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ARAŞTIRMA / RESEARCH

Depression, anxiety and stress levels of operating room workers during the COVID-19 pandemic period

COVID-19 pandemi sürecinde ameliyathane çalışanlarının depresyon, anksiyete ve stres düzeyleri

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Abstract

Purpose: The objective of this study was to determine the depression, anxiety, and stress levels of operating room workers during the COVID-19 pandemic.
Materials and Methods: The data were collected using the "Personal Information Form" and "Depression Anxiety Stress-21 (DASS-21)" scale. The personal information form consisted of eight questions including age, gender, profession, professional seniority, status of being diagnosed with COVID-19, being afraid of developing COVID-19, presence of chronic diseases and change in weight during the pandemic period. DASS-21 scale is a 4-point Likert type (never=0; always=3) scale and consists of seven questions with each predicting "depression, stress and anxiety dimensions".
Results: A total of 253 volunteers with 161 (63.6%) being female and 92 (36.4%) male were included in this observational screening study. Anxiety score of female participants (5.65±4.44) was found to be statistically significantly higher compared to the male participants (3.94±4.68). Depression (5.97±4.41), anxiety (5.48±4.53) and stress (6.94±4.59) scores were significantly higher in the participants who were afraid of developing COVID-19. Depression, anxiety and stress scores were significantly higher in the participants with chronic diseases than in those without chronic diseases.
Conclusion: The findings of our study indicate that the mean depression, anxiety and stress scores of the operating room personnel were mild.
Keywords:. COVID-19, operating room, depression, anxiety, stress, healthcare workers

Öz

Amaç: Bu çalışmanın amacı COVID-19 pandemisi sırasında ameliyahtane çalışanlarının depresyon, anksiyete ve stres düzeylerini belirlemektir.
Gereç ve Yöntem: Veriler "Kişisel Bilgi Formu" ve "Depresyon Anksiyete Stres-21 (DASS-21)" ölçeği ile toplanmıştır. Kişisel bilgi formu yaş, cinsiyet, meslek, mesleki kıdem, COVID-19 tanısı durumu, COVID-19'a yakalanma korkusu, kronik hastalık varlığı ve pandemi sırasında kiloda değişiklikten oluşan sekiz soruyu içermiştir. DASS-21 ölçeği dörtlü likert tipi (0= asla; 3= her zaman) bir ölçek olup, her biri depresyon, stres ve anksiyete boyutlarını öngören yedi sorudan oluşmaktadır.
Bulgular: Bu gözlemsel tarama çalışmasına 161'i (%63.6) kadın ve 92'si (%36.4) erkek olmak üzere toplam 253 gönüllü katılmıştır. Kadın katılımcıların anksiyete skoru (5.65±4.44), erkek katılımcılara (3.94±4.68) kıyasla istatistiksel olarak anlamlı şekilde yüksek saptanmıştır. COVID-19'a yakalanma korkusu bulunan katılımcılarda depresyon (5.97±4.41), anksiyete (5.48±4.53) ve stres (6.94±4.59) skorları daha yüksektir. Depresyon, anksiyete ve stres skorları kronik hastalık bulunanlarda bulunmayanlardan daha yüksektir.
Sonuç: Çalışmamızın bulguları ameliyathane personelinde ortalama depresyon, anksiyete ve stres skorlarının hafif olduğunu göstermiştir.

Anahtar kelimeler: COVID-19, ameliyathane, depresyon, anksiyete, stres, sağlık çalışanları

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INTRODUCTION

The novel coronavirus disease-2019 (COVID-19) is continuing despite all vaccination programs worldwide. It is constantly mutated and new variants are emerging. It is so difficult to say that the disease has been eradicated. Of course the burden brought by COVID-19 is predominantly on healthcare workers who are in the front line during the fight against the disease. Operating room staff also are also working under conditions of pandemic at high risk of transmission and mostly far away from their families. The pandemic process has undoubtedly affected operating room workers who are in direct contact with COVID-19 patients, as well as many other healthcare employees. There are studies in the literature measuring psychological effects of COVID-19 pandemic on healthcare workers[1-4]. These studies have reported that healthcare workers are affected by prolonged working hours, the risk of transmission, concerns of transmitting the disease to their relatives, uncertainty of pandemic process, and duties carried on using additional personal protective equipment (PPE)[5].

