Original Article

Evaluation of Anxiety and Quality of Life of Healthcare Professionals During SARS-Cov-2 Pandemic

Yagmur Artan, RN, MSc Student
Ege University, Nursing Faculty, Department of Internal Medicine Nursing, Bornova, Izmir,Turkey

Kezban Deniz, RN, MSc, PhD student
Department of Anesthesia Intensive Care Unit, Bornova Turkan Ozilhan State Hospital, Bornova, Izmir, Turkey

Yasemin Yidirim, RN
Professor, Ege University, Nursing Faculty, Department of Internal Medicine Nursing, Bornova, Izmir, Turkey

Abdurrahman Hamdi Inan, MD
Assoc. Professor, Izmir Tepecik Training and Research Hospital, Izmir, Turkey.

Correspondence: Yagmur Artan, RN, MSc Student, Ege University, Nursing Faculty, Department of Internal Medicine Nursing, Kazım Dirik neighborhood, Ege University, Nursing Faculty, 35100 Bornova, Izmir,Turkey e-mail: ygmr-artan@hotmail.com

Abstract

Purpose: The aim of this study was to investigate the anxiety level and quality of life of healthcare professionals who have been working during Coronavirus Disease 2019 pandemic.
Methods: This study adopted a cross-sectional descriptive design. Data were collected in July and August 2020. Forms were created in an online setting and filled out by healthcare professionals ($n=135$) who had been working during the pandemic in ward and intensive care units at a state hospital in Turkey.
Findings: A significant negative correlation was found between the anxiety level and quality of life of healthcare professionals.
Practice Implications: By eliminating anxiety levels of healthcare workers and controlling its effect on their quality of life, it will be ensured that health services and care quality are maintained.

Key words: Trait anxiety; Quality of life; Healthcare worker; Mental health.

Introduction

CoVID-19, which was detected in Wuhan city of Hubei province of China at the end of 2019 and spread all over the world in a short time, has emerged as a very important and urgent public health problem. At the time of writing, this pandemic had caused approximately 32 million cases and one million deaths worldwide (WHO, 2020). Coronaviruses are a group of RNA viruses which are pathogenic to mammals and birds. In humans, they generally cause mild upper respiratory tract infections, but at times, they can infect human populations and cause severe respiratory diseases such as the 2003 SARS and 2012 MERS outbreaks (Roy et al., 2020).

Healthcare professionals are among the groups most affected by the pandemic. Staying at home and social distancing is necessary to prevent the spread of the virus, but healthcare professionals must care for infected patients. In addition, lack of personal protective equipment and the inadequacy of the health system both increase their exposure to infection. As a result, healthcare professionals may experience symptoms such as fear, insecurity and anxiety (Ruiz-Fernandez et al., 2020). Anxiety is a mental and physiological condition that has cognitive, somatic, emotional, and behavioral components. These components typically cause an unpleasant feeling associated with restlessness, anxiety and fear. Anxiety is

generally an emotion in which a triggering factor cannot be identified, and it is distinguished from the fear that occurs in the presence of an observable danger. While fear is associated with specific behavioral patterns such as flight and avoidance, anxiety is the result of a perception of threat that is perceived as inescapable and uncontrollable (Demir, 2017). Anxiety disorders are among the most common mental disorders (25%). This rate is higher than common depression (17%) (Bal et al., 2010).

Epidemics have psychological effects on healthcare workers as well as the general population, and this is inevitable. Studies that were conducted in the 2003 SARS outbreak reported that healthcare workers experienced acute stress reactions (Maunder et al., 2003). Ji et al. suggested that the prevalence of psychosomatic symptoms such as pain, fatigue and weakness increased during and after the SARS and EBOLA epidemics (Ji et al., 2017). A recent study conducted during the CoVID-19 epidemic stated that 61% of healthcare workers experienced moderate anxiety, and 9% experienced severe anxiety (Chew et al., 2020).

In China, a series of psychiatric disorders such as persistent depression, anxiety, panic attacks, psychomotor excitement, psychotic symptoms, delirium and even suicide were reported in the early stages of the SARS epidemic. Similar to the 2003 SARS epidemic, healthcare workers who have been providing treatment services to suspected pneumonia cases during the CoVID-19 pandemic process have been reported to feel vulnerable to both a high risk of infection and mental health problems (Kavas & Develi, 2020). Vicarious traumatization is a term that defines the experience of feelings such as decreased appetite, insomnia, fear, sleep disorders, and numbness. Li et al. have stated that nurses who cared for infected patients experienced vicarious traumatization more severely than the general population during the CoVID-19 pandemic (Li et al., 2020).

