



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

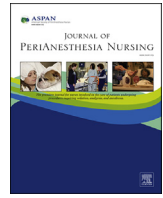
Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Contents lists available at ScienceDirect

Journal of PeriAnesthesia Nursing

journal homepage: www.jopan.org



Research

Evaluation of Depression and Anxiety Levels and Related Factors Among Operating Theater Workers During the Novel Coronavirus (COVID-19) Pandemic



Ersin Koksak, MD^a, Burhan Dost, MD^{a,*}, Özlem Terzi, MD^b, Yasemin B. Ustun, MD^a, Selçuk Özdin, MD^c, Sezgin Bilgin, MD^a

^a Department of Anesthesiology and Reanimation, Ondokuz Mayıs University, Samsun, Turkey

^b Department of Public Health, Ondokuz Mayıs University, Samsun, Turkey

^c Department of Psychiatry, Ondokuz Mayıs University, Samsun, Turkey

A B S T R A C T

Keywords:
COVID-19
operating theater
anxiety
depression

Purpose: Tremendous physical and psychological pressure has been placed on health care workers because of the outbreak of novel coronavirus disease 2019. This study aimed to examine the anxiety and depression levels and related factors among health care professionals working in operating theaters (anesthetic technicians and nurses) during the coronavirus disease 2019 pandemic.

Design: The universe of this descriptive study consisted of health care professionals working in operating theaters in various health care institutions in Turkey.

Methods: Data were collected online between April 9, 2020 and April 12, 2020 using a SurveyMonkey Questionnaire (SurveyMonkey, San Mateo, CA) and health care workers who volunteered to participate in the study were contacted via the social media platforms Twitter, LinkedIn, and WhatsApp and asked to answer the questionnaire. Statistical analysis was performed using the SPSS version 22.0 software.

Findings: A total of 702 health care professionals working in operating theaters participated in the study. The mean depression and anxiety scores of the participants were found to be 9.4 ± 4.6 (min 0 to max 21) and 10.0 ± 4.5 (min 0 to max 21), respectively. Depression scores were statistically significantly higher among females, single individuals, those who had children, those living with a person aged 60 years or older ($P < .05$). Meanwhile, anxiety scores were statistically significantly higher among females, single individuals (including widowed and divorced), university graduates, those with at least one chronic disease, and those whose workload increased ($P < .05$).

Conclusions: The present study showed that anxiety and depression symptoms were high among health care professionals working in operating theaters. To reduce these symptoms, psychological conditions of health care professionals can be followed continuously and regularly via standard procedures, and necessary interventions can be provided in the early period.

© 2020 American Society of PeriAnesthesia Nurses. Published by Elsevier, Inc. All rights reserved.

In December 2019, a novel coronavirus disease 2019 (COVID-19) outbreak occurred in Wuhan, China.¹ The World Health Organization declared COVID-19 a pandemic on March 11, 2020.² Coronaviruses are mainly transmitted through respiratory droplets, but they can also be transmitted through touching the mouth,

nose, or eye mucosa after hand contact with the droplets expelled by sick individuals through coughing and sneezing.^{3,4} During the SARS outbreak of 2002 to 2004, health care workers accounted for 21% of infected cases across the world.⁵ The Centers for Disease Control and Prevention and World Health Organization recommend minimizing the number of personnel and using personal protective equipment (PPE) to protect workers when performing aerosol-generating procedures in people infected with COVID-19 for a possible or definitive diagnosis.^{6,7} In operating theaters, aerosol-generating procedures are performed frequently. The following problems are frequently seen: exposure to anesthetic

Conflict of interest: None to report.

* Address correspondence to Burhan Dost, Faculty of Medicine, Department of Anesthesiology and Reanimation, Ondokuz Mayıs University, Samsun 55270, Turkey.

E-mail address: burhandost@hotmail.com (B. Dost).

<https://doi.org/10.1016/j.jopan.2020.06.017>

1089-9472/© 2020 American Society of PeriAnesthesia Nurses. Published by Elsevier, Inc. All rights reserved.

gases, cutting or piercing injuries, nonergonomic equipment and posture positions, work stress that requires constant attention, and psychosocial problems caused by being in a closed environment and by daylight deprivation. In Turkey's health care system anesthetic technicians provide support to the anesthetist and generally are involved in the care of patients during the operation. Nurses working in operating theaters also provide care for the patients in the postanesthesia care unit immediately after surgery.

