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THE EFFECT OF WORKING IN A HOSPITAL OFFERING PANDEMIC-RELATED SERVICES ON THE PERCEIVED STRESS AND ANXIETY LEVELS OF NURSES DURING COVID-19: A CASE OF TWO HOSPITALS

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Abstract: This descriptive and comparative study analyzed the effect of working conditions on the stress and anxiety levels of nurses in hospitals treating patients affected by the coronavirus disease 2019 (COVID-19) pandemic. The study was performed with a total of 304 nurses working in one hospital that provided pandemic-related services and another one that did not. An introductory information form, perceived stress scale (PSS), and Beck anxiety inventory (BAI) were used to collect data online. Before starting the study, ethics committee approval, institutional permission, and informed consent from the nurses included were obtained. The mean BAI scores of the nurses who worked in the hospital not offering pandemic-related services were similar to those of the nurses working in the hospital that did, whereas their mean PSS scores were significantly higher. There was a significant positive correlation between PSS and BAI ($P < 0.001$).

Keywords: Anxiety, COVID-19, Nurse, Pandemic, Perceived stress

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1. Introduction

All countries of the world have faced the threat of the virus alleged to have appeared in Wuhan, China, in December 2019. The epidemic, which reached a global scale within a short time, was declared a pandemic by the World Health Organization (WHO) on March 11, 2020, on which day the first case was encountered in the Republic of Türkiye (RTMH, 2021; WHO, 2020). The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spread rapidly and affected health, education, and the economy worldwide (Chen et al., 2020; Lu et al., 2020). This pandemic is an important global threat to mental health. Studies have reported that symptoms such as anxiety, depression, post-traumatic stress disorder, psychological distress, and stress are seen during viral respiratory epidemics, which include coronavirus disease 2019 (COVID-19) (Luo et al., 2020; Xiong et al., 2020).

Nurses are one of the occupational groups that are affected both physically and mentally during a pandemic (Chew, 2020). Those who care for infected patients are at risk of various mental health conditions (WHO, 2020; Xiang et al., 2020). A study conducted with 1,146 healthcare workers, including nurses working in Asia-Pacific region countries, found that variation in the prevalence of psychological disorders among healthcare workers was independent of the burden of COVID-19 cases within each country (Chew, 2020). A study conducted in Türkiye reported that the anxiety levels of nurses during the pandemic were higher than those of other healthcare professionals (Hacimusalar et al., 2020). During the pandemic, nurses have performed multiple tasks and functions including health education, screening, infection prevention, and surveillance;

ensuring necessary preparations and precautions in nursing homes and institutions where long-term care is provided; protecting high-risk groups; and providing care to acute and critical COVID-19 patients (Chen et al., 2020). Nursing is a highly stressful profession in general, but the COVID-19 pandemic has brought additional difficulties (Mokhtrai et al., 2020). Many physical and psychosocial considerations, such as the risk of exposure to the virus in the work environment, long and intensive work periods involving protective equipment, and worrying about transmitting the virus to family and others, have accentuated the stress and anxiety levels of nurses (Jiang et al., 2020). Stress can be defined as 'strain, tension and pressure' and used to express the different experiences that make individuals feel discomfort (Kaba, 2019). Anxiety can be defined as a state of fear, worry, distress, or tension of unknown origin that comes from within (Engin, 2014). The literature cites patients' deaths, the disease's unknown aspects, the atmosphere of the working environment, professional commitments, and individual characteristics as sources of distress in nurses caring for COVID-19 patients (Galehdar, 2020). Studies conducted in Türkiye reported that nurses had high levels of stress and occupational burnout syndrome, experienced anxiety and fear during the pandemic, reported increased obsessive behaviors or thoughts, and showed depressive symptoms (Kaçkin et al., 2020; Murat et al., 2020).