Quality of life includes an individual's physical functions, mental state, social relations, and the level of being affected by the environment. It also shows to what extent this condition of the individual affects his / her functionality. Today, work is aimed at not only eliminating diseases but also increasing the quality of life of people. Therefore, an increasing effort is being made to measure well-being and quality of life (Yuzugullu et al., 2018). The quality of life of healthcare professionals can significantly affect the quality of care that they provide (Yildirim & Hacihasanoglu, 2011). When the literature was reviewed in Turkey, no study was found that examined the anxiety and quality of life of healthcare workers who had been working devotedly in the SARS COV-2 pandemic. Therefore, this study aims to investigate the anxiety and quality of life level of healthcare professionals who have been working on the front line in the SARS-COV-2 pandemic.

Materials and Methods

Design and Sampling: Our research is a descriptive study. STROBE criteria were reviewed and used as applicable. The target population of the study consisted of 135 healthcare workers (doctors and nurses) who worked in the pandemic ward and intensive care unit of a state hospital in Izmir, Turkey between May and August 2020. Sampling was not used, as we aimed to reach the whole population. Healthcare workers were eligible to participate if they were: working for at least one year, can speak Turkish and volunteer to participate in the study. Those who did not want to participate in the study or complete the forms were not included in the study. Ethical permissions were obtained from the medical research ethics committee of the university, the Turkish Ministry of Health, and the state hospital where the research was to be conducted. Healthcare workers who participated in the study were informed about the purpose of the research and assured that their personal data would be kept confidential.

Data Collection: Study data were collected in July and August 2020. The State Anxiety Scale (SAS) and Trait Anxiety Scale (TAS) were used for evaluation of anxiety levels, and the short form of the Quality of Life Scale (WHOQOL-BREF) was used to evaluate the level of quality of life. In addition, the participants' sociodemographic information such as gender, age, working years, education level and working hours per week was also collected. All scales were created in Google Forms by the researchers and sent to the participants via e-mail. After the forms were

filled out by the participants, they were returned to the researchers via e-mail.

Instruments: *Personal Information Form* This form was created by the researchers and consisted of sociodemographic characteristics of healthcare workers such as age, gender, marital status, education level, work ward, years of experience and working hours per week. In addition, there were two questions about the mode of transmission of the virus and the protection measures.

State-Trait Anxiety Scale: These inventories were developed by Spielberger et al. (1970) and validated in the Turkish population by Oner and Le Compte in 1983. The State Anxiety Scale (SAS) consists of 20 items (items 1, 2.5, 8, 10, 11, 15, 16, 19 and 20 are reverse items) and the Trait Anxiety Scale (TAS) consists of 20 items (21, 26, 27, 30, 33, 36 and 39 are reverse items). The total score of the scales, calculated with a four-point Likert scale, varies between 20 and 80, and a higher score indicates a higher anxiety level (Aksu& Hocaoglu,2004).

Brief Quality of Life Scale (WHOQOL-BREF): This is the short form of the WHOQOL-100 quality of life scale developed by the World Health Organization. Its Turkish validity and reliability were tested in 1999 by Fidaner et al. (Fidaner et al, 1999). It consists of 27 items and is measured with a five-point Likert scale. The scale has four sub-domains: a physical dimension (3, 4, 10, 15, 16, 17, 18), a mental dimension (5, 6, 7, 11, 19, 26), a social relations dimension (20, 21, 22) and an environmental dimension (8, 9, 12, 13, 14, 23, 24, 25, 27). The scale has no total score. Each domain score maximum is 20 points. When the dimension scores are calculated, questions 3, 4, 26 and 27 are scored in reverse. Then, the average of the item values in each dimension is taken and the result is multiplied by four. A high score means better quality of life. Healthcare professionals were asked to answer the questions according to their last two weeks at work (Fidaner et al, 1999).

Analysis of data: The Statistical Package for Social Sciences for Windows Version 25.0 (SPSS 25.0) computer program was used for statistical analysis of the research data. The sociodemographic information was given as numeric and percentage distributions. Independent sample T-test was used to examine the effects of sociodemographic data on anxiety level and quality of life. Pearson correlation analysis was used to determine the relationship between anxiety level and quality of life. The results were considered significant only when p value was less than 0.05.