This study aimed to investigate the anxiety and depression levels and related factors among anesthetic technicians and nurses working in operating theaters during the COVID-19 pandemic.

Methods

This was a descriptive study. The study population was health care professionals (anesthetic technicians and nurses) working in operating theaters at various health care institutions in Turkey.

Calculations were done with the Minitab software, by using the results obtained from a similar study.⁸ The number of participants required in the study population was calculated to be at least 668 to demonstrate a significant difference when the type I error was taken 5% and the power of the study was 80%. The final sample was 702 operating theater personnel.

Ethical Considerations

The data were obtained between April 9, 2020 and April 20, 2020 through a SurveyMonkey online survey form (SurveyMonkey, San Mateo, CA) with approval no. 2020/142 by the Ondokuz Mayıs University Clinical Research Ethics Committee. Health care professionals volunteering to participate in the study were asked to answer the survey questions via social media (WhatsApp, Twitter, and LinkedIn).

Procedures

The questionnaire consisted of 38 questions including sociodemographic characteristics, data on the workplace, and the Hospital Anxiety and Depression Scale (HADS). The HADS, a self-report scale used to determine anxiety and depression levels, was developed by Zigmond and Snaith.⁹ The scale consists of 14 questions, each scored from 0 to 3 according to the answers given to the questions. Anxiety and depression levels are evaluated with seven questions, with the lowest and highest scores participants can obtain for depression or anxiety being 0 and 21, respectively. Aydemir et al¹⁰ conducted a Turkish validity and reliability study of the scale, which showed that in Turkish society, the cutoff scores were 7 for depression and 10 for anxiety.

Data Analysis

Statistical analysis was performed using the IBM SPSS 22.0 package program. Data were expressed as the mean \pm standard deviation, median (minimum-maximum), and percentage (%) after it was determined whether the data were parametric or nonparametric. The Kolmogorov-Smirnov test was used to evaluate whether the quantitative data followed a normal distribution, whereas nonparametric tests were used to analyze the data. The Mann-Whitney *U* test was used to compare binary groups, and the Kruskal-Wallis test was used to compare more than two groups. Quantitative data were compared with the χ^2 test. A *P* value of $<.05$ was considered statistically significant.

Table 1

Distribution of the Sociodemographic Characteristics and Professional Knowledge of the Participants (N = 702)

Variable	n (%)
Sex	
Female	492 (70.1)
Male	210 (29.9)
Age (y) (mean \pm SD)	35.6 \pm 8.5
Marital status	
Married	486 (69.2)
Single (including widowed or divorced)	216 (30.8)
Educational level	
High school	199 (28.3)
University	503 (71.7)
Profession	
Anesthetic technician	363 (51.7)
Operating theater nurse	339 (48.3)
Professional experience (y)	
1-5	149 (21.2)
6-14	228 (32.5)
15 and more	325 (46.3)
Institution Type	
State	226 (32.2)
University	160 (22.8)
Training and research .	190 (27.1)
Private	126 (17.9)

Results

The mean age of the 702 operating theater personnel who participated in the study was 35.6 ± 8.5 years, and the rate of female participants was 70.1%. Of the participants, 69.2% were married and 65.6% had at least one child. The sociodemographic characteristics and professional knowledge of the participants are shown in Table 1.

There were no chronic diseases in 73.6% of operating theater personnel, whereas 4.8% had hypertension, 7.1% had chronic obstructive pulmonary disease or asthma, 2.3% had diabetes, 2.1% had any disease that causes immunosuppression, and 14.2% had other diseases (eg, mental disorders, musculoskeletal diseases, and peptic ulcer). The percentage of those who stated they did not have any mental illness was 90.0%, whereas 3.8%, 2.7%, and 3.4% of participants stated they had a history of mental illness, an ongoing mental illness, or mental problems following the COVID-19 pandemic, respectively.