Nurses have been playing a key role in combating COVID-19 (Jiang et al., 2020; Kiyat et al., 2020) and have endured a great deal of psychological distress while caring for affected patients (Galehdar 2020; Kaçkin et al., 2020; Murat et al., 2020). Evaluating the effect of working in a hospital providing COVID-19 pandemic-related services on the stress and anxiety levels of nurses will shed light on this issue. In addition, this study will provide evidence-based data for future studies to plan and implement interventions to support the mental health of nurses.

The research sought answers to the following questions:

What are the perceived stress and anxiety levels of nurses working in a hospital offering pandemic-related services?

What are the perceived stress and anxiety levels of nurses working in a hospital not offering pandemic-related services?

Does working in a hospital providing pandemic service affect the perceived stress and anxiety levels of nurses?

2. Materials and Methods

2.1. Research Design

This descriptive and comparative study examined the effect of working in a hospital offering COVID-19 pandemic-related services on the stress and anxiety levels perceived by nurses.

2.2. Study Population and Sample

The total study population comprised 1,318 nurses, 240 working at the research and practice hospital of a university in Central Anatolia (non-pandemic hospital) and 1,078 working at a city hospital in Eastern Anatolia (pandemic hospital). The study was conducted between July 1 and October 15, 2020, with the 304 nurses who agreed to participate, and sample selection was not performed. The power of the study was calculated to be 95% in a post-hoc power analysis performed with an alpha = 0.05 confidence interval and a 0.50 effect size using the G-Power 3.1.94 program; the sample size was found to be sufficient.

2.3. Data Collection Tools

Research data were collected using the descriptive information form, perceived stress scale (PSS), and Beck anxiety inventory (BAI).

2.4. Descriptive Information Form

Descriptive information form was prepared by the researcher by making use of the literature (Chew et al. 2020; Galehdar et al., 2020; Hacimusalar et al., 2020; Liu et al., 2020; Maraqa et al., 2020; Murat et al., 2020; Neupane et al., 2020). This included questions on the socio-demographic characteristics of the nurses such as age, gender, educational status, occupational characteristics (such as the duration of employment, the unit worked in before and during the pandemic, and the duration and method of work), how family life was affected by the pandemic, and their greatest concern regarding the pandemic

2.5. Perceived Stress Scale

This was developed by Cohen, Kamarck, and Mermelstein in 1983 to determine the level of stress that threatens human health (Cohen et al., 1983). The Turkish validity and reliability study was conducted by Eskin et al. (2013). The PSS consists of two factors: self-efficacy and stress perception. It is a five-point Likert-type scale with 14 items. Participants rate each item on a type scale ranging from 'never (0)' to 'very often (4)'. Seven items containing positive statements are scored in reverse. PSS scores range from 0 to 56, and the higher the score, the higher the perceived stress level. In study of Eskin et al. (2013) the total Cronbach Alpha value of the scale was 0.84 and it was found to be 0.73 in our study.

2.6. Beck Anxiety Inventory

This was developed by Beck et al. (1988) to measure the level of anxiety symptoms experienced by an individual. Ulusoy et al. (1988) conducted the Turkish validity study of the BAI. It is a four-point Likert-type scale and consists of 21 items. The scores that can be obtained from the scale range from 0 to 63, and the higher the score, the higher the anxiety level experienced by the person. According to the scores obtained, the anxiety levels of the participants are classified as minimal (0–7 points), mild (8–15 points), moderate (16–25 points), and severe (≥26 points). In Ulusoy et al. (1988) study, the total Cronbach Alpha value of the scale was 0.93 and it was found to be 0.95 in our study.

2.7. Data Collection

The data-collection tools for this research were delivered

to the nurses online. Initially, a pilot study was conducted with 10 people to test the comprehensibility of the forms; the nurses who were included in the pilot study were not included in the main sample.