Ethical Process: Ethical permissions were obtained from the Ege University Faculty of Medicine Medical Research Ethics Committee (Ethics date and no: 24.06.2020/ 99166796-050.06.04), the Turkish Ministry of Health, and the state hospital where the research was to be conducted. Permission to use the WHOOQL-BREF quality of life scale was obtained from the person who tested its Turkish validity and reliability. Healthcare workers who participated in the study were informed about the purpose of the research and assured that their personal data would be kept confidential.

Results

Participant characteristics

In our research sample, 81.5% of the participants were female (*n = 110*), 70.4% were nurses (*n = 95*), 70.4% were married (*n = 95*) and 50.4% held a bachelor's degree (*n = 68*). The average age was 37.51 ± 7.45 years; they had 15.39 ± 8.11 years of experience and 3.02 ± 3.87 years of experience in their current ward; 51.1% of the participants worked in the pandemic ward; they worked for 41.31 ± 10.13 hours per week; 37% of the participants were smokers, and 11% of them had chronic diseases (Table 1).

Responses of Healthcare Professionals Regarding the Mode of Virus Transmission and Prevention Measures

When the questions about the mode of transmission and prevention measures relating to COVID-19 disease were asked to healthcare professionals, 98.5% of them stated that the virus was transmitted by coughing and sneezing, and 99.3% of them stated that they used a mask and complied with social distancing to protect themselves against the disease (Table 2).

Data of Anxiety, Quality of Life Scales and Subdomains

When the quality of life and anxiety levels of the healthcare professionals are examined, it is seen that the SAS average score is $43.95 \pm$

4.73, and the TAS average score is 45.29 ± 8.45. In the WHOQOL-BREF subdomains, Physical Well-being is 13.20 ± 3.04, Mental Well-being is 13.28 ± 2.48, Social Relations is 12.92 ± 2.88 and Environmental dimension is 13.04 ± 2.08 (Table 3).

Comparison of Anxiety Level and Sociodemographic Data

Trait anxiety level was found to be significantly higher in women (*p = 0.026*), nurses (*p = 0.000*), those who held a bachelor degree (*p = 0.000*), those who worked 41 hours or more per week (*p = 0.001*) and those who were single (*p = 0.049*). State anxiety level was significantly higher in women (*p = 0.019*), nurses (*p = 0.000*), those who held a bachelor degree (*p = 0.007*) and those who worked 41 hours or more per week (*p = 0.042*) (Table 4).

Comparison of Quality of Life and Subdomains with Sociodemographic Data

Physical Wellbeing subdomain scores were found to be significantly higher in groups consisted of physicians (*p = 0.001*), post-graduate degree holders (*p = 0.001*), those who worked in pandemic ward (*p = 0.027*), people with less than 15 years of work experience (*p = 0.004*), and those who worked less than 40 hours per week (*p = 0.018*).

Mental Wellbeing and Social Relations subdomains scores were found to be significantly higher in groups consisted of post-graduates (*p = 0.007*; *p = 0.03*), physicians (*p = 0.012; p = 0.014*), and those working less than 40 hours a week (*p = 0.003; p = 0.013*).

Enviroment subdomain scores were found to be significantly higher in groups consisted of men (*p = 0.019*), bachelor degree holders (*p = 0.000*), physicians (*p = 0.000*), and those working less than 40 hours per week (*p = 0.005*) (Table 4).

The Relationship Between Anxiety Level and Quality of Life

When the relationship between anxiety level and quality of life was examined, a significant negative correlation was found between all WHOQOL-BREF sub-domains and SAS and TAS (Table 5).

Table 1. Sociodemographic Characteristics of Healthcare Professionals

Variables	Numbers (N)	Percent (%)	Min.	Max.	Average
Age	135		21	56	37.51±7.45
Gender					
Female	110	(81.5)			
Male	25	(18.5)			
Job					
Nurse	95	(70.4)			
Doctor	40	(29.6)			
Working Ward					
Pandemic wards	69	(51.1)			
Intensive care	66	(48.9)			
Education					
Bachelor	68	(50.4)			
Postgraduate	50	(37)			
Associate Degree	13	(9.6)			
Health Vocational High school	4	(3.0)			
Marital status					
Married	95	(70.4)			
Single	30	(22.2)			
Divorced	10	(7.4)			
Smoking					
No	85	(63)			

Yes	50	(37)			
Chronic Diseases					
Diabetes	6	(4.4)			
Asthma/ COPD	5	(3.7)			
Hypertension	3	(2.2)			
Heart diseases	1	(0.7)			
Years of experience	135		1	32	15.39±8.11
Years of experience in the current ward	135		1	20	3.02±3.87
Work hours per week	135		12	80	41.31±10.13