The percentage of nonsmokers was 65.7%. When the smoking habits of the 241 smoking participants were evaluated following the COVID-19 pandemic, no change was observed in 105 (43.5%) participants, whereas the number of cigarettes smoked was found to decrease in 109 (50.9%) participants and increase in 27 (12.6%) participants. The percentage of those reporting who did not consume alcoholic beverages was 85.8%. Of the alcohol consumers (n = 100 people), 54.0% stated that there was no change after the COVID-19 pandemic, 37.0% reported that they decreased the amount of alcohol they consumed, and 9% reported an increase. Of the participants, 55.4% stated that they had received training about COVID-19 in the institutions in which they were working. One hundred thirty-nine (19.8%) participants answered "yes" to the question, "As far as you know, have you ever had contact with a COVID-19 positive patient?" Of the participants, 53.0%, 4.6%, 17.0%, and 25.5% answered "surgical mask and gloves"; "N-95 mask and gloves"; "apron, N-95 mask, and gloves"; and "all personal protective equipment, including coveralls," respectively, to the question, "which PPE do you use to protect yourself when you encounter a patient without suspected COVID-19?" When interactions with patients without suspected COVID-19 were evaluated according to the answers given, it was found that 47% of participants were using unnecessary PPE.

The mean depression and anxiety scores of the participants in the present study were found to be 9.4 ± 4.6 (min 0 to max 21) and 10.0 ± 4.5 (min 0 to max 21), respectively. Comparisons showed that depression scores were statistically significantly higher in females, single individuals (including widowed and divorced), those who had children, those living with a person of 60 years or older, those with a professional experience of 15 years or more, those with at least one chronic disease, those in contact with a COVID-19 positive case, and those who were using unnecessary protective equipment ($P < .05$). Anxiety scores were statistically significantly higher in the female sex, single individuals (including widowed and

divorced), those who were university graduates, those with at least one chronic disease, and those whose workloads increased ($P < .05$). The mean HADS scores of participants and their statistical comparisons according to some groups are presented in Table 2.

When the scores obtained from the scales were evaluated, 259 (36.9%) and 404 (57.5%) participants were observed as scoring greater than the cutoff point determined for depression and anxiety, respectively. In total, 239 (34.0%) participants had a score greater than the cutoff point determined for both depression and anxiety. A comparison of the subgroups according to the presence of depression and anxiety is presented in Table 3.

Table 2
Comparison of the HADS Scores of the Participants According to Some Groups

Variables	Depression Score Mean \pm SD	P value	Anxiety Score Mean \pm SD	P value
Sex		.000*		.000*
Male	8.3 \pm 4.6		8.2 \pm 4.3	
Female	9.9 \pm 4.6		10.8 \pm 4.4	
Marital status		.007*		.013*
Married	8.6 \pm 4.5		9.3 \pm 4.5	
Single	9.7 \pm 4.7		10.3 \pm 4.5	
Other	9.3 \pm 4.6		9.9 \pm 4.6	
Education level		.808		.031*
High school	9.3 \pm 4.9		9.4 \pm 4.7	
University	9.4 \pm 4.5		10.2 \pm 4.4	
Children		.004*		.070
Yes	9.8 \pm 4.7		10.2 \pm 4.6	
No	8.7 \pm 4.4		9.6 \pm 4.5	
Living with someone aged 60 y or older		.028*		.090
Yes	10.3 \pm 4.8		10.7 \pm 4.8	
No	9.2 \pm 4.6		9.9 \pm 4.5	
Profession		.379		.647
Technician	9.6 \pm 4.5		10.1 \pm 4.5	
Nurse and other	9.2 \pm 4.7		9.9 \pm 4.5	
Professional experience (y)		.000*		.076
1-5	8.3 \pm 4.3		9.3 \pm 4.3	
6-14	9.1 \pm 4.7		9.9 \pm 4.7	
15 and more	10.1 \pm 4.6		10.4 \pm 4.5	
Place of work		.444		.439
State	9.6 \pm 4.6		9.9 \pm 4.4	
University	9.6 \pm 4.8		10.4 \pm 4.6	
Training and research	9.5 \pm 4.7		10.2 \pm 4.9	
Private	8.8 \pm 4.4		9.5 \pm 4.2	
Chronic disease		.004*		.045*
Yes	10.3 \pm 4.4		10.6 \pm 4.1	
No	9.1 \pm 4.7		9.8 \pm 4.7	
Cigarette consumption		.374		.165
No	9.4 \pm 4.7		10.1 \pm 4.5	
Not changed	8.9 \pm 4.9		9.2 \pm 4.6	
Increased	10.4 \pm 3.9		10.8 \pm 4.5	
Decreased	9.7 \pm 4.4		10.4 \pm 4.8	
Alcohol consumption (n = 100)		.308		.070
No	9.4 \pm 4.7		10.0 \pm 4.6	
Not changed	8.7 \pm 4.2		9.0 \pm 4.1	
Increased	11.8 \pm 4.7		13.2 \pm 5.1	
Decreased	9.7 \pm 4.3		10.4 \pm 3.4	
Workload		.097		.017†
Not changed	9.5 \pm 4.5		10.3 \pm 4.5	
Increased	9.8 \pm 4.8		10.4 \pm 4.7	
Decreased	8.9 \pm 4.5		9.4 \pm 4.4	
COVID-19 training		.580		.442
Yes	9.3 \pm 4.6		9.9 \pm 4.4	
No	9.4 \pm 4.7		10.2 \pm 4.7	
Contact with COVID-19 (+) patient		.017*		.204
Yes	10.3 \pm 4.7		10.4 \pm 4.4	
No	9.2 \pm 4.6		9.9 \pm 4.6	
Unnecessary personal protective equipment		.004*		.061
Yes	9.9 \pm 4.6		10.3 \pm 4.6	
No	8.9 \pm 4.6		9.7 \pm 4.5	