2.8. Statistical Analysis

Descriptive statistics of the data were calculated, and the conformity of the variables to a normal distribution was examined by visual methods (histograms and probability plots), skewness, kurtosis values, and the Kolmogorov–Smirnov test. The Chi-square test was used for comparing the categorical variables. The Student's t-test was used to compare two independent groups for variables showing a normal distribution; the Mann–Whitney U test was used to compare variables that did not show a normal distribution. For the correlation studies, the Pearson correlation test was employed for normally distributed data, and the Spearman correlation test was used for non-normally distributed data. The level of significance was accepted as $P < 0.05$.

3. Results

The age, number of children, and duration of work of nurses working in the hospital offering pandemic-related services were significantly higher than nurses working in the hospital not providing pandemic-related services. The mean BAI scores of the nurses who worked in the hospital not offering pandemic-related services were similar to those working in the hospital that did, but their mean PSS scores were significantly higher (Table 1).

Table 1. Introductory Characteristics of the Nurses

	Non Pandemic Hospital (n:172)		Pandemic Hospital (n:132)			
Variables	Mean±SD		Mean±SD		t	P[+]
Age	30.4±6.9		35.6±7.7[a]		-6.161	<0.001
BAI	23.9±14.5		21.7±15.0		1.266	0.207
PSS	31.1±6.5[a]		29.4±7.1		2.205	0.028
	Median (IR)		Median (IR)		Z	P[++]
Number of children	0 (2)		1.5 (2)[a]		-3.331	0.001
Working time in the profession (year)	7 (10)		12 (12)[a]		-5.532	<0.001
	%	n	%	n	x^2	P[+++]
Study participants	56.6[a]	172	43.4	132	5.263	0.022
Female gender	76.7	132	67.4	89	3.268	0.071
Married participants	57.0	98	73.5[a]	97	12.335	0.002
Spouse also health worker	23.3	40	30.3	40	1.936	0.380

[a] Significantly higher than the other group, [+] Student *t*- test, [++] Mann–Whitney U test, [+++] Chi-square, n= number of participant, SD= standard deviation, IR= interquartile range, BAI= beck anxiety inventory, PSS= perceived stress scale

More than one-half of the nurses working in the hospital that did not offer pandemic-related services were university graduates; 74.4% had a weekly working time of 40–48 hours before COVID-19; 67.4% had a weekly working time of 40–48 hours during COVID-19; 65.7% worked both day and night shifts before COVID-19; 68.6% worked both day and night shifts during COVID; 41.3% stated that their family was negatively affected ($P < 0.05$); 41.9% were worried about infecting their family or others; and 34.3% had received training to handle COVID-19. Of the nurses working in the hospital offering pandemic-related services, 81.1% had a university degree; 81.8% had a weekly working time of 40–48 hours before COVID-19; 71.8% had a weekly working time of 40–48 hours during COVID-19; 57.6% worked both day and night shifts before COVID-19; 70.5% worked both day and night shifts during COVID-19; 47% stated that their family was negatively affected ($P < 0.05$); and 38.6% were worried about infecting their family or others (Table 2).

There was a statistically significant negative correlation between those with less experience (time working in the profession) and those with more weekly working hours during COVID-19 ($P = 0.004$) (Table 4).

Based on the analysis shown in Table 4, there was a significant positive correlation between PSS and BAI ($r = 0.542$, $P < 0.001$). There was a significant negative correlation between school of graduation (educational level) and PSS and BAI ($r = –0.214$, $P < 0.001$ and $r = –0.182$, $P = 0.001$, respectively). There was a significant negative correlation between age and PSS ($r = –0.144$, $P = 0.012$). There was a significant positive correlation between weekly working hours before COVID-19 and weekly working hours during COVID-19 ($r = 0.366$, $P < 0.001$).

