

The effect of the Coronavirus 2019 pandemic on the mental health of healthcare workers

Mental health of healthcare workers

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Abstract

Aim: The riskiest working group in pandemics is healthcare workers. This study sought to determine the effect of the coronavirus 2019 pandemic on the mental health of healthcare workers.

Material and Methods: The study, designed as a case-control, clinical observation study, was conducted on healthcare workers working in pandemic clinics during the pandemic period. One hundred fifty-three healthcare workers included. The study form included demographic data, marital status, working hours, job, Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory, and clinical questions. Turkish-adapted versions of all scales were applied.

Results: In our clinical observation study, 26.2% of healthcare professionals working in pandemic clinics during the pandemic period were depressed (according to Beck's Depression Inventory), 39.8% had moderate and severe depression (according to the Patient Health Questionnaire-9), and 58.6% had insomnia (according to the Insomnia Severity Index). However, there was no significant difference between the subgroups of health workers in terms of depression and insomnia.

Discussion: All medical and non-medical healthcare workers working in COVID 19 clinics during the pandemic have been widely adversely affected by the process.

Keywords

Sleep Wake Disorders, Depression, Health Personnel, Anxiety Disorders, COVID-19

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Introduction

Coronavirus 2019 disease has caused social, economic, and cultural changes in the world since it was first identified in December 2019 [1]. In times of global pandemics, the capacities of the service providers of the health system are exceeded, and health institutions are at the forefront of the institutions that work the most. During pandemic periods, individuals are affected socioeconomically and spiritually, and health personnel, whose work responsibilities and obligations increase in this process, are also affected psychologically [2]. The riskiest working group in pandemics is healthcare workers [3]. Health workers are affected psychologically because of the increase in working hours during these periods and the feeling of insecurity due to intense virus load [2,3].

Pandemics are a trauma that poses a risk to people's lives and existence, and that is distressing for society [4]. Mental trauma has been reported as abnormal events in which death, serious injury, a threat to physical or vital integrity occur and people learn that an individual they live, see or love is living [5]. Psychiatric disorders caused by mental traumas include alcohol and substance addiction, suicide, depression-anxiety symptoms, and sleep disorders [5]. Sleep disorders are among the psychiatric disorders that cause the most serious functional impairment along with depression [5]. The risk of mental trauma is higher in health personnel, especially in pandemic service workers, compared to other occupational groups.

We speculated that the detection of risk groups in terms of psychological stress during the pandemic process will lead to the introduction of early psychological support programs and reduce burnout. In this study, it was aimed to compare the scores obtained from the Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory scales in people working in pandemic services during the pandemic period. In addition, it was aimed to compare the demographic characteristics of the individuals in the case group and the scores they got from the roots.

Material and Methods

Study design

The study designed as a case-control, clinical observation study, was conducted on healthcare workers working in pandemic clinics during the pandemic period. The hospital where this study was conducted was declared a pandemic hospital, and it was a tertiary public hospital serving approximately 3.4 million population.

Study population

During the working period, emergency room staff, thoracic surgery staff, cardiovascular surgery staff worked in the outpatient clinics. Other services staff worked in intensive care units and inpatient clinics. Our study population is healthcare professionals working in pandemic clinics during the pandemic period. Clinical support staff (non-medical healthcare workers), nurses, and doctors were included.

Data collection

The study was carried out using a study form prepared with the Google® forms application in a digital environment. The study form included demographic data, marital status, working hours, job, Insomnia Severity Index, Patient Health Questionnaire-9

and Beck's Depression Inventory, and clinical questions. Turkish-adapted versions of all scales were applied in Turkish. The clinical questions were "Have you had been diagnosed with COVID- 19 ", "Have you been tested for COVID- 19 because of symptoms", "Have your relatives been diagnosed with COVID -19".