COVID-19, coronavirus disease 2019; HADS, Hospital Anxiety and Depression Scale.

Bold indicates statistical significance.

* Mann-Whitney U test.

† Kruskal-Wallis test.

Table 3
Comparison of Participants According to the Presence of Depression and Anxiety

	Depression		P value	Anxiety		P value
	No (n = 443)	Yes (n = 259)		No (n = 298)	Yes (n = 404)	
Sex			.003*			.000*
Male	115 (26.0)	95 (36.7)		52 (45.1)	158 (39.1)	
Female	328 (74.0)	164 (63.3)		246 (82.6)	246 (60.9)	
Marital status			.783			.312
Married	321 (67.5)	165 (63.7)		214 (71.8)	272 (67.3)	
Single	122 (32.5)	94 (36.3)		84 (28.2)	132 (32.7)	
Educational level			.593			.128
High school	122 (27.5)	77 (29.7)		75 (25.2)	124 (30.7)	
University	321 (72.5)	138 (70.3)		223 (74.8)	280 (69.3)	
Children			.025*			.209
Yes	305 (68.8)	156 (60.2)		204 (68.5)	257 (63.6)	
No	138 (31.2)	103 (39.8)		94 (31.5)	147 (36.4)	
Living together with an individual aged 60 y or older			.238			.141
Yes	78 (17.6)	36 (13.9)		56 (18.8)	58 (14.4)	
No	365 (82.4)	223 (86.1)		242 (81.2)	346 (85.6)	
Profession			.488			.830
Technician	234 (52.8)	129 (49.8)		156 (52.3)	207 (51.2)	
Nurse and other	209 (47.2)	130 (50.2)		142 (47.7)	197 (48.8)	
Professional time			.001*			.182
1-5	79 (17.8)	70 (27.0)		54 (18.1)	95 (23.5)	
6-14	137 (30.9)	91 (35.1)		97 (32.6)	131 (32.4)	
15 and more	227 (69.8)	98 (37.8)		147 (46.3)	178 (44.1)	
Place of work			.836			.390
State	100 (22.6)	60 (23.2)		97 (32.6)	129 (31.9)	
University	100 (22.6)	60 (23.2)		72 (24.2)	88 (21.8)	
Training and research	124 (28.0)	66 (27.6)		85 (28.5)	105 (26.0)	
Private	71 (16.0)	47 (18.1)		42 (14.1)	76 (18.8)	
Chronic disease			.005*			.439
Yes	310 (70.0)	207 (79.9)		215 (72.1)	302 (74.8)	
No	133 (30.0)	52 (20.1)		83 (27.9)	102 (25.2)	
Cigarette consumption (n = 241)			.036*			.037*
Not changed	59 (38.8)	46 (51.7)		33 (33.7)	72 (50.3)	
Increased	22 (14.5)	5 (5.6)		13 (13.3)	14 (9.8)	
Decreased	71 (46.7)	38 (42.7)		52 (53.1)	57 (39.9)	
Alcohol consumption (n = 100)			.561			.034*
Not changed	33 (50.8)	21 (60.0)		19 (42.2)	35 (63.6)	
Increased	7 (10.8)	2 (5.7)		7 (15.6)	2 (3.6)	
Decreased	25 (38.5)	12 (34.3)		19 (42.2)	18 (32.7)	
Workload			.178			.024*
Not changed	86 (19.4)	46 (17.8)		61 (20.5)	71 (17.6)	
Increased	200 (45.1)	103 (39.8)		141 (47.3)	162 (40.1)	
Decreased	157 (35.4)	110 (42.5)		96 (32.2)	171 (42.3)	
COVID-19 training			.872			.577
Yes	247 (55.8)	142 (54.8)		161 (54.0)	228 (56.4)	
No	196 (44.2)	117 (45.2)		137 (46.0)	176 (43.6)	
Contact with COVID-19 (+) patient			.055			.292
Yes	98 (22.1)	41 (15.8)		65 (21.8)	74 (18.3)	
No	345 (77.9)	218 (84.2)		233 (78.2)	330 (81.7)	
Unnecessary use of personal protective equipment			.002*			.499
Yes	228 (51.5)	102 (39.4)		145 (48.7)	185 (45.8)	
No	215 (48.5)	157 (60.6)		153 (51.3)	219 (54.2)	