Table 2. Educational information, working conditions and causes of anxiety of nurses in hospitals providing pandemic-related services

	Non Pandemic Hospital (n:172)		Pandemic Hospital (n:132)			
Graduated School	n	%	n	%	x^2	P+
Health vocational high School	30	17.4	3	2.3	25.984	<0.001
Associate degree	22	12.8	14	10.6		
Undergraduate	98	57.0	107	81.1		
Graduate	22	12.8	8	6.1		
Weekly Working Time Before COVID-19					6.330	0.042
40–48 hours	128	74.4	108	81.8		
49–56 hours	28	16.3	9	6.8		
≥57 hours	16	9.3	15	11.4		
Weekly Working Time During COVID-19					2.586	0.274
40–48 hours	116	67.4	100	75.8		
49–56 hours	28	16.3	17	11.4		
≥57 hours	28	16.3	17	12.9		
Before COVID-19 Working Schedule					6.735	0.034
Day	45	26.2	51	38.6		
Night	14	8.1	5	3.8		
Daytime and night	113	65.7	76	57.6		
During COVID-19 Working Schedule					1.598	0.450
Day	40	23.3	33	25.0		
Night	14	8.1	6	4.5		
Daytime and night	118	68.6	93	70.5		
How COVID-19 Affects Family Life					8.338	0.040
Unresponsive	23	13.4	27	20.5		
Fear of contagion	41	23.8	16	12.1		
Anxiety and depression	37	21.5	27	20.5		
Negatively affected	71	41.3	62	47.0		
Concern over COVID-19					2.276	0.810
Unresponsive	24	14.0	19	14.4		
Infecting family and loved ones	72	41.9	51	38.6		
Infecting others	12	7.0	11	8.3		
Infecting your child	16	9.3	14	10.6		
Getting sick	29	16.9	17	12.9		
Fear and depression	19	11.0	20	15.2		

x^2 = Chi-square, n= number of participant

Table 3. Comparison of age, BAI and PSS scores by gender

	Women (n:221)	Men (n:83)		
Variables	Mean±SD	Mean±SD	t	P+
Age	33.0±7.9	31.9±7.3	1.065	0.288
BAI	24.9±14.4[a]	17.7±14.3	3.862	<0.001
PSS	31.3±6.4[a]	28.1±7.4	3.674	<0.001
	Median (IR)	Median (IR)	Z	P++
Number of children	1 (2)	1 (2)	-3.331	0.965
WT (year)	10 (14)	9 (11)	-5.532	0.118

[a] Significantly higher than the other group, + Student *t*- test, ++ Mann–Whitney U test, n= number of participant, SD= standard deviation, IR= interquartile range, BAI= beck anxiety inventory, PSS= perceived stress scale, WT= working time in the profession

Table 4. Correlation analysis of the relationship between age, BAI, PSS, WT, GS, WWTB and WWTBD COVID-19

	WWTD		WWTB		GS		WT		PSS		BAI	
	r	P	r	P	r	P	r	P	r	P	r	P
Age	-0.198	0.001*	-0.055	0.337	0.278	<0.001*	0.921	<0.001*	-0.144	0.012*	0.024	0.678
BAI	0.022	0.703	0.033	0.568	-0.182	0.001*	0.031	0.586	0.542	<0.001*		
PSS	0.074	0.196	-0.008	0.886	-0.214	<0.001*	-0.088	0.126				
WT	-0.164	0.004*	-0.031	0.585	0.142	0.013*						
GS	-0.091	0.113	0.010	0.861								
WWTB	0.366	<0.001*										

r= correlation coefficient, BAI= beck anxiety inventory, PSS= perceived stress scale, WT= working time in the profession, WWTB= weekly working time before COVID-19, WWTD= weekly working time during COVID-19, GS=graduated school

4. Discussion

The present study examined the effect of working in a hospital offering pandemic-related services on the perceived stress and anxiety levels of nurses. While the anxiety levels were similar, the perceived stress levels were significantly higher in nurses working in the hospital not offering pandemic-related services compared to those working in the hospital that did. The age and professional working time of nurses in the hospital offering pandemic-related services were higher compared to the other group. In addition, the perceived stress level decreased as the age of the nurses increased. This suggests that the experience of the nurses working in the pandemic hospital had a positive effect on stress levels. A previous study conducted in Türkiye reported that nurses who were younger and had less work experience felt less confident about their nursing abilities and had higher levels of stress and occupational burnout (Murat et al., 2020). This suggests that as the age of nurses increases, both their life and work experiences also increase, and they develop new techniques to cope with stress.