Assessment tools

Beck's Depression Inventory was created by Aaron Beck et al. in 1961 and revised in 1978 [6,7]. The original version consists of 21 questions about how the person has been feeling in the last week. No special training is required for the use of the scale. The person to whom the scale was applied is asked to choose the sentence that best expresses how he or she felt during the past week, including the day of scale implementation. The scale includes a total of 21 self-evaluation sentences that are numbered as 0, 1, 2, 3 and provide a four-point Likert- type measurement. The sentence with the number "0" is in such a way as to indicate that there is no depressive feeling or situation specified in that item, and that it is experienced more intensely as the number increases [6]. The Turkish version of the depression scale (Beck Depresyon Ölçeği) was tested for validity and reliability by Hisli [8].

The Insomnia Severity Index, developed to determine the degree of insomnia symptoms, can be used in normal population screenings and clinical evaluation of insomnia [9]. The scale is both a self-report tool and a tool that can be used by a caregiver (spouse/parent) or clinician for evaluation. It is a five-point Likert-type scale consisting of seven items. Each item is scored between 0 and 4, and the total score is between 0 and 28. A score of 0-7 on the scale indicates clinically insignificant insomnia, 8-14: insomnia sub-threshold, 15-21: clinical insomnia (moderate), 22-28: clinical insomnia (severe). Turkish validity and reliability of index (Uykusuzluk Şiddet İndeksi) study was performed by Boysan et al. in 2010 [9].

Patient Health Questionnaire-9 is a depression module consisting of nine items. Each item has a four-point Likert scale. "Never", "Some days", "More than half of the days" and "Almost every day" are options. The Patient Health Questionnaire-9 can be scored from 0 to 27. The answers given to the items included in the scoring are scored with 0 as the lowest and 3 as the highest. A score of 1-4 is the minimum score, 5-9 is mild depression, 10-14 is moderate depression, 15-19 is moderately severe depression, and 20-27 is severe depression. The Turkish validity and reliability study of the test (Hasta Sağlığı Anketi) was carried out by Sarı et al. in 2016 [10].

Statistical analysis

IBM SPSS Statistics for Mac, Version 27.0. Armonk, NY, IBM Corp was used to perform statistical analyses. The Kolmogorov-Smirnov test was conducted for the evaluation of the conformance of variables with a normal distribution. The remaining data were expressed as interquartile range (IQR) and median values. Categorical data were presented with the number of cases and percentages. For the comparison of quantitative and qualitative data between two groups, the chi-square and Mann-Whitney U tests were used.

Ethics

The ethical committee approval for our study was obtained from the local ethics committee of clinic research (approval

number: B. 10.1. TKH.4.34.H.GP. 0.01 /112). Before filling out the study form, participants were offered to participate in the study digitally. Participants who agreed to participate in the study signed an informed consent form in a digital environment containing the demographic data of the participants. The study form included demographic data, marital status, working hours, job, Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory, and clinical questions.

Results

A total of 153 participants were included in the study. Ninety-two (60.1%) of the participants included in the study were males and 61 (39.9%) were females. Eighty-seven (56.9%) participants were single, 24 (15.7%) were married, and 42 (27.5%) were married and had children. Twenty (13.1%) participants were high school graduates, 54 (35.3%) were university graduates, 79 (51.6%) were postgraduates. Twenty-one (13.7) participants had comorbidity and 132 (86.3%) participants did not have comorbidity. The median of the participants' weekly working hours was 48 (IQR: 40-56). One hundred ten (71.9%) of the participants were doctors, 21 (13.7%) were nurses, 22 (14.4%) were clinical support personnel. Sixty-four (41.8%) participants tested at least once for SARS-CoV-2, and 9 (5.9%) participants have a positive test for SARS-CoV-2. Seventy-eight (51%) participants had a relative who tested positive for SARS-CoV-2. The study population was evaluated by Beck's Depression Inventory, and 38 (26.2%) of them were evaluated as depression with a score of 17 and above. According to the Patient Health Questionnaire-9, 30 (20.4%) of the study population were non-minimal depression, 60 (40.8%) of them were mild depression, 30 (20.4%) of them were moderate depression, 21 (14.3%)

of them were moderately severe depression, 6 (14.3%) of them were severe moderate depression. On the other hand, according to the Insomnia Severity Index, 63 (41.4%) of them were diagnosed with no clinically significant insomnia, 69 (45.4) of them were diagnosed with subthreshold insomnia, 15 (9.9%) of them were diagnosed with moderate clinical insomnia and 5 (3.3%) of them were diagnosed with were severe clinical insomnia. The distribution of participants in terms of Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory are shown in Figures 1-3. Comparisons of the participants in terms of Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory are shown in Tables 1-3.