COVID-19, coronavirus disease 2019.

Bold indicates statistical significance.

* Chi-square test.

Discussion

The COVID-19 pandemic is a severe threat to the physical health and lives of individuals. It has further triggered various psychological problems, such as anxiety and depression.¹¹ Mental health is determined by social, psychological, behavioral, and biological factors, and it affects the daily and working lives of each individual. Compared with others, health care professionals are more likely to experience negative emotions because of heavy workload, high transmission risk, and patient complaints.¹² Although the rate of individuals without a psychological disorder history is high in our study (90%), 36.9% and 57.5% of the participants scored higher than the cutoff scores determined for depression and anxiety,

respectively, during the pandemic. The scores of 34.0% of participants were observed as greater than the cutoff values for both depression and anxiety. The fact that news about the pandemic, which has halted life throughout the world, appears ceaselessly in written and verbal media means there is information pollution on the subject in social media, and countries sometimes have difficulty obtaining protective equipment, increasing the stress burden on health care workers on the front lines. Various isolation measures have been applied in all countries to prevent the spread of COVID-19. Although there is consensus on postponing elective surgeries during the pandemic, emergency operations must be performed. Furthermore, patients diagnosed with COVID-19 may need to be operated on urgently. In this article, the factors affecting the anxiety

and depression levels of health care professionals working in operating theaters in Turkey are discussed.

As opposed to other kinds of disasters, isolation and quarantine are best practice during the fight against pandemics. This interrupts relationships among family, community, and friends, increasing the incidence of anxiety and depression. Depression is a common disorder affecting more than 264 million people throughout the world.¹³ According to the data obtained in the SARS epidemic in 2002, the concern of health care professionals with becoming infected and infecting family and friends led to stress and depression.^{5,14} The depression scores were found to be higher in females during pandemics in the present study, in accordance with the study by Sprang and Silman.¹⁵ Both anxiety and depression scores were statistically higher in female participants. We believe several factors might cause this result. One is that female health care workers are more concerned with carrying the virus to their families and children or about their child's care if they are infected or quarantined. In parallel, we found that the depression scale and depression cutoff scores of health care workers who had children were significantly higher than those who had no children. Many previous studies in the literature have shown that anxiety disorders and depressive disorders are more common in women.¹⁶ Female sex has been found to be one of the strongest predictors of post-traumatic stress disorder symptoms after a pandemic.¹⁷ Therefore, the findings obtained in our study are compatible with the literature concerning this extraordinary situation we are experiencing.

The mean age of the study population was at the young adult level, and no chronic disease was present in 70%. However, depression symptoms were more common in people living with a relative aged 60 years or older. In a study investigating the initial psychological responses of the Chinese population to the COVID-19 outbreak, 70% of participants were found to be worried that at least one family member was infected.¹⁸ The fact that the participants in the present study were health care workers may have created a similar concern. It is known that feelings of guilt increase the risk of depression among those who are grieving.¹⁹ Depressive symptoms may be triggered by the fact that participants are concerned with transmitting the virus to the household, that deaths related to COVID-19 are concentrated in patients 60 years and older and that they would be responsible should such a danger arise.