A study conducted with healthcare workers in Singapore reported that nonmedical healthcare personnel were at the highest risk for psychological distress during the COVID-19 outbreak (Tan et al., 2020). A study conducted with healthcare workers in China reported that those at the forefront of the fight against pandemics were at greater risk in terms of anxiety, insomnia, and general psychological problems than other healthcare professionals (Que et al., 2020)

In the present study, while the anxiety levels of the nurses working in the hospital not offering pandemic-related services were similar to those working in the hospital offering them, their perceived stress levels were higher. This might be associated with the nurses working in the hospital offering pandemic-related services mentally preparing themselves for the situation, and taking comprehensive infection-control measures. More systematic training of employees working in such hospitals, extensive use of protective equipment and clothing, and taking the approach of treating all patients as if they were COVID-19-positive intensified the measures taken. These measures might have reduced the stress levels of nurses working in the hospital providing pandemic service. Moreover, in the hospital not offering pandemic-related services, routine health services continued, and there was an increase in patient density as people preferred the non-pandemic hospitals. It can be argued that these healthcare professionals came into contact with a large number of patients with uncertain COVID-19 status, and that this uncertainty might have increased the perceived stress level.

In the present study, a positive and significant relationship was found between the perceived stress level and anxiety scores of nurses working in the hospital offering pandemic-related services. Similarly, Mo et al. (2020) found a positive and significant relationship between the stress and anxiety scores of nurses, which supports our findings. In the present study, the nurses working in the hospital offering pandemic-related services experienced moderate anxiety. In a study conducted in China, the overall prevalence of anxiety among healthcare workers fighting against COVID-19 was 12.5%, with 10.35% of these cases being mild, 1.36% moderate and 0.78% severe (Liu et al., 2020). Neupane et al. (2020) found that 88.4% of nurses had normal anxiety levels, whereas 10.5% reported mild-to-moderate anxiety. Roberts et al. (2020) reported the rate of experiencing moderate-to-severe or severe symptoms of anxiety was approximately 21% (40/191), and that young nurses with less experience had high anxiety levels. In the present study, age did not affect the anxiety level.

In our study, the mean PSS score of the nurses was 29.4 ± 7.1 (PSS min = 0, max = 56), which indicated a moderate level of stress. When the studies related to the subject in the literature are examined, Neupane et al. (2020) and Hendy et al. (2020) reported that more than half of the nurses who participated in the study had moderate stress. Wang et al. (2020) reported that the level of stress among healthcare workers was low, which was related to professional commitment and sacrifice.

The present study determined that the perceived stress level decreased with age. This finding suggests that the increase in work experience with increasing age has a positive effect on the stress levels of nurses. Murat et al. (2020) results support this finding.

In the present study, the stress perceived by female nurses was higher than that of male nurses (Murat et al., 2020). Hacimusalar et al. (2020) found that female

healthcare workers had a higher anxiety level than their male counterparts. Wilson reported that the stress level was higher among female healthcare workers, which is similar to our finding (Wilson et al., 2020).