Eight (5.2%) of the participants had been diagnosed with COVID 19 by the study date. There was no statistically significant difference in terms of Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory between the COVID-19 group and the non-COVID-19 group (p = 0.939, p = 0.845, and p = 0.936, respectively). Sixty-four (41.8%) participants had been tested for COVID-19 at least once. There was no statistically significant difference in terms of Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory between group tested for COVID -19 and the group not tested for COVID- 19 (p = 0.613, p = 0.831, and p = 0.818, respectively). Seventy-eight (50.9%) participants had at least one relative diagnosed with COVID-19. There was no statistically significant difference in terms of Insomnia Severity Index, Patient Health Questionnaire-9 and Beck's Depression Inventory between the group that had at least one relative diagnosed with COVID-19 and the group that did not (p = 0.536, p = 0.586, and p = 0.512, respectively).

Table 1. Comparisons of the participants in terms of the Insomnia Severity Index

		Insomnia Severity Index					P values
		Total	No clinically significant insomnia	Subthreshold insomnia	Moderate clinical insomnia	Severe clinical insomnia	
Gender	Male	92 (60.1%)	41 (65.1%)	40 (57.1%)	8 (53.3%)	3 (60%)	0.755
	Female	61 (39.9%)	22 (34.9%)	30 (42.9%)	7 (46.7%)	2 (40%)	
Marital status	Single	87 (56.9%)	39 (61.9%)	35 (50%)	8 (53.3%)	5 (100%)	0.142
	Married	24 (15.7%)	12 (19%)	11 (15.7%)	1 (6.7%)	0	
	Married and child	42 (27.5%)	12 (19%)	24 (34.3%)	6 (40%)	0	
Work	Clinical support staff	22 (14.4%)	6 (9.5%)	8 (11.4%)	5 (33.3%)	3 (60%)	0.020
	Nurse	21 (13.7%)	10 (15.9%)	10 (14.3%)	1 (6.7%)	0	
	Doctor	110 (71.9%)	47 (74.6%)	52 (74.3%)	9 (60%)	2 (40%)	

Table 2. Comparisons of the participants in terms of the Patient Health Questionnaire-9

		Patient Health Questionnaire-9					P values	
		Total	None-minimal depression	Mild depression	Moderate depression	Moderately Severe depression		Severe depression
Gender	Male	89 (60.1%)	23 (76.6%)	35(57.4%)	16 (53.3%)	13 (61.9%)	2 (33.3%)	0.198
	Female	59 (39.9%)	7 (23.3%)	26 (42.6%)	14 (46.7%)	8 (38.1%)	4 (66.7%)	
Marital status	Single	83 (56.1%)	16 (53.3%)	34 (55.7%)	13 (43.3%)	14 (66.7%)	6 (100%)	0.141
	Married	23 (15.5%)	8(26.7%)	9 (14.8%)	5 (16.7%)	1 (4.8%)	0	
	Married and child	42 (28.4%)	6 (20%)	18 (29.5%)	12 (40%)	6 (28.6%)	0	
Work	Clinical support staff	20 (13.5%)	6 (20%)	4 (6.6%)	4 (13.3%)	5 (23.8%)	1 (16.7%)	0.516
	Nurse	19 (12.8%)	4 (13.3%)	10 (16.4%)	2 (6.7%)	2 (9.5%)	1 (16.7%)	
	Doctor	109(73.6%)	20 (66.7%)	47 (77%)	24 (80%)	14 (66.7%)	4(66.7%)	

