## ORIGINAL ARTICLE

# EVALUATION OF THE CHANGES IN MENTAL HEALTH STATE AT THE BEGINNING OF COVID-19 IN HOSPITAL PERSONNEL

GÜLGÜN DURAT[1], HATICE OKSAL[2], EMINE CINCIOĞLU[3], ÇIĞDEM ŞEN TEPE[4]

**Abstract:**

**Objective:** In the present study, it was aimed to determine the changes in the mental states of hospital personnel at the beginning of COVID-19 pandemic, and the factors affecting these changes. **Methods:** The research sample consisted of 299 hospital personnel in Turkey, who could be reached with the online method. The data were collected using the "Information Form", which was prepared in line with the literature and the pandemic process, "The Impact of Event Scale (IES)" and the "Depression-Anxiety-Stress Scale (DAS-21)". **Results:** It was found that the sociodemographic characteristics, medical history, and the characteristics related to COVID-19 were effective on the participants in terms of their mental states and the way they perceived traumatic experiences. According to the multiple linear regression analyses, it was found that hyper arousal and re-experiencing predicted stress, anxiety, and depression with a rate of 58.5%, 59.0% and 60.6%, respectively. **Conclusion:** At the beginning of the pandemic, it was observed that the responses of frontline hospital employees to traumatic experiences affected their mental states. Psychiatric nurses should take an active role in the development and implementation of psychosocial support programs for hospital personnel.

**Keywords:** Anxiety; COVID-19; depression; hospital personnel; mental health.

**Citation:** Durat G, Oksal H, Cincioğlu E, Tepe ÇŞ. Evaluation of the Changes in Mental Health State at the Beginning of COVID-19 in Hospital Personnel.. Bangladesh J Medicine 2022; 33: 19-26

## Introduction:

The infectious diseases that emerged and spread rapidly in the past were observed to cause uncertainties, have serious effects in biological, psychological, social, economic, educational and other areas, and gradually turn into a global crisis.[1] Pandemics, which are also described as disasters, sometimes affect individuals and society psychologically with their unidentifiable source and irresistible power, and turn into traumatic experiences. Experiences such as direct exposure, feeling in danger, and witnessing the case are considered as determinants of psychological reactions.[2,3] These determinants differ within the framework of individual, cultural and socio-economic features as well as the features of the period, in which

1. Associate Professor, Sakarya University, Faculty of Health Sciences, Department of Psychiatric Nursing, Sakarya, Turkey.
2. PhD Student, Sakarya University, Institute of Health Science, Sakarya, Turkey.
3. Research Assistant, Sakarya University, Faculty of Health Sciences, Department of Psychiatric Nursing, Sakarya, Turkey.
4. Research Assistant, Sakarya University, Faculty of Health Sciences, Department of Psychiatric Nursing, Sakarya, Turkey.
 **Address of Correspondence:** Dr. Gülgün DURAT, Associate Professor, Sakarya University, Faculty of Health Sciences, Department of Psychiatric Nursing, Sakaryab, Turkey. E-mail: gdurat@sakarya.edu.tr  Tel:+90 264 295 66 12ORCÝD: https://orcid.org/0000-0002-9889-3622

the pandemic is experienced. Acute stress responses at the beginning such as uncertainty, fear, anxiety, unhappiness, hopelessness, anger, communication difficulties and etc. can turn into different mental disorders (depression, acute stress disorder, post-traumatic stress disorder, panic disorder, generalized anxiety disorder, psychosis, alcohol-substance abuse, suicide, etc.) over time. [3,4]

The possible psychological and physical effects of COVID-19 have increased the potential disease burden in the health system, causing healthcare workers to experience various adverse events, particularly infection.[5]Hospital personnel, who serve with the risk of disease transmission, experience anxiety and fear of transmitting the virus to their families, loved ones and their environment.[6]On April 8, 2020, the World Health Organization (WHO) reported that 22,073 COVID-19 tests were positive among healthcare professionals from 52 countries.[7] According to data of June, it was announced that 27% of those infected with COVID-19 were healthcare workers, and no up-to-date notifications have been made during the ongoing Pandemic process.[7]In a press release made in early September, the highest number of infected healthcare workers in the world was in the USA, 570,000 healthcare workers were reported to be infected with the virus, and more than 2,500 of them died.[8]Among the 1 million healthcare workers in Turkey, 7,428 (announced on April 29, 2020) were announced to be infected. After 4 months, this number increased by 4 times and 29,865 (on September 2, 2020) were announced to be infected, and 52 healthcare workers died due to corona virus.[9]These data indicate that the healthcare professionals are among the priority groups affected by the COVID-19 pandemic.