In a study by Zhu et al,²⁰ the most common source of concern is reportedly a lack of professional knowledge. Dost et al²¹ investigated the attitudes of anesthesiologists and assistants toward patients infected with COVID-19. They found that the theoretical and applied training given before encountering the infected patient reportedly made it easier to protect the safety of both patients and health care workers and to prevent the panic among workers. In the present study, most participants (55.4%) stated that they received training about COVID-19 in the institutions in which they were working. Because the first case in Turkey was reported about 3 months after the disease was identified, it can be said that training was planned quickly during this process.

An evaluation of the smoking habits of the present study's participants showed that cigarette consumption decreased in 50.9% of smoking participants after the COVID-19 pandemic. The virus' portal of entry is upper respiratory tract.²² Knowing host factors and preventable host factors, such as smoking, may be important to reducing viral contamination and diseases severity.²³ The fact that smoking is a risk factor for the disease may trigger anxiety and depression. In the present study, anxiety and depression scores were found to be higher among those whose smoking habits went unchanged.

Anxiety symptoms were higher in single participants in our study, indicating the importance of social support, an important factor in the protection of mental health. Social support helps to

strengthen psychological resilience, which makes one feel better mentally in daily life and in the presence of psychiatric disorders.²⁴ In a large sample study conducted among university students in China, living with parents was found to have a protective effect against anxiety.²⁵

Individuals who have been working for 15 years or more and those with chronic diseases were found to have higher depression scores, and the prevalence of depression was found to increase significantly in both groups. This may be attributed to the fact that the presence of chronic disease increases with advancing age.

Bjelland et al²⁶ reported that a higher educational level may have a protective effect against anxiety and depression. However, contrarily, higher anxiety scores were observed in individuals with higher educational levels, and no difference was observed between education groups in terms of anxiety prevalence in the present study. This may be because our study population consisted of health care professionals and the number of participants with a low educational level was lower (28.3%). Studies involving larger and different populations should be conducted to determine the relationship between educational level and mental health after the COVID-19 pandemic.

Perioperative and perianesthesia nurses are vital to the overall nursing viability of the health care system, as they possess the requisite knowledge and skills to provide expert clinical care in many hospital settings and meet the demands of a global pandemic.²⁷ Increased workload during the pandemic and higher staffing positions have been shown to be associated with an increased stress burden among nurses.²⁸ Similarly, in the present study, depressive symptoms were found to increase as professional experience increases, and anxiety symptoms increase as workload increases. More intense depressive symptoms in those with more professional experience may be because of the backbreaking effects of the profession. The increase in workload appears to reveal a dysphoric effect, as expected. Furthermore, post-traumatic stress disorder symptoms were found to be more common in women than in men after the pandemic.

When interactions with patients without suspected COVID-19 were evaluated according to the answers given, it was found that 47% of participants were using unnecessary PPE. Regardless of the level of development, no country's resources will overcome such waste. We believe that the tendency to use equipment unnecessarily may be related to the increase in depressive symptoms among health care professionals.

This study has some limitations. The first limitation is that the participants who had a history of mental illness (6.5%) were included in the study. Also we investigated the prepandemic psychiatric conditions of participants with only one question. Second, because of the nature of the cross-sectional data, it is difficult to make causal interferences.

Conclusions

To sum up, providing psychological support to health care professionals, who play a key role in the fight against pandemics, is of great importance. Provision of the essential PPE could help health care workers to cope with their current situation. The psychological conditions of health care professionals can be followed continuously and regularly via standard procedures, and necessary interventions can be provided in the early period. We believe those working in risky units, particularly operating theaters, should be identified in the early period, and these workers should be supported through the creation of psychological support groups. Because females, single individuals (including widowed and divorced), smokers, those with at least one chronic disease, those whose workload has increased are more likely to be affected from

the pandemic, prioritization for assessment of this group of health care workers should be considered. For this purpose, easily applicable questionnaires can be used, or face-to-face interviews can be performed by experts.