Operating room staff in charge of caring and intervening patients with COVID-19 have been subjected to a variety of individual and institutional stresses that have adversely affected their psychological well-being. Therefore, identification of stressors and periodic training can be an effective step towards stress reduction[6-9]. Stress can increase depression and anxiety and reduce job satisfaction. There fore focusing on the mental health of healthcare workers during the COVID-19 pandemic is necessary for their wellbeing and for healthcare quality[10]. In addition, some healthcare workers have been working in some dehumanized conditions, wearing additional PPEs, and dramatically limiting family visits, including terminally ill ones[11]. Operating room personnel are especially at risk of developing stress, anxiety and depression since they have to work in more proximity with the patients including those with COVID-19.

For this reason, it was thought that it is very important to examine the depression, anxiety, and stress situations of operating room workers working in various professions in the health sector. In this context, it was thought that it would be important to investigate the depression, anxiety and stress levels of operating room workers, who are among the groups affected by the COVID-19 pandemic, and to contribute to the literature.

MATERIALS AND METHODS

Before the beginning of the study, ethics approval was received from the Sakarya University Non-intervational Research Ethics Committee (Date: 16/04/2021, No: E-71522473/050.01.04/26401/287). All participants were informed about the objective of the study and included on a voluntary basis. The study was conducted in line with the ethical principles of the Declaration of Helsinki revised in 2013.

Sample

A total of 253 (161 female + 92 male) volunteer operating room staff working in hospitals affiliated to the Ministry of Health in Sakarya province participated in the study. The study was performed by the researchers via face-to-face interviews or the internet. The study was performed on voluntary basis and partricipants who accepted to join the study during the study period were included. The inclusion criteria were being accepted to participate and completed the survey.

Data collection

Research data were collected from operat, ng room personnel between 01 December and 30 December 2020. Working hours of these professionals were taken into account while collecting data, and care was taken to collect data outside of working hours in order not to disrupt the work of employees.

The data were collected using the "Personal Information Form" and "Depression Anxiety Stress-21" scale. The personal information form was prepared by the researchers by screening the relevant literature. This form consisted of eight questions including age, gender, profession, professional seniority, status of being diagnosed with COVID-19, being afraid of developing COVID-19, presence of chronic diseases and change in weight during the pandemic period.

Measures

Depression-Anxiety-Stress Scale

Depression Anxiety Stress-21 (DASS-21) scale was developed by Lovibond in 1995 as a shortened

version of DASS-42 scale[12]. The Turkish validity and reliability study of the DASS-21 scale were performed by Sarıçam (2018) in normal and clinical samples[13]. In the normal sample, the test correlation coefficient was found to be r=0.68 for the depression subscale, r=0.66 for the anxiety subscale, and r=0.61 for the stress subscale. This scale is a 4-point Likert type (never=0; always=3) scale and consists of seven questions with each predicting depression, stress and anxiety dimensions (Table 1).

Table 1. Depression-Anxiety-Stress (DASS-21) Scale

	Depression	Anxiety	Stress
Normal	0-4	0-3	0-7
Mild	5-6	4-5	8-9
Medium	7-10	6-7	10-12
Advanced	11-13	8-9	13-16
Very Advanced	14+	10+	17+

While evaluating the results of the individual in the three test groups, the scores they got from the tests were used. Having 5 points or more from the depression test, 4 points or more from anxiety, and 8 points or more from stress indicated that the individual may have problems in these matters.

Statistical analysis

Data obtained in this study were statistically analyzed using SPSS version 25.0 (SPSS, Statistical Package for Social Sciences, IBM Inc., Armonk, NY, USA) statistical software. The structural validity of the DASS-21 was evaluated by Verification Factor Analysis (DFA), while the reliability of the scale was evaluated by Cronbach Alpha coefficient. As a result of the DFA analysis, it is observed that the cohesion criterion related to the model (X2/sd: 2.074; NFI: 0.910; IFI: 0.917; CFI: 0.917; RMSEA: 0.073) falls into the acceptable criterion. For confidence analysis, Cronbach Alpha value was checked out and it was found that it is 0.916 for DASS-Depression, 0.981 for DASS-Anxiety, 0.871 for DASS-Stress, and 0.884 for DASS-21 in general. In addition, the descriptive statistics such as mean and standard deviation, frequency and percentage, t-test, and ANOVA (Analysis of Variance) test were used to observe whether the levels of depression, anxiety and stress of the healthcare employees varied based on other variables.

RESULTS

A total of 253 volunteers with 161 (63.6%) being female and 92 (36.4%) male were included in this observational screening study. The mean age of the participants was 34.9 years. The mean depression score was found as 5.51±4.56, the mean anxiety score as 5.03±4.60 and the mean stress score as 6.47±4.68.