Studies on the two viral epidemics [Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS)] experienced in the last 20 years have demonstrated that healthcare workers and the general population are affected by epidemics psychologically.[10-13] In the one-year prospective follow-up studies of Lee et al. (2018) during the SARS epidemic period, high levels of depression, anxiety and post-traumatic stress symptoms were observed in the healthcare workers, who worked actively during the epidemic period.[12]

In this context, the aim of the study was to evaluate changes in the mental states of hospital personnel at beginning ofthe COVID-19 pandemic, and the factors affecting these changes.

**Methods:**

Study Population

The data of this descriptive-cross-sectional study were collected between March 29, 2020 and June 29, 2020. The population of the study consisted of the hospital personnel in Turkey. The sample of the study was the hospital personnel, who could be accessed individually and through social media during the three months of the beginning pandemic, and who participated in the study on a voluntary basis. The data were collected through an online survey. The online survey form was filled only once by the participants. A total of 339 entries were made to the online survey system, and a total of 40 questionnaires, which did not meet the criteria, were excluded. The analyses were carried out using the 299 data.

**Data Collection Tools:**

Information Form

The Information Form was created at the beginning of the pandemic, taking into account the relevant literature[14-16]and the purpose of the study.The form consisted of a total of 21 items regarding socio-demographic data, medical history and certain features associated with COVID-19. Based on their duties in the hospital, the participants consisted of the participants, who were directly involved in patient care and treatment (physician, nurse, midwife, health officer, physiotherapist), the participants, who were not directly involved in patient care and treatment (medical secretary, social worker, social services expert, laboratory technician, civil servant, forensic interviewer, psychologist, child development specialist, security guard, audiologist, ambulance driver), and service staff (cleaning, clinical support).

*Impact of Event Scale-Revised (IES-R)*

The IES, which was developed by Horowitz et al. in 1979 and revised by Weiss and Marmar in 1997, was tested for reliability and validity in Turkish by Çorapçýoðlu et al. (2006).[17]The aim of the scale is to measure the stress levels of individuals in the face of traumatic events. The scale consists of 22 items and 3 sub-dimensions, which determine the severity of symptoms in the last 7 days in 5-point Likert type. The cut-off score of the scale is between 24 and 33.[17] Moreover, 0-23 points are "normal", 24-32 as "mild", 33-36 as "moderate", and the score of 37 and above indicates severe psychological effect.[14] The total internal consistency coefficient of the scale is 0.93.[17] In our study, the internal consistency values according to sub-dimension and total score were 0.93 for intrusion, 0.85 for avoidance, 0.87 for hyperarousal, and 0.95 in total.

*Depression-Anxiety-Stress Scale (DASS-21)*

The long form of DASS-21 with 42 items and its short form with 21 items were developed by Lovibond and Lovibond in 1995.[18] In our study, the short form with 21 items, which was tested for validity and reliability by Sarýçam (2018), was used. It is a 4-point Likert-type scale, which consists of 3 sub-dimensions with 7 items in each sub-dimension. Depression, anxiety and stress levels (normal, mild, moderate, advanced, severe) are determined according to the score obtained according to the sum of the relevant items. The internal consistency coefficients of the scale in the clinical sample were 0.87 for the depression, 0.85 for the anxiety, and 0.81 for the stress sub-dimension.[18] The values obtained in our study were 0.89, 0.83 and 0.86, respectively.

**Data Analysis:**

The data were analyzed by transferring them to IBM SPSS Statistics 24 software. In the evaluation of the data, frequency distribution was used for the categorical variables, and numerical variables were used for the descriptive statistics. Stepwise multiple linear regression analysis was used to examine the effects of the sub-dimensions of IES-R on DASS-21 stress, anxiety, and depression. The statistical significance level was accepted as pd"0.05.