In the present study, the greatest concerns of the nurses working in the hospital offering pandemic-related services were infecting their family, children, loved ones, and others; and fear of getting sick or experiencing depression. A qualitative study noted that nurses experienced many psychological problems while caring for COVID-19 patients, including fear of death, anxiety related to the nature of the disease, fear of infecting family, and fear of disease transmission (Galehdar et al., 2020). Maraqa et al. (2020) found that 91.6% of healthcare workers mentioned that the risk of transmitting the virus to their family was their greatest stressor. According to Wang et al. (2020), healthcare professionals also cited stressors such as being infected with COVID-19, transmitting the infection to family members, and discomfort caused by protective equipment. Similar to our study, Robert et al. (2020) mentioned stressors such as transmitting the virus to other people, contracting the virus, being exhausted, not working safely, not being able to cope, and not getting enough personal protective equipment.

5. Conclusions

The present study found that the perceived stress and anxiety levels of nurses working in a hospital offering pandemic-related services were moderate. As the stress levels perceived by the nurses increased, so did their anxiety levels. While the anxiety levels of nurses who worked in the hospital not offering pandemic-related services were similar to those working in the hospital that did, their perceived stress levels were higher. Anxiety and perceived stress levels were found to be significantly higher in women than in men. The perceived stress level of younger nurses was higher. In line with these results, many other psychological and physiological issues, including the perceived stress and anxiety levels of nurses who play a key role in healthcare should be evaluated. It is recommended that studies involve multidisciplinary teams for the effective management of these problems experienced by the nurses.

Limitations

This study was conducted during a specific time period during the course of the pandemic, which is continuing to change over time; this might have affected the stress and anxiety levels perceived by the nurses. The two hospitals involved were in different provinces, so the COVID-19 burden might have varied between them, which might also have influenced the findings. Differences in the ages of the nurses and the duration of work between the two hospitals could have affected the results of the study. A final limitation is that the study did not explore the physical symptoms of the nurses.

Author Contributions

Concept: Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%), Design: Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%), Supervision: Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%), Data collection and/or processing: Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%), Data analysis and/or interpretation: Y.H. (34%), Z.K. (33%) and Y.G. (33%), Literature search: Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%), Writing: Z.K. (50%) and A.A. (50%), Critical review: Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%), Submission and revision Z.K. (25%), Y.G. (25%), Y.H. (25%) and T.A.A. (25%). All authors reviewed and approved final version of the manuscript.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. Authors declare that they have no sponsor in the study design, collection, analysis, interpretation of data, writing of the manuscript, and decision to submit the manuscript for publication.

Ethical Approval/Informed Consent

Ethical approval (approval no: 2020-06-134) was obtained from the Yozgat Bozok University, Zübeyde Hanım Faculty of Health Sciences ethics committee before starting the study. Institutional permission was obtained from the research and application hospital and the city hospital where the study was conducted. Electronic informed consent was obtained from the nurses included in the study.

References

Beck AT, Epstein N, Brown G, Steer RA. 1988. An inventory for measuring clinical anxiety: psychometric properties. J Consult Clin Psychol, 56(6): 893-897. doi: 10.1037//0022-006x.56.6.893.

Chen SC, Lai YH, Tsay SL. 2020. Nursing Perspectives on the Impacts of COVID-19. J Nurs Res, 28(3): e85. doi: 10.1097/NRJ.0000000000000389.

Chew NWS, Lee GKH, Tan BYQ, Jing M, Goh Y, Ngiam NJH, Yeo LLL, Ahmad A, Ahmed Khan F, Napolean Shanmugam G, Sharma AK, Komalkumar RN, Meenakshi PV, Shah K, Patel B, Chan BPL, Sunny S, Chandra B, Ong JJY, Paliwal PR, Wong LYH, Sagayanathan R, Chen JT, Ying Ng AY, Teoh HL, Tsivgoulis G, Ho CS, Ho RC, Sharma VK. 2020. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. Brain Behav Immun, 88: 559-565. doi: 10.1016/j.bbi.2020.04.049.

