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Araştırma / *Research Article*

Evaluation of Anxiety, Depression and Stress Levels of Intensive Care Medical Personnel Caring for Covid-19 Patients

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Yoğun Bakımda Covid-19 Hastalarına Bakan Sağlık Personelinin Anksiyete, Depresyon ve Stres Düzeyi Değerlendirilmesi

Etik Kurul Onayı: Haydarpaşa Numune Eğitim ve Araştırma Hastanesi Klinik Araştırmalar Etik Kurulu'ndan onay alınmıştır (27.04.2020, 2012-KAEK-47).
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ABSTRACT

Objective: *This study aims to determine the changes of anxiety-depression-stress levels in ICU personnel working on COVID-19 patients at an early stage, to set precautions so that they can feel secure and mentally relaxed during their work.*
Method: *One month after starting to admit COVID-19 patients into our ICU, we planned a survey to determine above-mentioned changes in healthcare personnel, using standard scales (perceived stress level, Beck Anxiety Inventory, Beck's Depression Inventory). Survey forms were filled in by 102 people in our ICU.*
Results: *The rates of depression [58.8% (n=60)], anxiety [67.6 % (n=69)] and average perceived stress scale score (29.92±6.86) were determined. Men's perceived stress scale scores were statistically significantly lower than women's. Compared to other groups, among the people who previously received psychiatric support, depression rate was higher in 5 of 6 patients (83.3%) and anxiety in 6 of 6 (100 %) patients. The rate of Beck Anxiety Inventory scores in men (51.4 %) were statistically significantly lower than in women (76.1 %). Similarly, prevalence of anxiety was at higher level (76.2 %) in healthcare personnel with children.*
Conclusion: *These outbreaks can re-occur in future and create more challenging cases. Therefore, countries should prepare their health systems, especially healthcare professionals, against sudden work overloads to prevent serious psychological problems in these professionals and in society. Healthcare personnel should receive support against mental problems and undergo periodical training to prevent further trauma and impact in future cases. Furthermore, in epidemic settings, preventive diagnosis and treatment studies should be carried out to tackle psychological problems commonly encountered in female healthcare personnel.*

Keywords: *COVID-19, intensive care, depression, anxiety*

ÖZ

Amaç: *Bu çalışma, COVID-19 hastaları üzerinde çalışan YBÜ personelinde anksiyete-depresyon-stres düzeylerindeki değişiklikleri erken belirlemeyi, sağlık personelinin işleri sırasında kendilerini güvende ve zihinsel olarak rahat hissedebilmeleri için önlemler almayı amaçlamaktadır.*
Yöntem: *COVID-19 hastalarını YBÜ'mize kabul etmeye başladıktan 1 ay sonra, standart ölçekler (algılanan stres ölçeği, beck anksiyete ve beck depresyon) kullanarak sağlık personelinde yukarıda belirtilen değişiklikleri belirlemek için bir anket planladık. Anket formları yoğun bakım ünitemizde 102 kişi tarafından doldurulduu.*
Bulgular: *Depresyon oranı (60 [% 58,8]), anksiyete (69 [% 67.6]) ve algılanan stres ölçeği düzeyi 29,92±6,86 idi. Erkeklerin algılanan stres ölçeği puanları istatistiksel olarak kadınlardan anlamlı derecede düşüktü. Diğer gruplarla karşılaştırıldığında daha önce psikiyatrik destek alan bireylerde depresyon oranı 6 hastanın 5'inde (% 83.3), anksiyete 6 hastanın 6'sında (% 100) daha yüksekti. Erkeklerde beck anksiyete oranı (% 51.4) kadınlara (% 76.1) göre istatistiksel olarak anlamlı derecede düşüktü. Çocuklu sağlık personelinde de benzer şekilde anksiyete prevalansı (% 76.2) daha yüksekti.*
Sonuç: *Bu salgınlar gelecekte yeniden ortaya çıkabilir ve daha zorlu olgular yaratabilir. Bu nedenle ülkeler, bu alanlarda ve toplumda ciddi psikolojik sorunları önlemek için sağlık sistemlerini, özellikle de sağlık çalışanlarını, ani aşırı yüklenmelere karşı hazırlamalıdır. Sağlık personeli, zihinsel sorunlara karşı destek almalı ve gelecekteki olgularda daha fazla travma ve etkiyi önlemek için periyodik eğitim almalıdır. Ayrıca salgın ortamlarda kadın sağlık personelinde sık karşılaşılan psikolojik sorunların üstesinden gelmek için önleyici tanı ve tedavi çalışmaları yapılmalıdır.*