References

- Li Q, Guan X, Wu P, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *N Engl J Med*. 2020;382:1199–1207.
- World Health Organization. Novel coronavirus (2019-nCoV) situation report. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>. Accessed February 9, 2020.
- Peng PWH, Ho PL, Hota SS. Outbreak of a new coronavirus: What anaesthetists should know. *Br J Anaesth*. 2020;124:497–501.
- Republic of Turkey Ministry of Health's COVID-19 Guide. Available at: <https://covid19bilgi.saglik.gov.tr/tr/>. Accessed May 15, 2020.
- Maunder R, Hunter J, Vincent L, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *CMAJ*. 2003;168:1245–1251.
- World Health Organization. Novel corona virus (2019-nCoV) technical guidance: Infection prevention and control. Available at: <https://www.who.int/emergencies/diseases/novelcoronavirus-2019/technicalguidance/infection-prevention-and-control>. Accessed February 9, 2020.
- Centers for Disease Control and Prevention. Interim infection prevention and control recommendations for patients with confirmed 2019 novel coronavirus (2019-nCoV) or persons under investigation for 2019-nCoV in healthcare settings. Available at: <https://www.cdc.gov/coronavirus/2019-nCoV/>. Accessed May 15, 2020.
- Lv Y, Zhang Z, Zeng W, Li J, Wang X, Luo GH. Anxiety and depression survey of Chinese Medical Staff before and during COVID-19 defense. Preprint. SSRN. 2020. <https://doi.org/10.2139/ssrn.3551350>.
- Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand*. 1983;67:361–370.
- Aydemir Ö, Güvenir T, Küey L, Kültür S. Hastane Anksiyete ve Depresyon Ölçeği Türkçe Formunun Geçerlilik Güvenilirliği. *Türk Psikiyatri Derg*. 1997;8:280–287.
- Qiu J, Shen B, Zhao M, et al. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *Gen Psychiatr*. 2020;33:e100213.
- Zhou C, Shi L, Gao L, et al. Determinate factors of mental health status in Chinese medical staff: A cross-sectional study. *Medicine (Baltimore)*. 2018;97:e0113.
- GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2018;392:1789–1858.
- Bai Y, Lin CC, Lin CY, Chen JY, Chue CM, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatr Serv*. 2004;55:1055–1057.
- Sprang G, Silman M. Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster Med Public Health Prep*. 2013;7:105–110.
- Alexander JL, Dennerstein L, Kotz K, Richardson G. Women, anxiety and mood: A review of nomenclature, comorbidity and epidemiology. *Expert Rev Neurother*. 2007;7:S45–S58.
- Liu N, Zhang F, Wei C, et al. Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. *Psychiatry Res*. 2020;287:112921.
- Wang C, Pan R, Wan X, 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. *Int J Environ Res Public Health*. 2020;17:1729.
- Li J, Tendeiro JN, Stroebe M. Guilt in bereavement: Its relationship with complicated grief and depression. *Int J Psychol*. 2019;54:454–461.
- Zhu J, Sun L, Zhang L, et al. Prevalence and influencing factors of anxiety and depression symptoms in the first-line medical staff fighting against the COVID-19 in Gansu. *Front Psychiatry*. 2020;11:386.
- Dost B, Koksal E, Terzi Ö, Bilgin S, Ustun YB, Arslan HN. Attitudes of anesthesiology specialists and residents toward patients infected with the novel coronavirus (COVID-19): A National Survey Study. *Surg Infect (Larchmt)*. 2020;21:350–356.
- Strzelak A, Ratajczak A, Adamiec A, Feleszko W. Tobacco smoke induces and alters immune responses in the lung triggering inflammation, allergy, asthma and other lung diseases: A mechanistic review. *Int J Environ Res Public Health*. 2018;15:1033.
- Berlin I, Thomas D, Le Faou AL, Cornuz J. COVID-19 and smoking. *Nicotine Tob Res*. 2020:ntaa059.
- Su Q, Guo L. Relationship between psychological elasticity, work stress and social support of clinical female nurses. *Chin Occup Med*. 2015;42:55–58.
- Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res*. 2020;287:112934.
- Bjelland I, Krokstad S, Mykletun A, Dahl AA, Tell GS, Tambs K. Does a higher educational level protect against anxiety and depression? The HUNT study. *Soc Sci Med*. 2008;66:1334–1345.
- Stucky CH, De Jong MJ, Lowe AW, Mathews B. COVID-19: Initial perioperative and perianesthesia nursing response in a Military Medical Center. *J Perianesth Nurs*. 2020;35:353–356.
- Mo Y, Deng L, Zhang L, et al. Work stress among Chinese nurses to support Wuhan for fighting against the COVID-19 epidemic. *J Nurs Manag*. 2020;28:1002–1009.