Chew NWS, Ngiam JN, Tan BY, Tham SM, Tan CY, Jing M, Sagayanathan R, Chen JT, Wong LYH, Ahmad A, Khan FA, Marmin M, Hassan FB, Sharon TM, Lim CH, Mohaini MIB, Danuaji R, Nguyen TH, Tsivgoulis G, Tsiodras S, Fragkou PC, Dimopoulou D, Sharma AK, Shah K, Patel B, Sharma S, Komalkumar RN, Meenakshi RV, Talati S, Teoh HL, Ho CS, Ho RC, Sharma VK. 2020. Asian-Pacific perspective on the psychological well-being of healthcare workers during the evolution of the COVID-19 pandemic. BJPsych Open, 6(6):

e116. doi: 10.1192/bjo.2020.98.

Cohen S, Kamarck T, Mermelstein R. 1983. A global measure of perceived stress. J Health Soc Behav, 24(4): 385-96. PMID: 6668417.

Engin E. 2014. Anksiyete bozuklukları. In: Çam O, Engin E. editors. Ruh sağlığı ve hastaliklari hemşireliği, İstanbul Medikal Yayıncılık, İstanbul, 1. baskı, pp: 277–296.

Eskin M, Harlak H, Demirkıran F, Dereboy Ç. 2013. The adaptation of the perceived stress scale into Turkish: A reliability and validity analysis. Yeni Symposium J, 51: 132–40.

Galehdar N, Kamran A, Toulabi T, Heydari H. 2020. Exploring nurses' experiences of psychological distress during care of patients with COVID-19: a qualitative study. BMC Psychiat, 20(1): 489. doi: 10.1186/s12888-020-02898-1.

Hacimusalar Y, Kahve AC, Yasar AB, Aydin MS. 2020. Anxiety and hopelessness levels in COVID-19 pandemic: A comparative study of healthcare professionals and other community sample in Turkey. J Psychiatr Res, 129: 181-188. doi: 10.1016/j.jpsychires.2020.07.024.

Hendy A, Abozeid A, Sallam G, Abboud Abdel Fattah H, Ahmed Abdelkader Reshia F. 2020. Predictive factors affecting stress among nurses providing care at COVID-19 isolation hospitals at Egypt. Nurs Open, 8(1): 498–505. doi: 10.1002/nop2.652.

Jiang L, Broome ME, Ning C. 2020. The performance and professionalism of nurses in the fight against the new outbreak of COVID-19 epidemic is laudable. Int J Nurs Stud, 107: 103578. doi: 10.1016/j.ijnurstu.2020.103578.

Kaba İ. 2019. Stress, mental health and stress management: a contemporary review. Akademik Bakış Derg, 72: 63–81.

Kackin O, Ciydem E, Aci OS, Kutlu FY. 2021. Experiences and psychosocial problems of nurses caring for patients diagnosed with COVID-19 in Turkey: A qualitative study. Int J Soc Psychiatry, 67(2): 158-167. doi: 10.1177/0020764020942788.

Kiyat İ, Karaman S, İşcan Ataşen G, Elkan Kiyat Z. 2020. Nurses in the fight against the novel coronavirus (COVID-19). THDD, 1(1): 81–90.

Liu CY, Yang YZ, Zhang XM, Xu X, Dou QL, Zhang WW, Cheng ASK. 2020. The prevalence and influencing factors in anxiety in medical workers fighting COVID-19 in China: a cross-sectional survey. Epidemiol Infect, 148: e98. doi: 10.1017/S0950268820001107.

Lu H, Stratton CW, Tang YW. 2020. Outbreak of pneumonia of unknown etiology in Wuhan, China: The mystery and the miracle. J Med Virol, 92(4): 401-402. doi: 10.1002/jmv.25678.

Luo Y, Chua CR, Xiong Z, Ho RC, Ho CSH. 2020. A Systematic Review of the Impact of Viral Respiratory Epidemics on Mental Health: An Implication on the Coronavirus Disease 2019 Pandemic. Front Psychiatry, 11: 565098. doi: 10.3389/fpsyt.2020.565098.