Anahtar kelimeler: *COVİD-19, yoğun bakım, depresyon, anksiyete*

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INTRODUCTION

The coronavirus disease (COVID-19), which originated in Wuhan City of China and spread to the whole world in a short time, caused work overloads in the health systems of all countries. Healthcare personnel in countries whose health systems have collapsed also suffered serious trauma. Specifically, intensive care personnel in the follow-up of these patients are at the epicenter of this trauma. Healthcare professionals directly involved in the diagnosis, treatment and care of patients with COVID-19 are at serious risk for stress and other psychological conditions [1]. Causes such as intensive working hours, care of critical and heavy patients, and high risk of transmission impose increased pressure on intensive care personnel. Healthcare providers offering treatment services to patients who are infected with COVID-19 and / or who are at risk of COVID-19 are at serious risk not only for viral transmission but also for mental health problems [2]. It is important to understand healthcare professionals' specific sources of anxiety and fear before developing effective approaches to support them. Instead of teaching general approaches to stress reduction or flexibility, focusing on addressing these concerns should be the primary fobjective of supportive efforts [1].

Healthcare personnel requests from their institutions and leaders to reduce anxiety and stress on them can be listed as "hear me", "protect me", "prepare", "support me" and "monitor me" [3]. In particular, a leader who will take the responsibility of a team and meet these demands of team members can play an important role in reducing the atmosphere of anxiety and stress. An increasing workload for healthcare personnel, and the fact that clinicians, nurses etc. are assigned to positions outside their clinical field and have to deal with a disease that they have not encountered before can create a serious level of stress on the staff. Identifying these sources of stress, and especially training newly assigned staff and preparing them for the new environment will ensure minimum changes at anxiety-depression-stress levels during the process.

MATERIAL and METHOD

After obtaining permissions from the institution and local ethics committee for our work (HNEAH-KAEK 2020/64), at the end of one month of follow-up of COVID-19 patients in our ICU, we decided to determine the changes of anxiety-depression-stress levels in the healthcare personnel (doctors, nurses, etc.) caring for these patients. For this purpose, we planned a survey, which consisted of a personal information form and standard scales (stress perception scale, Beck Anxiety Inventory and Beck Depression Inventory) as data collection tools. After all participants were informed about the study, their consent was obtained and their participation in our study was ensured.

Statistical Reviews

When evaluating the findings obtained in the study, IBM SPSS Statistics 22 (SPSS IBM, Turkey) programs were used for statistical analyses. While evaluating the study data, the appropriateness of the parameters to normal distribution was evaluated using Shapiro-Wilks test. Descriptive statistical methods (mean, standard deviation, frequency) were used while evaluating the study data. In addition to these, One-way Anova test was used for comparing quantitative data between groups with normally distributed parameters. Student's t test was used for comparisons of normally distributed parameters between two groups, and Mann-Whitney U test was used for comparisons of non-normally distributed parameters between two groups. Fisher's Exact test, Fisher –Freeman- Halton test and Yates Continuity

Correction were used in the comparison of qualitative data. Pearson correlation analysis was used to examine the relationships between parameters that show normal distribution. Significance was evaluated at the level of p<0.05.

RESULTS

Our study was conducted between 5.10.2020 and 5.20.2020, with a total of 102 cases, aged between 22 and 56, including 35 (34.3%) male and 67 (65.7%) female patients. The mean age of the cases was 30.26±6.22 years (Table 1).

Table 1. Distribution of general features.