**Results:**

Of the participants, 66.6% were female, 33.4% were male, 64.5% were married, 35.4 were single (unmarried, widowed, divorced), 23.1% had a physical chronic disease, and 5.7% had a psychiatric disease. The mean age was 34.04±8.13 (age range: 18-58) and the mean working experience in the hospital was 5.58±5.43 (working experience range: less than one year-22) years. Of the participants, 38.1% were directly employed in the care and treatment services, and 10.4% were employed in the COVID-19 clinic (Table I).

The clinical variables of the participants related to COVID-19 were presented in Table II.

The mean scores of IES-R and DAS-21, and the distribution of normal and higher than normal scores were presented in Table III.

No significant difference was found between the total IES-R and DASS-21 scores according to marital status and the presence of children at home. Table IV presented the data with a significant difference between IES-R and DASS-21 scores according to socio-demographic and professional characteristics.

According to the multiple regression analysis conducted for evaluating the impact of the COVID-19 pandemic on the mental states of the participants, hyperarousal and intrusion were found to predict stress, anxiety and depression by 58.5%, 59.0% and 60.6%, respectively. Hyperarousal was observed to have a greater affect on stress (â=0,529; p=0.000), anxiety (â=0,559; p=0.000) and depression (â=0,445; p=0.000) compared to intrusion (Table V).

**Table I**
*Characteristics of the Participants*

| Characteristics | n | % |
|---|---|---|
| Educational status | | |
| Primary or secondary | 56 | 18.7 |
| High school | 87 | 29.1 |
| Undergraduate and above | 156 | 52.2 |
| Chronic illness | | |
| Present | 69 | 23.1 |
| Absent | 230 | 76.9 |
| Psychiatric disease | | |
| Present | 17 | 5.7 |
| Absent | 282 | 94.3 |
| Drug use | | |
| Yes | 70 | 23.4 |
| No | 229 | 76.6 |
| Presence of children at home | | |
| Yes | 178 | 59.5 |
| No | 121 | 40.5 |
| Presence of a person with chronic diseases at home | | |
| Yes | 108 | 36.1 |
| No | 191 | 63.9 |
| Position at the hospital | | |
| Direct care-treatment | 114 | 38.1 |
| Service staff | 109 | 36.5 |
| Direct care-non-treatment | 76 | 25.4 |
| Unit(s) at the hospital | | |
| Intensive care-operating room-angio | 51 | 17.1 |
| Clinics | 79 | 26.4 |
| Polyclinics | 17 | 5.7 |
| Emergencies | 26 | 8.7 |
| COVID-19 units | 31 | 10.4 |
| Administrative units | 13 | 4.3 |
| Other units | 82 | 27.4 |
| Total | 299 | 100 |

**Table II**
*Clinical Variables Associated with COVID-19*

| Clinical Variables | n | % |
|---|---|---|
| Contact history[a] | | |
| Contact with suspected patient | 135 | 45.2 |
| Contact with COVID-19 positive patient | 106 | 35.5 |
| Contact with equipment | 88 | 29.4 |
| No contact | 112 | 37.5 |
| Issues of concern[a] | | |
| General concern | 229 | 76.6 |
| Infecting their children with COVID-19 | 121 | 40.5 |
| Infecting chronic patients with COVID-19 | 89 | 29.8 |
| Being a carrier | 136 | 45.5 |
| Total | 299 | 100 |

*Note:* [a]Participants could select multiple items.