Table 2. Responses of Healthcare Professionals Regarding the Path of Virus Transmission and Prevention Measures

Variables	N (number)	Percentage (%)	
		Percentage of answer	Percentage of sample
Mode of Transmission			
Coughing and sneezing	133	36.9	98.5
Contact	130	36.1	96.3
Fecal oral	57	15.8	42.2
With food	40	11.1	29.6
Total	360	100	
Prevention Measures			
Social Distancing	134	23.9	99.3
Use of masks	134	23.9	99.3
Hand washing	132	23.6	97.8
Social Isolation	114	20.4	84.4
Wearing gloves	46	8.2	34.1
Total	560	100	

* More than one option was marked.

Table 3. Anxiety, Quality of Life Scale and Subdomain Data

SCALES	Min.	Max.	Average
State Anxiety Scale	22	71	43.95±4.73
Trait Anxiety Scale	28	70	45.29±8.45
WHOQOL-BREF			
Physical Well-being			13.20±3.04

Mental Well-being		13.28±2.48
Social Relations		12.92±2.88
Environmental		13.04±2.08

Table 4. Comparison of the Personal Data of the Healthcare Professionals Participating in the Study and the Average   Scores of the Scale

Variables	N	ANXIETY		WHOQOL-BREF			
		SAS (X+ SD)	TAS (X+ SD)	Physical Wellbeing	Mental Wellbeing	Social Relations	Environment
Age							
≤39	66	45.19± 12.30	46.19± 8.72	13.44±2.92	13.08±3.16	13.12±2.76	12.96±2.00
≥40	69	42.76± 10.30	44.43± 8.14	12.96±3.16	13.52±2.36	12.76±3.00	13.08±2.12
		p=0.215	p=0.227	p=0.375	p=0.324	p=0.501	p=0.785
Gender							
Male	25	39.16± 9.06	41.92± 8.15	15.00±2.28	13.60±2.16	13.12±2.84	13.92±1.92
Female	110	45.04± 11.56	46.06± 8.36	12.76±3.04	13.24±2.56	12.92±2.92	12.84±2.04
		p=0.019	p=0.026	p=0.001	p=0.535	p=0.759	p=0.019
Job							
Doctor	40	37.92 ± 9.39	40.67± 6.97	14.52±2.48	14.12±2.24	13.88±2.36	14.44±1.56
Nurse	95	46.49± 11.18	47.24±8.29	12.64±3.08	12.96±2.52	12.56±3.00	12.44±1.96
		p=0.000	p=0.000	p=0.001	p=0.012	p=0.014	p=0.000
Working service							
Pandemic wards	69	43.20± 9.72	44.56± 8.50)	13.76±2.92	13.56±2.36	13.20±2.88	13.20±1.96
Intensive care	103	44.74± 12.85	46.06± 8.38	12.60±3.04	13.04±2.60	12.68±2.18	12.84±2.16
		p=0.436	p=0.306	p=0.027	p=0.242	p=0.292	p=0.282
Education							
Bachelor	68	45.36± 10.41	47.23± 8.20	12.64±3.08	12.92±2.36	12.56±3.08	12.48±2.00
Postgraduate	50	39.88±11.19	41.76± 7.93	14.40±2.60	14.08±2.20	13.76±2.48	14.16±1.72
		p=0.007	p=0.000	p=0.001	p=0.007	p=0.030	p=0.000
Marital Status							
Married	95	43.31± 11.63	44.36± 7.48	13.24±3.04	13.56±2.24	13.16±2.72	13.16±2.04
Single	40	45.47± 10.62	47.50± 10.15	13.04±3.04	12.68±2.92	12.40±3.24	12.64±2.16
		p=0.315	p=0.049	p=0.714	p=0.088	p=0.149	p=0.192
Smoking							
Yes	50	46.06± 12.95	46.88± 9.05	12.48±3.52	13.04±2.84	12.52±3.36	12.60±2.36
No	85	42.71± 10.16	44.36± 7.98	13.60±2.64	13.48±2.24	13.20±2.56	13.28±1.84
		p=0.122	p=0.095	p=0.061	p=0.322	p=0.228	p=0.082
Years of experience							