		Min-Max	Avg±SS
Age		22-56	30.26±6.22
Working years *(median)*		0.25 to 36	7.03±6.66 (5)
		n	**%**
Gender	Male	35	34.3
	Female	67	65.7
Duty	Anaesthesiologist	3	2.9
	Doctor	33	32.4
	Physiotherapist	10	9.8
	Nurse	56	54.9
Marital status	Single	59	57.8
	Married	43	42.2
Children	No	81	79.4
	Yes	21	20.6
Number of children (n=21)	1	9	42.9
	2	10	47.6
	3	2	9.5
ICU main duty?	Yes	61	59.8
	No	41	40.2
Previous psychiatric support?	Yes	6	5.9
	No	96	94.1

Table 2. Distribution of information on scales.

		Min-Max	Avg±SS
Beck depression inventory *(median)*		0-54	12.74±9.34 (12)
Beck anxiety inventory *(median)*		0-63	17.17±13.71 (15)
Perceived stress scale		12-46	29.92±6.86
		n	**%**
Beck depression level	Normal	42	41.2
	Mild depression	30	29.4
	Moderate depression	26	25.5
	Severe depression	4	3.9
Beck depression existence	No	42	41.2
	Yes	60	58.8
Beck anxiety level	Normal	33	32.4
	Mild anxiety	19	18.6
	Moderate anxiety	28	27.5
	Severe anxiety	22	21.6
Beck anxiety existence	No	33	32.4
	Yes	69	67.6

The rates of depression [58.8% (n=60)], anxiety [67.6% (n=69)]and average perceived stress scale score [29.92±6.86] were determined (Table 2).

There is no statistically significant difference between individuals with and without Beck depression scores in terms of age, working time, gender, duty, marital status, presence of children, main duty and prior psychiatric support (p>0.05) (Table 3).

The rate of Beck anxiety scale scores in men (51.4%) were found to be statistically significantly lower than women (76.1%) (p: 0.021; p<0.05) (Table 4).

Table 3. Evaluation of the relationship between Beck depression existence and general characteristics.

		Beck depression existence		
		No Avg±SS	**Yes Avg±SS**	**p**
Age		29.95±6.03	30.48±6.4	[1]0.674
Working years *(median)*		6.57±6.07 (4)	7.35±7.08 (5)	[2]0.467
		n (%)	**n (%)**	
Gender	Male	19 (54.3%)	16 (45.7%)	[3]0.083
	Female	23 (34.3%)	44 (65.7%)	
Duty	Anaesthesiologist	1 (33.3%)	2 (66.7%)	[4]0.927
	Doctor	14 (42.4%)	19 (57.6%)	
	Physiotherapist	5 (50%)	5 (50%)	
	Nurse	22 (39.3%)	34 (60.7%)	
Marital status	Single	26 (44.1%)	33 (55.9%)	[3]0.623
	Married	16 (37.2%)	27 (62.8%)	
Children	No	33 (40.7%)	48 (59.3%)	[3]1.000
	Yes	9 (42.9%)	12 (57.1%)	
ICU main duty?	Yes	27 (44.3%)	34 (55.7%)	[3]0.571
	No	15 (36.6%)	26 (63.4%)	
Previous psychiatric support?	Yes	1 (16.7%)	5 (83.3%)	[5]0.396
	No	41 (42.7%)	55 (57.3%)	

[1]*Student t Test* [3]*Continuity (Yates) Correction* [5]*Fisher's Exact Test*
[2]*Mann Whitney U Test* [4]*Fisher Freeman Halton Test*

Table 4. Evaluation of the relationship between Beck anxiety presence and general characteristics.

		Beck anxiety existence		
		No Avg±SS	**Yes Avg±SS**	**p**
Age		28.67±4.51	31.03±6.79	[1]0.073
Working years *(median)*		5.38±4.19 (4)	7.82±7.46 (5)	[2]0.125
		n (%)	**n (%)**	
Gender	Male	17 (48.6%)	18 (51.4%)	[3]0.021*
	Female	16 (23.9%)	51 (76.1%)	
Duty	Anaesthesiologist	1 (33.3%)	2 (66.7%)	[4]0.936
	Doctor	10 (30.3%)	23 (69.7%)	
	Physiotherapist	4 (40%)	6 (60%)	
	Nurse	18 (32.1%)	38 (67.9%)	
Marital status	Single	20 (33.9%)	39 (66.1%)	[3]0.860
	Married	13 (30.2%)	30 (69.8%)	
Children	No	28 (34.6%)	53 (65.4%)	[3]0.498
	Yes	5 (23.8%)	16 (76.2%)	
ICU main duty?	Yes	19 (31.1%)	42 (68.9%)	[3]0.919
	No	14 (34.1%)	27 (65.9%)	
Previous psychiatric support?	Yes	0 (0%)	6 (100%)	[5]0.173
	No	33 (34.4%)	63 (65.6%)	