**Table III**

*Scale Scores*

| Scales | Normal | | Higher than normal | | Min-Max | Mean±SD |
|---|---|---|---|---|---|---|
| | n | % | n | % | | |
| IES-R | | | | | | |
| Intrusion | 280 | 93.6 | 19 | 6.4 | 0-30 | 9.39±7.98 |
| Avoidance | 294 | 98.3 | 5 | 1.7 | 0-28 | 10.85±6.99 |
| Hyperarousal | 299 | 100.0 | - | - | 0-22 | 7.21±5.84 |
| Impact of event | 141 | 47.2 | 158 | 52.8 | 0-78 | 27.44±19.04 |
| DASS-21 | | | | | | |
| Depression | 144 | 48.2 | 155 | 51.8 | 0-20 | 6.68±4.19 |
| Anxiety | 130 | 43.5 | 169 | 56.5 | 0-16 | 5.01±4.19 |
| Stress | 130 | 43.5 | 169 | 56.5 | 0-20 | 6.68±4.71 |

**Table IV**

*Comparison of Socio-Demographic and Professional Characteristics with Mean Total IES-R and DASS-21 Scores*

| | IES-R | | DASS-21 | | | | | |
| | Impact of event | | Depression | | Anxiety | | Stress | |
| | Mean ±SD | Test value[#]; p value | Mean ±SD | Test value[#]; p value | Mean ±SD | Test value[#]; p value | Mean ±SD | Test value[#]; p value |
|---|---|---|---|---|---|---|---|---|
| Sex | | | | | | | | |
| Female | 32.20±18.19 | 6.60; | 7.17±5.30 | 6.69; | 6.02±4.15 | 6.59; | 7.75±4.56 | 5.89; |
| Male | 17.86±17.04 | 0.00[**] | 3.57±3.86 | 0.00[**] | 3.00±3.50 | 0.00[**] | 4.53±4.27 | 0.00[**] |
| Educational status | | | | | | | | |
| Primary or secondary[a] | 21.32±18.89 | 6.44[1]; | 3.86±4.16 | 7.37[2]; | 3.34±3.49 | 9.39[1]; | 4.48±4.26 | 11.23[1]; |
| High school[b] | 25.09±21.05 | 0.00[**] | 5.75±5.72 | 0.00[**] | 4.45±4.52 | 0.00[**] | 6.18±5.02 | 0.00[**] |
| Undergraduate, above[c] | 30.96±17.19 | | 6.85±4.92 | | 5.92±4.01 | | 7.74±4.38 | |
| Chronic illness | | | | | | | | |
| Present | 33.13±18.94 | -2.86; | 7.41±5.33 | -2.67; | 6.23±4.49 | -2.80; | 7.52±4.49 | -1.71; |
| Absent | 25.74±18.78 | 0.00[**] | 5.53±5.02 | 0.00[**] | 4.64±4.03 | 0.05[*] | 6.42±4.75 | NSS |
| Psychiatric disease | | | | | | | | |
| Present | 38.53±21.60 | -2.20; | 8.82±5.10 | -2.38; | 8.18±4.46 | -3.26; | 9.82±4.89 | -2.87; |
| Absent | 26.78±18.71 | 0.01[**] | 5.79±5.11 | 0.00[**] | 4.82±4.10 | 0.00[**] | 6.49±4.64 | 0.01[**] |
| Drug use | | | | | | | | |
| Yes | 34.11±19.33 | -3.41; | 7.93±4.91 | -3.72; | 6.83±4.56 | -3.94; | 8.39±4.57 | -3.54; |
| No | 25.41±18.52 | 0.00[**] | 5.37±5.08 | 0.00[**] | 4.45±3.92 | 0.00[**] | 6.15±4.64 | 0.00[**] |
| Presence of a person with chronic diseases at home | | | | | | | | |
| Yes | 31.62±18.78 | -2.87; | 6.91±5.10 | -2.39; | 5.81±4.27 | -2.50; | 7.62±4.81 | -2.63; |
| No | 25.08±18.83 | 0.00[**] | 5.43±5.11 | 0.01[**] | 4.55±4.09 | 0.01[**] | 6.14±4.58 | 0.00[**] |
| Position at the hospital | | | | | | | | |
| Direct care-treatment[d] | 16.71±1.56 | 9.21[3]; | 5.02±0.47 | 12.44[4]; | 4.02±0.38 | 14.05[5]; | 4.07±0.38 | 14.87[4]; |
| Direct care-non-treatment[e] | 17.81±2.04 | 0.00[**] | 4.95±0.57 | 0.00[**] | 3.87±0.44 | 0.00[**] | 4.77±0.55 | 0.00[**] |
| Service staff[f] | 20.73±1.99 | | 4.90±0.47 | | 4.12±0.39 | | 4.74±0.45 | |