Maraqa B, Nazzal Z, Zink T. 2020. Palestinian health care workers' stress and stressors during COVID-19 pandemic: A cross-sectional study. J Prim Care Commun Health, 11: 2150132720955026. doi: 10.1177/2150132720955026.

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. J Nurs Manag, 28(5): 1002-1009. doi: 10.1111/jonm.13014.

Mokhtari R, Moayedi S, Golitaleb M. 2020. COVID-19 pandemic and health anxiety among nurses of intensive care units. Int J Ment Health Nurs, 29(6): 1275-1277. doi: 10.1111/inm.12800.

Murat M, Köse S, Savaşer S. 2021. Determination of stress, depression and burnout levels of front-line nurses during the COVID-19 pandemic. Int J Ment Health Nurs, 30(2): 533-543. doi: 10.1111/inm.12818.

Neupane M, Angadi S, Joshi A, Neupane HC. 2020. Stress and anxiety among nurses working in tertiary care hospitals in Nepal During COVID-19 Pandemic. J Chitwan Med College, 10(33): 8–11.

Que J, Shi L, Deng J, Liu J, Zhang L, Wu S, Gong Y, Huang W, Yuan K, Yan W, Sun Y, Ran M, Bao Y, Lu L. 2020. Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China. Gen Psychiatr, 33(3): e100259. doi: 10.1136/gpsych-2020-100259.

RTMT. 2021. Republic of Türkiye Ministry of Health, Covid-19 information page. URL: https://covid19.saglik.gov.tr/EN-69532/general-coronavirus-table.html (accessed date February 5, 2021).

Roberts NJ, McAloney-Kocaman K, Lippiett K, Ray E, Welch L, Kelly C. 2021. Levels of resilience, anxiety and depression in nurses working in respiratory clinical areas during the COVID pandemic. Respir Med, 176:106219. doi: 10.1016/j.rmed.2020.106219.

Tan BYQ, Chew NWS, Lee GKH, Jing M, Goh Y, Yeo LLL, Zhang K, Chin HK, Ahmad A, Khan FA, Shanmugam GN, Chan BPL, Sunny S, Chandra B, Ong JJY, Paliwal PR, Wong LYH, Sagayanathan R, Chen JT, Ng AYY, Teoh HL, Ho CS, Ho RC, Sharma VK. 2020. Psychological impact of the COVID-19 pandemic on health care workers in Singapore. Ann Intern Med, 173(4): 317-320. doi: 10.7326/M20-1083.

Ulusoy M, Sahin NH, Erkmen H. 1998. Turkish version of the beck anxiety inventory: psychometric properties. J Cogn Psychother, 12: 163-172. 21

Wang H, Liu Y, Hu K, Zhang M, Du M, Huang H, Yue X. 2020. Healthcare workers' stress when caring for COVID-19 patients: An altruistic perspective. Nurs Ethics, 27(7): 1490-1500. doi: 10.1177/0969733020934146.

Wilson W, Raj JP, Rao S, Ghiya M, Nedungalaparambil NM, Mundra H, Mathew R. 2020. Prevalence and Predictors of Stress, anxiety, and Depression among Healthcare Workers Managing COVID-19 Pandemic in India: A Nationwide Observational Study. Indian J Psychol Med, 42(4): 353-358. doi: 10.1177/0253717620933992.

WHO. 2020. World Health Organization. Mental health and psychosocial considerations during the COVID-19 outbreak. URL: https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf. (accessed date August 19, 2021).

Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, Ng CH. 2020. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 7(3): 22-229. doi: 10.1016/S2215-0366(20)30046-8.

Xiong J, Lipsitz O, Nasri F, Lui LMW, Gill H, Phan L, Chen-Li D, Iacobucci M, Ho R, Majeed A, McIntyre RS. 2020. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. J Affect Disord, 277: 55-64. doi: 10.1016/j.jad.2020.08.001.