[1]*Student t Test* [3]*Continuity (Yates) Correction* [5]*Fisher's Exact Test*
[2]*Mann Whitney U Test* [4]*Fisher Freeman Halton Test*

There is no statistically significant difference between individuals with and without Beck anxiety scale scores in terms of age, working time, duty, marital status, presence of children, main duty and prior psychiatric support (p>0.05) (Table 4).

Table 5. Evaluation of the relationship between perceived stress scale and general characteristics.

		Perceived stress scale
		Avg±SS
Gender	Male	28.03±7.06
	Female	30.91±6.6
	p[1]	**0.044***
Duty	Anaesthesiologist	27±7.55
	Doctor	31.91±6.67
	Physiotherapist	27.4±8.85
	Nurse	29.36±6.44
	p[2]	**0.169**
Marital status	Single	29.46±7
	Married	30.56±6.7
	p[1]	**0.427**
Children	No	29.62±6.92
	Yes	31.1±6.68
	p[1]	**0.382**
ICU main duty?	Yes	29.41±6.84
	No	30.68±6.91
	p[1]	**0.361**
Previous psychiatric support?	Yes	32.17±5.56
	No	29.78±6.94
	p[1]	**0.412**

[1]*Student t Test* **p<0.05*
[2]*Oneway Anova Test*

Perceived stress scale scores of men were found to be statistically significantly lower than women (p:0.044; p<0.05) (Table 5).

There was no statistically significant difference between perceived stress scale scores in terms of duty, marital status, presence of children, main duty and previous psychiatric support (p>0.05) (Table 5).

DISCUSSION

Epidemic diseases such as COVID-19 impose serious psychological problems on people, especially healthcare professionals. In our study, the anxiety and perceived stress scale scores of healthcare professionals working in the follow-up of COVID-19 patients were found to be statistically significantly lower in men than in women. Being a family, especially having children, significantly increases the level of anxiety.

The COVID-19 disease has caused unprecedented international public health consequences economically, socially and politically [2]. Epidemics always left deep marks in societies' memories. COVID-19 will also leave its marks in the memories and psychologies of our society and our health personnel. With a general look at the fundamental factors affecting psychological states of health personnel, we can categorize these factors as follows (1) access to suitable personal protective equipment; (2) exposure to COVID-19 at workplace and the risk of exposing one's own family to COVID-19; (3) increasing working hours; (4) living away from families to reduce the risk of exposure; (5) feelings of insufficient support; and (6) assignment in a new clinic (3). These reasons may not affect everyone in the same way, but in an environment of pandemic, health personnel may develop shortcomings in terms of controlled acting and optimal approach to pandemic patients. Recognition sources of anxiety allows healthcare organizations and leaders to develop targeted approaches to address these concerns and provide support catered to the needs of healthcare professionals [3]. Despite the outbreak of SARS occurred in a much narrower area than COVID-19, studies conducted in the 2003 SARS epidemic reported negative psychological reactions among healthcare professionals [4,5]. In a study conducted by Chua SE et al. during the acute SARS epidemic, they found that 89% of health workers in

high-risk situations exhibited psychological symptoms [5]. In a study conducted by Lee AM et al., it was reported that health workers have high levels of stress, anxiety and symptoms of depression [6]. Likewise, Lai J et al. conducted a study to analyze depression, anxiety, insomnia, mental distress and associated potential risk factors in healthcare workers who treated patients with COVID-19. In the majority of the participants they found symptoms of depression (n=634 [50.4%]), anxiety (n=560 [44.6%]), insomnia (n=427 [34.0%]) and mental distress (n=899 [71.5%]) [1]. Nurses, women, employees in Wuhan (the center of the outbreak in 3 regions), and frontline healthcare workers reported more severe symptoms in all measurements [1]. The Lin K et al. study reported the indicated rates of depression (n=1086, 46.9%), anxiety (n=952, 41.1%), insomnia (n=740, 32%) and stress (n=1601; 69.1%) [2]. Healthcare personnel in the front line, who are in direct contact with COVID-19 cases, are more likely to report clinically significant depression, anxiety, insomnia and stress [2]. Likewise, in this study, 41.5% of the participants requested support and help from psychiatric experts, while 64.9% expressed the desire to access to acute mental health services [2].