*Note:* [#] Independent Samples t-Test, t value or ANOVA, F value[*] $p \leq 0.05$ [**] $p \leq 0.01$ NSS: not statistically significant
[1, 2, 3, 4] Bonferroni correction was made for significance values for multiple tests. [1]c>a, b [2]c>a [3]d>f [4]d, e>f [5]d>e, f

**Table V**

*Results of the Multiple Regression Analysis about the Effect of IES-R on DASS-21*

| Dependent variable | Independent variable | β | Standard error | Beta | T | p | VIF | F | Model (p) | $R^2$ | Durbin Watson |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stress | Constant | 2.171 | 0.281 | | 7.733 | 0.000 | | 211.224 | 0.000 | 0.585 | 1.716 |
| | Hyperarousal | 0.427 | 0.065 | 0.529 | 6.589 | 0.000 | 4.631 | | | | |
| | Intrusion | 0.152 | 0.047 | 0.258 | 3.213 | 0.001 | 4.631 | | | | |
| Anxiety | Constant | 0.981 | 0.248 | | 3.955 | 0.000 | | 215.839 | 0.000 | 0.590 | 2.112 |
| | Hyperarousal | 0.401 | 0.057 | 0.559 | 7.002 | 0.000 | 4.631 | | | | |
| | Intrusion | 0.121 | 0.042 | 0.231 | 2.891 | 0.004 | 4.631 | | | | |
| Depression | Constant | 0.975 | 0.299 | | 3.259 | 0.001 | | 229.811 | 0.000 | 0.606 | 1.715 |
| | Hyperarousal | 0.392 | 0.069 | 0.445 | 5.680 | 0.000 | 4.631 | | | | |
| | Intrusion | 0.231 | 0.050 | 0.358 | 4.577 | 0.000 | 4.631 | | | | |

**Discussion:**

In the present study, the traumatic experience during the pandemic was examined in terms of its effects on the depression, anxiety and stress levels of the hospital personnel. Traumatic stress level was found to be higher in 52.8% of the participants, depression was found to be higher in 51.8%, anxiety was found to be higher in 56.5%, and stress symptoms were found to be higher in 56.5%. In a study conducted with 1,257 healthcare workers in China, it was found that 50.4% of the participants had symptoms of depression, 44.6% had symptoms of anxiety, and 71.5% had traumatic stress different from the normal level.[15] In a meta-analysis study carried out by Pan et al. (2020) on 7,441 healthcare workers, it was reported that mental symptoms were similar in healthcare workers[19], however, the anxiety levels were higher. In a study conducted with the participation of 442 physicians in Turkey at the beginning of the pandemic, 64.7% of the physicians were found to have symptoms of depression, 51.6% were found to have symptoms of anxiety, and 41.2% were found to have symptoms of stress.[20] It was noteworthy that the level of depression symptoms in physicians was higher compared to hospital personnel, which was a heterogeneous group. In a study participated by 1,210 individuals in the general population, it was found that 16.5% of the participants had symptoms of depression, 28.8% had symptoms of anxiety, 8.1% had symptoms of stress, and the traumatic effect of the epidemic was moderate and severe in 53.8% of the participants.[14] While similar results were obtained in the stress response to the traumatic event in studies conducted with different populations in different times, the healthcare professionals employed during the COVID-19 pandemic were found to have high levels of depression, anxiety and stress symptoms. This suggests that healthcare workers are at higher risk in terms of mental health.

Significant differences were observed between the mean traumatic stress score based on the impacts of the events and mean DASS-21 scores according to the variables of female sex, medical history of chronic and psychiatric disease, continuous use of medication, and being directly involved in patient care. In two studies conducted with frontline healthcare workers during the COVID-19 pandemic in China, it was found that severe depression, anxiety, and stress symptoms were higher in the female.[15,16] In a multi-center study conducted by Chew et al. (2020) on healthcare professionals, it was observed that physical symptom experiences increased in female participants with comorbid disease during the pandemic, and this was significantly associated with depression, anxiety and stress scores.[13] In a study conducted with the physicians in Turkey during the COVID-19 pandemic, the DASS scores were found to be high in the female physicians with chronic psychiatric disorders, and the female physicians who were directly employed in patient care.[20] In this context, it can be argued that the female with chronic mental and physical diseases constitute the risky group among the healthcare professionals, who are employed during the pandemic.