Table 3. Comparisons of the participants in terms of Beck's Depression Inventory

		Beck's Depression Inventory			P values
		TOTAL	Insignificant	Depression	
Gender	Male	88 (60.3%)	71 (65.7%)	17 (44.7%)	0.023
	Female	58 (39.7%)	37 (34.3%)	21 (55.3%)	
Marital status	Single	83 (56.8%)	60 (55.6%)	23 (60.5%)	0.130
	Married	22 (15.1%)	20 (18.5%)	2 (5.3%)	
	Married and child	41 (28.1%)	28 (25.9%)	13 (34.2%)	
Work	Clinical support staff	22 (15.1%)	14 (13%)	8 (21.1%)	0.437
	Nurse	20 (13.7%)	16 (14.8%)	4 (10.5%)	
	Doctor	104 (71.7%)	78 (72.2%)	26 (68.4%)	

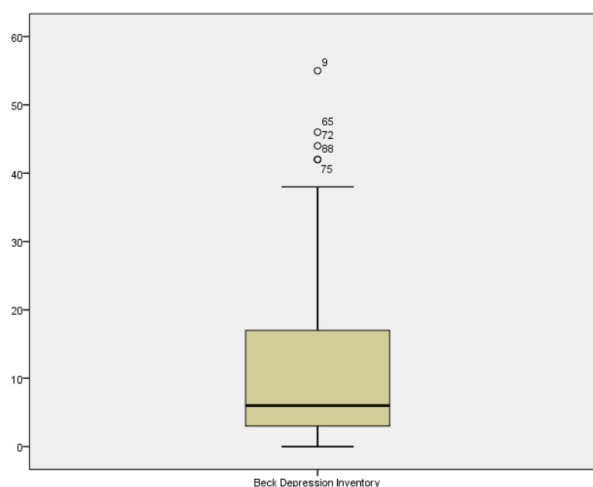


Figure 3. The distribution of participants in terms of Beck's Depression Inventory

Discussion

In our clinical observation study, 26.2% of healthcare professionals working in pandemic clinics during the pandemic period were depressed (according to Beck's Depression Inventory), 39.8% had moderate and severe depression (according to Patient Health Questionnaire-9), and 58.6% had insomnia (according to Insomnia Severity Index). However, there was no significant difference between the subgroups of health workers in terms of depression and insomnia. We can say that all health workers are psychologically affected by the pandemic process.

Pandemics are traumas that threaten people's lives and identities and are distressing for all individuals. The severity of psychiatric trauma symptoms that can be seen in individuals may differ due to factors such as socioeconomic status, cultural characteristics, class status in society, personal characteristics, and mental states [11]. Working with COVID-19 positive individuals or being infected with this virus is a situation that increases mental effects. Healthcare workers face such risk factors as infection, exposure to radiation, physical and mental fatigue, exposure to violence [2]. Health workers are the group with the highest risk of encountering the virus among workers [3]. During this period, employees face a heavy virus load, and the fact that they must work in an insecure environment without adequate rest due to high working hours causes them to experience serious mental effects. In addition, the inability to clearly reveal the transmission routes in the early period of the pandemic and the lack of proven drugs in the treatment yet bring an additional psychological burden [2,3-5]. Healthcare workers have been affected by infectious diseases that have been seen so far, and they are among the groups with the highest risk of being affected by future epidemics [12]. It is well known that healthcare workers experience significant stress during infectious epidemics. Among the causes of stress, there are thoughts such as the worry of getting sick due to the virus, the anxiety that it will infect relatives [5].