When the scores were compared between the two sexes, the anxiety score of female participants was found to be statistically significantly higher compared to the male participants (p<0.001). Comparison of the depression, anxiety and stress scores according to genders is given in Table 2.

Table 2. Depression, anxiety and stress scores of the female and male participants

	Gender	n	mean	± SD	t	p
Depression	Female	161	5.87	4.39	1.67	0.10
	Male	92	4.88	4.79		
Anxiety	Female	161	5.65	4.44	2.9	**<0.001**
	Male	92	3.93	4.68		
Stress	Female	161	6.77	4.41	1.39	0.17
	Male	92	5.92	5.08		

When depression, anxiety and stress scores were compared among the professional positions, statistically significant differences were observed. Comparison of the anxiety, depression and stress scores of the participants according to the professional positions is given in Table 3. There were significant differences between the participants who were afraid of developing COVID-19 and those who were not afraid in terms of depression, anxiety and stress scores. Depression (5.97±4.41), anxiety

(5.48±4.53) and stress (6.94±4.59) scores were significantly higher in the participants who were afraid of developing COVID-19 (p=0.04, p=0.04 and p=0.03, respectively). On the other hand, depression, anxiety and stress scores were significantly higher in the participants with chronic diseases (hypertension, diabetes mellitus, coronary heart disease etc.) than in those without chronic diseases (p=0.01, p=0.01 and p<0.001; respectively). There were statistically significant differences between the depression, anxiety and stress scores in terms of weight gain/loss status during the pandemic period. Accordingly, depression, anxiety and stress scores were significantly higher in the participants who gained or lost weight compared to those who maintained their weight (Table 4).

Table 3. Depression, anxiety and stress scores according to professional positions

		n	mean	±SD	F	p	Difference
Depression	Physiciana	34	4.21	3.82	2.96	<0.001	b,e,f > a
	Nurse/Health clerkb	86	6.15	4.69			
	Data Entry/Medical Secretaryc	44	5.25	4.47			
	Security Personneld	23	4.74	5.19			
	Cleaning Personnele	33	6.85	4.42			
	Technician/Technical Personnelf	10	8.1	5.43			
	Otherg	23	3.26	2.93			
Anxiety	Physiciana	34	2.97	3.88	4.58	<0.001	b > a,c,d, e > a
	Nurse/Health clerkb	86	6.56	4.77			
	Data Entry/Medical Secretaryc	44	4.84	4.61			
	Security Personneld	23	3.70	4.69			
	Cleaning Personnele	33	5.79	4.15			
	Technician/Technical Personnelf	10	5.60	5.06			
	Otherg	23	2.70	2.90			
Stress	Physiciana	34	4.76	3.88	2.46	0.03	b,e > a
	Nurse/Health clerkb	86	7.27	4.58			
	Data Entry/Medical Secretaryc	44	5.95	4.35			
	Security Personneld	23	5.57	5.67			
	Cleaning Personnele	33	7.91	5.10			
	Technician/Technical Personnelf	10	7.80	5.12			
	Otherg	23	5.17	3.83			

Table 4. Depression, anxiety and stress scores according to weight status

		n	mean	±SD	F	p	Difference
Depression	I lost weight[a]	29	7.59	5.62	9.94	<0.001	a,b >c
	I gained weight[b]	83	6.60	4.73			
	I maintained my weight[c]	141	4.44	3.90			
Anxiety	I lost weight[a]	29	7.76	5.77	12.63	<0.001	a,b >c
	I gained weight[b]	83	6.04	4.75			
	I maintained my weight[c]	141	3.87	3.83			
Stress	I lost weight[a]	29	8.00	5.23	9.84	<0.001	a,b >c
	I gained weight[b]	83	7.83	4.80			
	I maintained my weight[c]	141	5.34	4.18			

Finally, we investigated the correlation between depression, anxiety, stress scores and age and professional seniority. Accordingly, depression scores were negatively correlated with age (r=-0.20, p<0.001) and professional seniority (r=-0.16, p=0.01), anxiety scores were negatively correlated with age (r=-0,17, p=0.01) and stress scores were negatively correlated with age (r=-0.19, p<0.001) and professional seniority (r=-0.15, p=0.01).