In the study, it was observed that as the education level increased, there was an increase in the scores obtained from the depression, anxiety and stress sub-dimensions of IES-R and DASS-21. Contrary to our findings, studies on the effect of educational status on mental health in the literature include findings

that the probability of psychological symptoms increases[21] or is not affected according to the individuals with low level of education .[22-24] In the present study, as the education level of healthcare professionals working during the pandemic increased, there was an increase in the traumatic stress, depression, anxiety and stress scores. This indicates that the level of knowledge of the employees can also be associated with the increase in the tasks and responsibilities they undertake.

Another noteworthy finding of the study was the fact that having a member of the family with chronic disease caused the greater incidence of mental symptoms. It is known that COVID-19 has both symptomatic transmission and asymptomatic transmission.[1] This causes the hospital employees to experience the fear of transmitting and infecting and worry about the health of family members.[5,25] Under normal conditions, it is known that protective mask, distance and hygiene rules should be observed in order not to catch the virus.[26] When sufficient preventive measures are not taken according to the type of involvement, the probability of getting the disease increases for healthcare workers. In a study conducted in Iran, it was reported that the nurses had sufficient knowledge and skills; however, they were infected since they did not take sufficient preventive measures during the initial period of the pandemic.[27] A person carrying the virus and exhibiting no symptoms can wander through departments within the hospital, spreading the disease unknowingly. Therefore, all employees are at risk, regardless of the department they are employed in.[28] In the light of this information, the subjective health perceptions of healthcare workers are negatively affected, and they experience greater mental distress.[28]

According to the multiple linear regression analysis conducted to examine the effect of the COVID-19 pandemic on the mental states of the participants, it was found that the hyperarousal and intrusion sub-dimensions of IES-R increased the depression, anxiety and stress symptoms of the individuals. In addition, hyperarousal was observed to affect stress, anxiety and depression more compared to intrusion. In a study conducted by Styra et al. (2008) on healthcare professionals employed in high-risk areas during the SARS epidemic; it was found that the symptoms of hyperarousal, intrusion and avoidance affected depressive affect.[11] Infectious diseases with uncertain features such as COVID-19 have a traumatic effect. Post-traumatic symptoms such as hyperarousal, intrusion and avoidance behaviours are observed. Hyperarousal is one of the first reactions to stress after trauma. Sleep disturbance, irritability and impulsivity are the leading symptoms that emerge along with the hyperarousal.[29] In a study conducted by Lai et al. (2020) on the factors affecting the mental health of healthcare workers caring for patients with COVID-19 positive, it was reported that 34% of the healthcare workers had sleep disorders.[15] The symptoms of hyperarousal and intrusion, which manifest themselves with sleep disorders, are believed to increase depression, anxiety and stress levels in hospital employees struggling with the COVID-19 pandemic.[30]

It is inevitable that healthcare workers develop high anxiety levels and stress in the early stages of the pandemic, and depression and traumatic symptoms also appear during the course of the pandemic. Carrying out direct patient care in an isolated state increases the risk of trauma.

Psychiatric nurses should also take an active part in the development and implementation of mental health intervention programs aimed at protecting psychological well-being.[6] During this period, psychiatric nurses also have a responsibility to ensure regular meetings with the families and children of healthcare workers, to recognize the symptoms of possible burnout, psychological stress and distress, and to carry out prevention activities by taking due care about transmission.

**Conclusion:**
In order to overcome the pandemic, it is important to protect the mental health of healthcare workers, and to provide them with psychological support. In this context, psychiatric nurses can take an active role. Healthcare workers, particularly the employees, who are employed in hospitals that provide care to the patients diagnosed with COVID-19, should be screened for their mental health regularly; the healthcare workers at high risk should be identified, and referred to the treatment services.