In our study, no difference was observed between age, marital status, and working groups. An explanation for this might be that all healthcare workers are equally adversely affected by

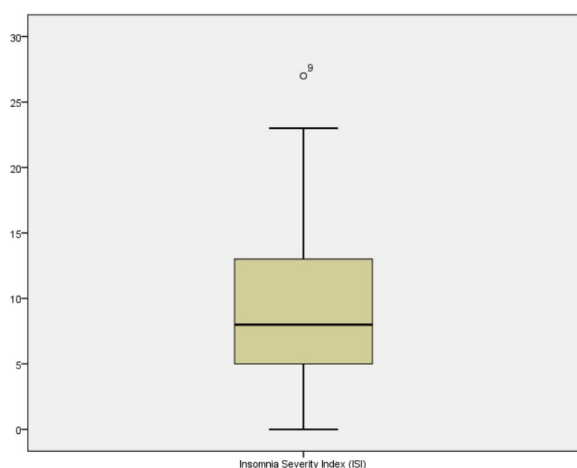


Figure 1. The distribution of participants in terms of the Insomnia Severity Index

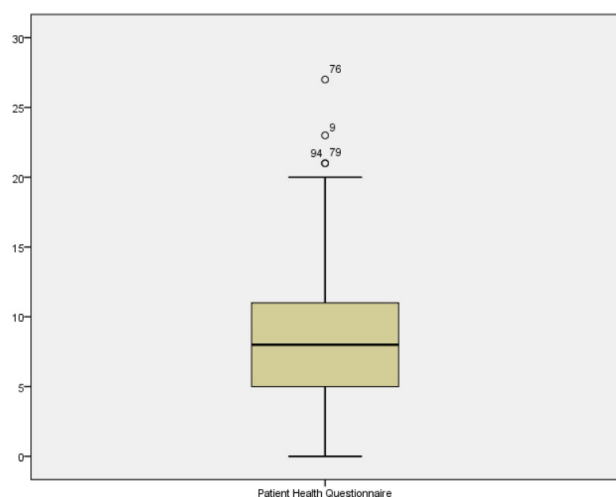


Figure 2. The distribution of participants in terms of Patient Health Questionnaire-9

the mental burden of the pandemic [12-14]. Another plausible explanation for similar mental exposure may include similar access to formal psychological support, more first-hand medical information about the pandemic and COVID-19, and more intensive training in personal protective equipment and infection control measures [12-14]. Another interesting result of our study was that increased scale scores were not observed in those who had COVID-19 and those whose relatives had COVID-19 and were tested. These data confirms that mental impact in healthcare workers is cumulative.

In the literature, it has been reported that sleep disorders increased, and existing sleep disorders worsened in healthcare workers during the pandemic process [15-17]. Our study showed that 58.6% of healthcare workers had insomnia. Insomnia in healthcare workers may be due to long working hours and disruption of circadian rhythm. Sleep disorders and psychiatric disorders and anxiety are interrelated. Sleep disorders have been associated with chronic inflammatory processes, as well as neuroendocrine and immune system effects [16]. Coping with sleep disorders should focus on individual emotional control and emotional stability, which includes efforts to maintain hope, deal with a stressful situation through emotional regulation, sleep hygiene, and psychoeducation techniques, and engaging in pleasurable activities that bring mindfulness and a sense of accomplishment [15-17].

This study has several limitations. Firstly, this study was a single-center study. Secondly, the cases were not examined by a psychiatrist, and the data obtained from self-reported questionnaires were not verified with medical records. The patients were evaluated only with psychiatric evaluation scales. Scales were used in the evaluation of mental status; thus, we were able to show the symptom level rather than the diagnosis of the disease. Another limitation of this study is the low number of participants. More precise data can be obtained with studies to be conducted in many centers with different characteristics, with larger samples and accompanied by a psychiatric examination.

As a conclusion, this study demonstrated that 26.2% of healthcare professionals working in pandemic clinics during the pandemic period were depressed (according to Beck's Depression Inventory), 39.8% had moderate and severe depression (according to Patient Health Questionnaire-9), and 58.6% had insomnia (according to Insomnia Severity Index). However, there was no significant difference between the subgroups of health workers in terms of depression and insomnia. No difference was observed between age, marital status, and working groups. However, the data of our study should be validated in multi-center and larger cohorts.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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