≤15 years	66	44.18± 11.61	45.03±8.66	13.96±2.64	13.48±2.40	13.36±2.56	13.28±1.92
≥16 years	69	43.73± 11.16	45.55± 8.29	12.44±3.20	13.12±2.56	12.56±3.16	12.76±3.20
		p=0.822	p=0.722	p=0.004	p=0.424	p=0.105	p=0.148
Work hours per week							
≤40 hours	85	42.43± 10.84	43.49± 8.07	13.68±2.84	13.76±2.36	13.44±2.48	13.40±1.92
≥41 hours	50	46.54± 11.82	48.36± 8.27	12.40±3.20	12.48±2.52	12.08±3.36	12.36±2.16
		p=0.042	p=0.001	p=0.018	p=0.003	p=0.013	p=0.005

Table 5. Pearson Correlation Analysis Results

Scales r (correlation coefficient) p value	TAS	SAS	Physical	Mental	Social Relations	Environment
Physical wellbeing	-0.663 0.000	-0.607 0.000		0.657 0.000	0.578 0.000	0.693 0.000
Mental wellbeing	-0.727 0.000	-0.576 0.000	0.657 0.000		0.622 0.000	0.661 0.000
Social Relations	-0.598 0.000	-0.438 0.000	0.578 0.000	0.622 0.000		0.537 0.000
Environment	-0.666 0.000	-0.688 0.000	0.693 0.000	0.661 0.000	0.537 0.000	
TAS		0.668 0.000	-0.663 0.000	-0.727 0.000	-0.598 0.000	-0.66 0.000
SAS	0.668 0.000		-0.607 0.000	-0.576 0.000	-0.438 0.000	-0.688 0.000

Discussion

The physical and mental health of healthcare professionals who worked on the front line and fought with great sacrifices during the pandemic period in this country, as well as the whole world, has been negatively affected. We found that the state and trait anxiety levels of the sample were low or moderate, and their quality of life level was medium. Studies showed that healthcare workers who had been working during the pandemic period experienced severe anxiety (Chen et al., 2020; Mo et al., 2020; Pearman et al., 2020). Incomplete information about the disease is among the main causes of anxiety, and being provided with adequate information is a positive motivation for healthcare professionals. This also helps to decrease their anxiety levels (Cai et al., 2020; Chua et al., 2004; Mohindra et al., 2020). In our study, almost all of the healthcare professionals were aware of the mode of transmission and the precautions required for proper protection. Because a majority of our sample (87.4%) held at least a bachelor's degree, the current guidelines published by the Ministry of Health and the more moderate number of cases compared to other countries may explain the moderate levels of anxiety. While collecting our data, a considerable decline in the number of cases in the country was

reported in July and August. Therefore, anxiety levels might have been affected.

Lai et al. reported that 44.6% of healthcare workers experienced anxiety during the pandemic, and females and nurses experienced more severe anxiety than other groups (Lai et al., 2020). In another study, 92.3% of nurses experienced various levels of anxiety, and anxiety levels were significantly higher in women (Alwani et al., 2020). Being female and working in pandemic wards are reported as risk factors for anxiety (Zhang et al., 2020). In our study, anxiety scale scores were significantly higher in females and nurses. In Turkey in the period before the pandemic, there was nurse understaffing and an excessive workload for nurses. Nurse understaffing increases the workload and work hours of other nurses, resulting in various physical and mental problems. According to recent studies, most nurses in Turkey complain that the number of nurses is insufficient and that they have workloads in excess of their job descriptions (Avci et al., 2013; Ersoy et al., 2017; Yazici & Kalayci 2015). This is likely due to nurses being in frequent close contact with patients and performing chores at work which are outside their job descriptions, and females having other responsibilities at home in addition to their work.

We observed that the quality of life of postgraduates was significantly higher, and their anxiety levels were significantly lower. The rate of following published guidelines and resources and compliance with measures correlates with education level.

We found that the scores of physicians' quality of life sub-domains were significantly higher. In a study conducted by Buselli et al., it was stated that being a physician had a positive effect on the quality of life score (Buselli et al., 2020). This might arise from the differences in financial situation and living conditions of physicians from other healthcare professionals.

We found that the quality of life scores of groups who had been working for 15 years or less than 40 hours per week were significantly higher. The total SAS and TAS scores of the group who worked more than 41 hours per week were significantly higher. Cai et al. stated that experienced healthcare workers have increased stress levels due to their long work hours and lack of equipment (Cai et al., 2020). Intense workload during the pandemic period caused more contact with infected patients and increased healthcare professional anxiety levels.