**Ethical Considerations:**

For the study, the ethics committee (dated April 4, 2020, numbered 71522473/050.01.04/108) and the scientific research (form approval code: 2020-05-08T15_39_26) approval were obtained. Participation in the study was carried out on a voluntary basis.

**References:**

1.   Aþkýn R, Bozkurt Y, Zeybek Z. COVID-19 pandemic: Psychological effects and therapeutic interventions. Ýstanbul TicaretÜniversitesiSosyalBilimlerDergisi COVID-19 SosyalBilimler Özel Sayýsý,2020; 19(37): 304-318.

2.   YananerEroðlu Ç.Travmatik yaþamol aylarýve-psikodrama. In D. Altýnay (Ed.), Psikodramada SeçmeKonular 2015: pp.113-163. Ýstanbul, Turkey:Epsilon Yayýncýlýk.

3.   KayaB. Effects of pandemic on mental health. Journal of Clinical Psychiatry, 2020;23(2): 123-124. https://doi: 10.5505/kpd.2020.64325.

4.   Maunder RG, Lancee WJ, Balderson KE, Bennett JP, Borgundvaag B, Evans S, et al. Long-term psychological and occupational effects of providing hospital health care during SARS outbreak. Emerging Infectious Diseases, 2006; 12(12): 1924-1932. https://doi:10.3201/eid1212.060584. PMid: 17326946 PMCid:PMC3291360

5.   Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. Journal of the American Medical Association, 2020; 323(15): 1439-1440. https://doi:10.1001/jama. 2020.3972. PMid:32163102

6.   Hu X, HuangW. Protecting the psychological well-being of healthcare providers affected by the COVID-19 outbreak: Implications for the psychological rescue work of international community. Nursing & Health Sciences, 2020 April. https://doi:10.1111/nhs.12727. PMid:32335991 PMCid:PMC7267142

7.   World Health Organization (WHO). COVID-19 weekly surveillance report 2020. https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/weekly-surveillance-report. Accessed: August 15, 2020.

8.   Pan American Health Organization (PAHO). COVID-19 has infected some 570,000 health workers and killed 2,500 in the Americas, PAHO Director says. Available from: https://www.paho.org/en/news/2-9-2020-covid-19-has-infected-some-570000-health-workers-and-killed-2500-americas-paho. Accessed: October 7, 2020.

9.   https://www.bbc.com/turkce/haberler-turkiye-54196086. Accessed: 15 August, 2020.

10.  Leung GM, Lam TH, Ho LM, Ho SY, Chan BH, Wong IO, et al. The impact of community psychological responses on outbreak control for severe acute respiratory syndrome in Hong Kong. Journal of Epidemiology & Community Health,2003;57(11):857-863. https://doi: 10.1136/jech.57.11.857. PMid:14600110 PMCid:PMC1732323

11.  Styra R, Hawryluck L, Robinson S, Kasapinovic S, Fones C, Gold WL. Impact on health care workers employed in high-risk areas during the Toronto SARS outbreak. Journal of Psychosomatic Research, 2008 Feb;64(2):177-83. https://doi:10.1016/j.jpsychores.2007.07.015. PMid:18222131 PMCid: PMC 7094601

12.  Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. Comprehensive Psychiatry, 2018;87:123-127. https://doi: 10.1016/j.comppsych. 2018. 10.003. PMid:30343247 PMCid:PMC7094631

13.  ChewNWS, Lee GKH, TanBYQ, Jing M, GohY, Ngiam NJH, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. Brain, Behaviour, and Immunity, 2020; 88: 559-565. PMid:32330593 PMCid:PMC 7172854

14.  Wang C, Pan R, WanX, TanY, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in China. International Journal of Environmental Research and Public Health, 2020;17(5):1729. https://doi: 10.3390/ijerph170 51729. PMCid:PMC7084952

15.  Lai J, Ma S, Wang Y, Cai Z, HuJ, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to Coronavirus Disease 2019. JAMA Network Open, 2020;3(3): e203976. https://doi:10.1001/jamanetworkopen. 2020.3976. PMid:32202646 PMCid:PMC 7090843

16.  Wang B, Sun J, Gao F, Chen J, Shi L, Li L, et al. A study on mental health status among the staff in a designated hospital for COVID-19. Research Square, 2020. https://doi:10.21203/rs.3.rs-23224/v1.