In our intensive care study, the rates of depression, and anxiety were found to be 58.8% (n=60) and 67.6% (n=69), respectively. We attribute the higher rates in our survey to the healthcare services provided for severely ill patients in intensive care, and to higher risks of patient contact. Perceived stress scale scores of male individuals were found to be statistically significantly lower than of female individuals. According to a report by the American Psychological Association in 2017, women experience more stress than men [7]. This can be seen as the result of the reflection of sociocultural factors on women. We also found that anxiety level was higher in women than men. Higher levels of anxiety in women may be due to the higher level of stress they are experiencing. Although no significant difference was observed between the cases with and without children and anxiety, in all groups we observed the highest level of anxiety in personnel with children (76.2%) after those who received psychiatric support (100%). The number of personnel who participated in our study was insufficient, however we believe that it would be more appropriate to employ male personnel without children in the front lines in the event of a possible peak epidemic or a new outbreak in the future.

The fact that COVID-19 can be easily transmitted from person to person [8,9] and the high morbidity and potentially fatal course of the disease [10] the epidemic may cause negative mood changes in the healthcare personnel who care for these patients. The news of death of a health personnel due to COVID-19 disease not only reflects the severity of the infection, but also creates disproportionately more mental distress and burden on healthcare professionals [2].

In addition, the reduction in quantity or quality of protective materials and the increasing number of suspected and positive COVID-19 cases contribute adversely to healthcare workers' pressures and concerns [11]. In order to prevent increases in the levels of anxiety, depression, and stress that may occur in healthcare personnel due to these reasons, working hours of these personnel should be reduced as much as possible but especially protective equipment, which meet a certain quality standard, should be provided in time. In addition, we believe that monitoring healthcare personnel for psychiatric support and providing periodical psychiatric support to this personnel will constitute an important step in preventing and treating the negative changes in anxiety, depression, and stress levels.

Protecting healthcare personnel is an important

component of public health measures for the COVID-19 outbreak [1] and we believe that especially personnel with children, those who are assigned from other clinics, and women should have priority in access to psychological support. In such cases of pandemics, it should be ensured that all healthcare personnel have access to this equipment except clinics that have the potential, and necessary facilities to take care of extremely ill patients. Thus the personnel assigned from other clinics will know what to do, which will relieve the psychological strain on them.

CONCLUSION

In the last 18 years, three epidemics related to coronavirus have occurred and the last epidemic manifested as a pandemic. In the coming years, these outbreaks are more likely to occur again and more seriously. We need to be prepared. For this reason, all countries should prepare their health systems, especially healthcare workers, against suddenly developing work overloads. A clear action plan should be developed for these situations. We believe that the necessary training should be periodically given in order to ensure that the healthcare professionals who constitute the first line of defense in a possible epidemic in the future, are ready for it in every aspect. We believe that it will be much easier for psychologically ready healthcare personnel to manage the situation at their hands and realize effective interventions with agile reflexes.

In the light of the data obtained from the studies mentioned above and our study, we can say that healthcare personnel are exposed to a high risk of infection while they undergo significantly negative changes in their levels of anxiety, depression, and stress. We have found that the follow-up of COVID-19 patients imposes serious anxiety, depression and stress on healthcare professionals. These psychological problems can prevent healthcare professionals from working efficiently. We must take precautions. Although physical area management, materials and equipment are very important factors in the fight against an epidemic, we believe that the psychological status of the healthcare personnel who will work with these factors also plays an important role in the success of this fight. For this reason, we have also concluded that while struggling with the epidemic, preventive diagnosis and treatment studies should be carried out which can also prevent emergence of psychological problems more commonly encountered in female healthcare workers.

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