications, and the need for an intensive intervention emerged in these patients with the 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. It is known that the nurses are on the verge of exhaustion during the COVID-19 pandemic (29). A study conducted in the early days of the epidemic found a relationship between the higher anxiety levels and the lack of knowledge about COVID-19 among the healthcare workers, higher education level, and having infected family members or friends. Also, this study highlights how vulnerable health workers working in the front line are going through a stress and depression (1).

In a study by Karataş et al. (30), a significant amount of anxiety and depression were observed in healthcare workers serving in the hemodialysis units during the COVID-19 pandemic. It was determined that the gender, occupation, type of hospital, frequency of encountering with a COVID-19 infected patient, and their status of serving these patients affected their anxiety and depression levels (30). In addition, the anxiety of the patients' group in which the hemodialysis incharge-nurses work has increased compared to before. This patient group, to whom they provide an 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 the dialysis centers have been defined as the risky areas. The fact that the patients whom hemodialysis incharge-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 depression among the healthcare workers. The decrease in the social activities and support, 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 the nurses who knew that they could receive a psychological support shows the importance of interventions on this issue.

This study included the nurses working in as many dialysis centers 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 the data quickly. However, the use of an online questionnaire with a volunteer sample results in the biased

responses and limits the generalizability of the findings.

This study is limited in scope. Most respondents are from Istanbul, limiting the generalization of our findings to regions less affected by this pandemic. In addition, the dialysis centers are not separated in terms of a patient density with a COVID-19 infection. All the hemodialysis incharge-nurses in the dialysis centers within the scope of the research were reached. Therefore, the sample of the study increases the representativeness of the findings.

As with all the survey studies, social desirability and recall bias are potential limitations of this study. Also, the study was cross-sectional, lacking a longitudinal follow-up. Therefore, further research will be required for the long-term impact of these symptoms. It is unclear whether the findings are a direct result of the COVID-19, as other factors have been neglected. However, this study was done with the many 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, the healthcare workers made an extraordinary effort and performed critical tasks. Therefore, in the fight against this pandemic, the protection of the physical and mental health of the healthcare workers has become extremely important.

Hemodialysis incharge-nurses are actively involved in the treatment of the patients undergoing a regular dialysis treatment due to a renal failure. Therefore, hemodialysis incharge-nurses are in close contact with the patients for a long time, and they establish the emotional bonds with them during the treatment process and observe them throughout the treatment process. Although working under the conditions of the COVID-19 pandemic further increases the anxiety and burnout symptoms of the healthcare workers, it was seen in this study that the hemodialysis incharge-nurses were successful in coping-up with these problems. However, the hemodialysis incharge-nurse group, who works hard, needs to be supported due to this troublesome process and the uncertain conditions caused after it. To provide better health care to the patients receiving a dialysis, it is extremely important to keep the mental health and motivation of the healthcare workers at the highest level, and to manage their feelings of exhaustion and anxiety throughout the period.

ETHICS

Ethics Committee Approval: The study was performed in accordance with the Declaration of Helsinki, and approval

for this study was obtained from the Clinical Research Ethics Board of University of Health Sciences Turkey, Istanbul Training and Research Hospital (decision no: 2454, date: 26.06.2020).

Informed Consent: The board decided that the need for informed consent was not necessary.

Authorship Contributions

Concept: Ş.K., B.S., Ç.K., Design: Ş.K., B.S., Ç.K., Data Collection or Processing: Ş.K., B.S., Ç.K., Analysis or Interpretation: Ş.K., B.S., Ç.K., Literature Search: Ş.K., B.S., Ç.K., Writing: Ş.K., B.S., Ç.K.

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