17.  Çorapçýoðlu A, Yargýç Ý, Geyran P, Kocabaþoðlu, N. "OlaylarýnEtkisiÖlçeði" (IES-R) Türkçeversiy onunungeçerlilikvegüvenilirliði [Validity and Reliability of Turkish Version of "Impact of Event Scale-Revised" (IES-R)]. New/Yeni Symposium Journal, 2006; 44(1): 14-22.

18.  Sarýçam H. The psychometric properties of Turkish version of Depression Anxiety Stress Scale-21 (DASS-21) in health control and clinical samples. Journal of Cognitive-Behavioral Psychotherapy and Research, 2018;7(1):19-30. https://doi: 10.5455/JCBPR.274847.

19.  Pan R, ZhangL, Pan J. The anxiety status of Chinese medical workers during the epidemic of COVID-19: A meta-analysis. Psychiatry Investigation 2020;

17(5):475-480. https://doi:10.30773/pi.2020.0127. PMid:32403209 PMCid:PMC7265026

20. Elbay RY, Kurtulmuþ A, Arpacoðlu S, KaradereE. Depression, anxiety, stress levels of physicians and associated factors in Covid-19 pandemics. Psychiatry Research, 2020;290:113130. https://doi: 10.1016/ j.psychres.2020.113130. PMid:32497969 PMCid: PMC7255248

21. Tian F, Li H, Tian S, Yang J, Shao J, Tian C. Psychological symptoms of ordinary Chinese citizens based on SCL-90 during the level I emergency response to COVID-19. Psychiatry Research, 2020;288:112992. https://doi: 10.1016/ j.psychres.2020.112992. PMid:32302816 PMCid: PMC7151383

22. Lee AM, Wong JGWS, McAlonan GM, Cheung V, Cheung C, Sham PC, et al. Stress and psychological distress among SARS survivors 1 year after the outbreak. Canadian Journal of Psychiatry, 2007; 52(4):233-240. https://doi: 10.1177/070674370 705200405. PMid:17500304

23. Liu N, Zhang F, Wei C, Jia Y, Shang Z, Sun L, et al. Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. Psychiatry Research, 2020;287:112921. https://doi: 10.1016/j.psychres. 2020.112921. PMid:32240896 PMCid: PMC7 102622.

24. XiaoX, Zhu X, FuS, Hu Y, Li X, Xiao J. Psychological impact of healthcare workers in China during COVID-19 pneumonia epidemic: A multi-center cross-sectional survey investigation. Journal of Affective Disorders, 2020;274:405-410. https://doi: 10.1016/ j.jad. 2020.05.081. PMid:32663970 PMCid: PMC7236675

25. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. The Lancet Psychiatry, 2020;7(3):228-229. https:// doi:10.1016/S2215-0366(20)30046-8.

26. https://covid19.saglik.gov.tr/TR-66259/halka-yonelik.html.Accessed August 15, 2020.

27. Gheysarzadeh A, Sadeghifard N, Safari M, BalavandiF, Falahi S, Kenarkoohi A, et al. Report of five nurses infected with severe acute respiratory syndrome coronavirs 2 during patient care: case series. New Microbes and New Infections, 2020;36: 100694. https://doi:10.1016/j.nmni.2020.100694. PMid:32405418 PMCid:PMC7219377

28. Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel corona virus disease outbreak: A cross-sectional study. Brain, Behaviour and Immunity, 2020 Jul; 87:11-17. https:/ /doi: 10.1016/j.bbi.2020.03.028. PMid:32240764 PMCid:PMC7118532

29. Özgen F, Aydýn H. Posttraumatic Stress Disorder. Journal of Clinical Psychiatry, 1999;2(1):34-41.

30. AkçayBD, Özgen F, Erdem M, Balýkçý A, ÖznurT. Sleep in Post-traumatic Stress Disorder.Current Approaches in Psychiatry, 2013;5(4):441-460. https://doi:10.5455/cap.20130528.