Liang et al. stated that the anxiety and depression scores of healthcare workers was not different according to the units where they worked (Liang et al., 2020). In our study, no difference was found between the anxiety scores of healthcare professionals who worked in the pandemic wards or intensive care units. However, it was found that the quality of life of healthcare workers who worked in the ward were significantly higher in the physical well-being sub-dimension. Although the precautions are the same, we think that the increase in workload and physical fatigue of healthcare workers in intensive care units might be the result of the conditions of the patient in intensive care units being critical and complex.

In our study, a significant negative relationship was found between the quality of life of healthcare workers and their anxiety level. Stojanov et al. stated that there was a negative relationship between the quality of life and anxiety levels of healthcare workers caring for patients receiving COVID-19 treatment (Stojanov et al., 2020). Hu et al. reported that approximately 15% of nurses experienced high-level anxiety and there was a negative correlation between quality of life parameters and anxiety levels (Hu et al., 2020). Substantial anxiety leads to psychological and physical disturbance and causes a decrease in the quality of life. The increased number of contacts of healthcare workers with patients diagnosed or suspected of COVID-19 is associated with impaired mental health (Kang et al., 2020; Shaukat et al., 2020).

Limitations: Our research was conducted with healthcare professionals who had been working only in the pandemic units of a state hospital. During the pandemic period, healthcare workers did not want to respond to the questionnaires initially, due to a high workload and the intense and uncertain period. Therefore, questionnaires were sent repeatedly to some of the participants and the data collection process was prolonged.

Despite all this, the strength of the study was that the whole population was reached. It would be beneficial to repeat the research with a larger sample in different hospitals and occupational groups.

Conclusion And Recommendations: In conclusion, we report that increasing anxiety levels negatively affect the quality of life of healthcare workers. The mental health of healthcare professionals who fight on the front line against the pandemic is important. Healthcare authorities have recommended strategies for protecting the mental health of healthcare workers in guidelines published during the pandemic period (Chersich et al., 2020; JCI, 2020; WHO, 2020). As a result, since the duration and progress of the current pandemic is uncertain, healthcare workers need to be physically and mentally protected. Reducing workload, providing a flexible working system and a reward system might be beneficial to achieve this.

Implications for Nursing Practice: Protecting the physical and mental health of healthcare professionals is of vital importance to fighting effectively against COVID-19. Determining the anxiety levels of healthcare professionals who have been working on the front lines during the epidemic and devising an early intervention plan may play an important role in helping them to overcome the COVID-19 pandemic.

References

Aksu, G., & Hocaoglu, C. (2004). The Study of Alexithymia, Anxiety, Worry and Depression Levels of the Patients Who Suffered by Mastalgia and Underwent to Radiodiagnostic Assey. *Turkish Journal of Clinical Psychiatry.* 7:95-102.

Alwani, S.S., Majeed, M.M., Hirwani, M.Z., Rauf, S., Saad, S.M., Shah, H., & Hamirani, F. (2020). Evaluation of knowledge, practices, attitude and anxiety of Pakistan's nurses towards COVID-19 during the current outbreak in Pakistan. *medRxiv.* 06.05.20123703. https://doi.org/10.1101/2020.06.05.20123703.

Avci, G.G., Turker, S., Ciftci, M., Surucu, S. (2013). Determination of Workload of Intensive Care Unit Nurses. *Turkish Journal of Intensive Care Medicine.* 4: 21-4.

Bal, U., Cakmak, S., Uguz, S. (2013). Gender differences in symptomsof anxiety disorders. *Archives Medical Review Journal.* 22(4):441-459.

Buselli, R., Corsi, M., Baldanzi, S., Chiumiento, M., Del Puto, E., Dell'Oste, V. et al. (2020). Professional quality of life and mental health outcomes among health care workers exposed to Sars-Cov-2 (COVID-19). *International journal of environmental research and public health.* 17: 6180. https://doi.org/10.3390/ijerph17176180

Cai, H., Tu, B., Ma, J., Chen, L., Fu, L., Jiang, Y., & Zhuang, Q. (2020). Psychological Impact and Coping Strategies of Frontline Medical Staff in Hunan Between January and March 2020 During the Outbreak of Coronavirus Disease 2019 (COVID-19) in Hubei, China. Medical science monitor: *International medical journal of experimental and clinical research*, 26, e924171. https://doi.org/10.12659/MSM.924171

Chen, Y., Zhou, H., Zhou, Y., & Zhou, F. (2020). Prevalence of self-reported depression and anxiety among pediatric medical staff members during the COVID-19 outbreak in Guiyang, China. *Psychiatry research*, 288, 113005. https://doi.org/10.1016/j.psychres.2020.113005