DISCUSSION

The emergence of COVID-19 has caused a significant impact on healthcare workers worldwide

due to high workload, lack of coordination, continuously changing information, shortage of PPEs, fear and increased anxiety, depression and stress levels, difficulty in adapting to changes in healthcare policies, emotional and physical needs. In the present study we measured depression, anxiety and stress levels of operating room personnel through a screening approach using the DASS-21. In our study the mean age of the participants was 34.9 years and 63.6% were female. In a study by Elbay et al.[14] investigating depression, anxiety, and stress levels of physicians and associated factors in COVID-19 pandemics, 56.8% of the participants were female. In a screening study from Singapore and India evaluating psychological outcomes and physical symptoms amongst healthcare workers during COVID-19 pandemic, 64.3% of the participants were female consistently with our result. In the same study, DASS-21 scoring system was used to screen the participants in terms of depression, anxiety and stress. Accordingly, anxiety was found in 15.7%, depression in 10.6% and stress in 5.2% of the healthcare workers. The overall mean DASS-21 depression subscale score was found as 3.08±4.86, the overall mean DASS-21 anxiety subscale score as 3.21±4.29 and the overall mean DASS-21 stress score as 4.62±5.54[15]. In a study by Elbay et al.,[14] the mean depression score was found as 6.92±4.70, the mean anxiety score as 4.67±4.21 and the mean stress score as 7.46±4.85. In our study the mean depression score was found as 5.51±4.54, the mean anxiety score as 5.02±4.53 and the mean stress score as 6.46±4.65. Our scores are within the range reported in the literature. In addition, our screening was conducted among operating room personnel whose scores are expected to be higher compared to the other health care workers due to closer contact with COVID-19 patients.

Lai J et al.[16] reported the frequency of mild to moderate depressive symptoms up to 40% among doctors of China during the outbreak. In a study by Amin et al.[17] from Pakistan, a 43% prevalence of anxiety/depression among frontline physicians was reported. In another survey study on a small number of health care workers in China, the workers showed signs of psychological distress during the pandemic[18] In a previous study conducted in 2016 among physicians working in a tertiary care hospital in Pakistan, an association was reported between female gender and anxiety and depression[19]. Similarly in our study, anxiety scores were significantly higher in female participants.

Participants in our study included physicians, nurses/health clerks, data entry/medical secretaries, security personnel, cleaning personnel, technical personnel and others. The depression scores were higher among nurses/health clerks, cleaning personnel and technical personnel compared to the other participants. Anxiety scores were higher among nurses/health clerks and cleaning personnels compared to physicians. Stress scores were higher among nurses/health clerks and cleaning personnels compared to physicians. In a study by Amin et al.,[17] the participants were divided into current areas of work such as emergency, operating room, ward and other. 32% of the operating room staff were found to be anxious/depressed. On the other hand, in a study by Trumello et al.[20] from Italy, the levels of anxiety, depression, psychological stress, and professional quality of life (compassion satisfaction, burnout, and compassion fatigue) and attitudes toward psychological support were measured among 627 Italian healthcare workers. Significantly higher levels of stress, burnout, secondary trauma, anxiety, and depression were observed among professionals working with COVID-19 patients.

Excessive workload during the pandemic is associated with psychological symptoms. In the present study, all three scores (depression, anxiety and stress) were negatively correlated with age, while depression and stress were also negatively correlated with professional seniority. This suggests an inverse relationship between depression, anxiety and stress and experience in profession. Although in our study the levels of depression, anxiety and stress were mild, there are some steps to be taken into account. It should be aimed to ensure appropriate working hours and reasonable rest periods. Poor working conditions could lead to an increased perception of risk to themselves and increased fear of transmission to their families. In our study, all three scores were significantly higher among operating room personnel who were afraid of developing COVID-19. In addition, all three scores were higher among the healthcare workers with chronic diseases. It is an expected result, because having a chronic disease put people at a higher risk of developing COVID-19. Although in our study the mean depression, anxiety and stress levels were mild, the mental health of operating room workers requires further consideration and that targeted prevention and intervention programs should be implemented.

The major limitation of this study is the small number of participants for such a screening study. In addition, only one assessment tool was used. Several aspects of the effects of COVID-19 on operating room personnel could be studied. Finally, our results reflect only one region and can not be generalized to the entire country. Further comprehensive studies should be conducted in different parts of the country in order to draw more precise conclusions.

In conlusion, the findings of our study indicate that the mean depression, anxiety and stress scores of the operating room personnel were mild. It is recommended that similar studies should be conducted in hospitals in the different regions and countrywide to determine depression, anxiety and stress profiles of healthcare workers during COVID-19 pandemic.

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