Chersich, M.F., Gray, G., Fairlie, L., Eichbaum, Q., Mayhew, S., Allwood, B., & English, R. et al. (2020). COVID-19 in Africa: care and protection for frontline healthcare workers. *Globalization and Health* 16,46. https://doi.org/10.1186/s12992-020-00574-3

Chew, N., Lee, G., Tan, B., Jing, M., Goh, Y., Ngiam, N., Yeo, L., Ahmad, A., Ahmed Khan, F., Napolean Shanmugam, G., Sharma, A. K., Komalkumar, R. N., Meenakshi, P. V., Shah, K., Patel, B., Chan, B., Sunny, S., Chandra, B., Ong, J., Paliwal, P. R., … Sharma, V. K. (2020). A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain, behavior, and immunity*, 88, 559–565. https://doi.org/10.1016/j.bbi.2020.04.049

Chua, S. E., Cheung, V., Cheung, C., McAlonan, G. M., Wong, J. W., Cheung, E. P., Chan, M. T., Wong, M. M., Tang, S. W., Choy, K. M., Wong, M. K., Chu, C. M., & Tsang, K. W. (2004). Psychological effects of the SARS outbreak in Hong Kong on high-risk health care workers. *Canadian journal of psychiatry. Revue canadienne de psychiatrie*, 49(6), 391–393. https://doi.org/10.1177/070674370404900609

Demir, V. (2017). Effects of mindfulness based cognitive therapy on the anxiety levels of university students. *International Journal of Society Researches*. 7(12), 98-118.

Ersoy, E.O., Abdulkerim, S., Oz, A., Aslan, G., Kavak, P.B., Fakili, D., Topeli, A. (2017).

Evaluation of nursing workload in intesive care unit. *Turkish Journal of Intensive Care Medicine*. 8; 1-5. DOI: 10.5152/dcbybd.2017.1353.

Fidaner, H., Elbi, H., Fidaner, C., Eser S.Y., Eser, E., Goker, E. (1999). WHOQOL Turkish version study: Focus group procedure and assessment of national guestions. *Journal of Psychiatry Psychology Psychopharmacology (3P)*. 1999;7(Ek 2):48-54.

Hu, D., Kong, Y., Li, W., Han, Q., Zhang, X., Zhu, L. X., Wan, S. W., Liu, Z., Shen, Q., Yang, J., He, H. G., & Zhu, J. (2020). Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. *E Clinical Medicine*, 24, 100424. https://doi.org/10.1016/j.eclinm.2020.100424

Ji, D., Ji, Y. J., Duan, X. Z., Li, W. G., Sun, Z. Q., Song, X. A., Meng, Y. H., Tang, H. M., Chu, F., Niu, X. X., Chen, G. F., Li, J., & Duan, H. J. (2017). Prevalence of psychological symptoms among Ebola survivors and healthcare workers during the 2014-2015 Ebola outbreak in Sierra Leone: a cross-sectional study. *Oncotarget*, 8(8), 12784–12791. https://doi.org/10.18632/oncotarget.14498

Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Yang, B. X., Wang, Y., Hu, J., Lai, J., Ma, X., Chen, J., Guan, L., Wang, G., Ma, H., & Liu, Z. (2020). The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *The Lancet. Psychiatry*, 7(3), e14. https://doi.org/10.1016/S2215-0366(20)30047-X

Kavas, B.N., Develi, A. (2020). The effect of COVID-19 pandemia on women's healthcare employees ın the context of problems in working life. *International Anatolian Social Sciences Journal*. 4(2):84-112.

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA network open*, 3(3), e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Li, Z., Ge, J., Yang, M., Feng, J., Qiao, M., Jiang, R., Bi, J., Zhan, G., Xu, X., Wang, L., Zhou, Q., Zhou, C., Pan, Y., Liu, S., Zhang, H., Yang, J., Zhu, B., Hu, Y., Hashimoto, K., Jia, Y., … Yang, C. (2020). Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. *Brain, behavior, and immunity*, 88, 916–919. https://doi.org/10.1016/j.bbi.2020.03.007

Liang, Y., Chen, M., Zheng, X., & Liu, J. (2020). Screening for Chinese medical staff mental health by SDS and SAS during the outbreak of COVID-19. *Journal of psychosomatic research*, 133, 110102. https://doi.org/10.1016/j.jpsychores.2020.110102

Maunder, R., Hunter, J., Vincent, L., Bennett, J., Peladeau, N., Leszcz, M., Sadavoy, J., Verhaeghe, L. M., Steinberg, R., & Mazzulli, T. (2003). The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Canadian Medical Association journal = journal de l'Association medicale canadienne*, 168(10), 1245–1251.

Mo, Y., Deng, L., Zhang, L., Lang, Q., Liao, C., Wang, N., Qin, M., & Huang, H. (2020). Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *Journal of nursing management*, 28(5), 1002–1009. https://doi.org/10.1111/jonm.13014

Mohindra, R., R, R., Suri, V., Bhalla, A., & Singh, S. M. (2020). Issues relevant to mental health promotion in frontline health care providers managing quarantined/isolated COVID19 patients. *Asian journal of psychiatry*, 51, 102084. https://doi.org/10.1016/j.ajp.2020.102084

Pearman, A., Hughes, M. L., Smith, E. L., & Neupert, S. D. (2020). Mental Health Challenges of United States Healthcare Professionals During COVID-19. *Frontiers in psychology*, 11, 2065. https://doi.org/10.3389/fpsyg.2020.02065

Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. (2020). Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian journal of psychiatry*, 51, 102083. https://doi.org/10.1016/j.ajp.2020.102083

Ruiz-Fernández, M. D., Ramos-Pichardo, J. D., Ibáñez-Masero, O., Cabrera-Troya, J., Carmona-Rega, M. I., & Ortega-Galán, Á. M. (2020). Compassion fatigue, burnout, compassion satisfaction and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain. *Journal of clinical nursing*, 29(21-22), 4321–4330. https://doi.org/10.1111/jocn.15469

Shaukat, N., Ali, D. M., & Razzak, J. (2020). Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International journal of emergency medicine*, 13(1), 40. https://doi.org/10.1186/s12245-020-00299-5

Spoorthy, M. S., Pratapa, S. K., & Mahant, S. (2020). Mental health problems faced by healthcare workers due to the COVID-19 pandemic-A review. *Asian journal of psychiatry*, 51, 102119. https://doi.org/10.1016/j.ajp.2020.102119

Stojanov, J., Malobabic, M., Stanojevic, G., Stevic, M., Milosevic, V., & Stojanov, A. (2020). Quality of sleep and health-related quality of life among health care professionals treating patients with coronavirus disease-19. *The International journal of social psychiatry*, 20764020942800. Advance online publication. https://doi.org/10.1177/0020764020942800

Sun, N., Wei, L., Shi, S., Jiao, D., Song, R., Ma, L., Wang, H., Wang, C., Wang, Z., You, Y., Liu, S., & Wang, H. (2020). A qualitative study on the psychological experience of caregivers of COVID-19 patients. *American journal of infection control*, 48(6), 592–598. https://doi.org/10.1016/j.ajic.2020.03.018

The Joint Commission. (2020). Mental Wellbeing for healthcare workers during the COVID-19 pandemic. Access from: https://www.jointcommission.org/-/media/tjc/documents/covid19/mental-wellbeing.pdf Accessed: 22.08.2020.

World Health Organization. (2020). Mental health and psychosocial considerations during the COVID-19 outbreak. Access from: https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf Accessed: 22.08.2020.

World Health Organization. (2020). Access from: https://covid19.who.int Accessed: 22.09.2020.

Yazici, S.O., Kalayci, I. (2015). Evaluatıon of activities of daily living in elderly patients. *Suleyman Demirel University Journal of Engineering Sciences and Design*, 3(3), SI; Ergonomi:379-383.

Yildirim, A., Hacihasanoglu, R. (2011). Quality of life and effective variables among health care professionals. *Journal of Psychiatric Nursing*, 2(2):61-68.

Yuzugullu, D., Aytac, N., Akbaba, M. (2018). Life quality, work accidents and effects of shift work in ıntensive care unit nurses of a university hospital. *Sakarya medical journal*, 8(1):99-107.

Zhang, W. R., Wang, K., Yin, L., Zhao, W. F., Xue, Q., Peng, M., Min, B. Q., Tian, Q., Leng, H. X., Du, J. L., Chang, H., Yang, Y., Li, W., Shangguan, F. F., Yan, T. Y., Dong, H. Q., Han, Y., Wang, Y. P., Cosci, F., & Wang, H. X. (2020). Mental Health and Psychosocial Problems of Medical Health Workers during the COVID-19 Epidemic in China. *Psychotherapy and psychosomatics*, 89(4), 242–250. https://doi.org/10.1159/000507639