

COMPARISON OF THE FEAR LEVELS AND SLEEP PROBLEMS OF NURSES WORKING IN WARDS WHERE PATIENTS WITH AND WITHOUT COVID-19 ARE HOSPITALIZED: A STUDY FROM TURKEY

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SUMMARY

Background: This study was carried out to compare the fear levels and sleep problems of nurses working in wards where patients with COVID-19 are hospitalized and nurses working in wards without COVID-19 patients.

Subjects and methods: This descriptive, cross-sectional research was conducted on 211 nurses using a web-based online survey in Turkey (including 104 nurses working in wards where patients with COVID-19/107 nurses working in wards where patients without COVID-19).

Results: When the COVID-19 Fear Scale mean scores of the nurses working in wards where patients with/without COVID-19 were compared, it was determined that the difference between the groups was statistically significant ($p < 0.05$). When the sleep problems experienced were compared according to the Post-Sleep Inventory, it was determined that the difference between the groups was not statistically significant ($p > 0.05$). There was a moderately significant and positive correlation between the nurses' mean scores for the COVID-19 Fear Scale and Post-Sleep Inventory.

Conclusions: It was determined that as the fear levels of nurses increased, they experienced more sleep problems.

Key words: COVID-19 – fear – nursing - sleep problem - Turkey

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INTRODUCTION

Cases of pneumonia with unknown cause were reported on December 31, 2019, in Wuhan City of Hubei Province in China. Fever, shortness of breath, and radiological findings compatible with bilateral lung pneumonic infiltration were detected in these cases (Jiloha 2020). On January 7, 2020, it was declared that the agent was a new type of coronavirus (2019-nCoV) not previously detected in humans. The World Health Organization (WHO) delivered a pandemic declaration on March 11, 2020 for this situation, which has become a global pandemic. The name of the disease has been accepted as COVID-19, and it is the third pandemic after SARS and MERS caused by the coronavirus that has caused panic worldwide (Jiloha 2020, Millar 2020).

The first case in Turkey emerged on March 11, 2020, and the number of cases gradually increased in the country as in the rest of the world (T.R. Ministry of Health Covid-19 Information Page 2020). Due to the rapid increase in cases and deaths, the COVID-19 pandemic has created fear and anxiety worldwide (Guan et al. 2020, Huang et al. 2020, Centers for Disease Control and Prevention 2020a, 2020b, Lin 2020). While the fear that emerges in pandemic situations increases the level of anxiety and stress in individuals, it may also cause these symptoms to build in individuals with

previous psychiatric disorders (Shigemura et al. 2020). Studies have reported that patients who are infected or suspected to be infected with COVID-19 experience intense emotional and behavioral reactions (such as fear, boredom, loneliness, anxiety, insomnia, and anger) (Shigemura et al. 2020, Brooks et al. 2020). Suicide cases have been observed in countries such as the USA, Turkey, Italy, and France due to fear of COVID-19 transmission (Ahaber 2020, Euronews 2020a, 2020b, WWSWS 2020). As can be understood from these events, there is high potential for fear of COVID-19 to affect individual psychological health. Healthcare professionals working in hospitals during the pandemic period have a higher risk of contracting the virus than other people. Nurses who have a more active role among healthcare professionals and care for patients with COVID-19 have an even higher risk of getting sick. Difficulties such as an unfamiliar working and living environment, shortages of medical equipment, long working hours, separation from the family, and lack of social support in nurses who are in the high-risk group throughout the epidemic period may adversely affect sleep quality (Tu et al. 2020). Sleep quality is one of the critical indicators of health. Good sleep quality not only supports healthcare professionals who care for and treat patients to work better, but also provides them with optimal immunity to prevent infection (Xiao et al. 2020).

Many studies on the effects of COVID-19 on patients have been performed throughout the pandemic. However, there are very few studies examining the fear created by the epidemic and sleep problems that may accompany the fear in nurses who directly deal with the care and treatment of patients and form the basis of the healthcare system. Based on this, this study was carried out to compare the fear levels and sleep problems of nurses working in wards where patients with COVID-19 are hospitalized and nurses working in wards where patients without COVID-19 are hospitalized.

The research questions of this study are as follows:

- What are the fear levels of nurses working in wards where patients with COVID-19 are hospitalized during the pandemic?
- What is the level of sleep problems experienced by nurses working in wards where patients with COVID-19 are hospitalized during the pandemic?
- What are the fear levels of nurses working in wards where patients without COVID-19 are admitted during the pandemic?
- What is the level of sleep problems experienced by nurses working in wards where patients without COVID-19 are hospitalized during the pandemic?
- Is there a difference between the fear levels of nurses working in wards where patients with and without COVID-19 are hospitalized?
- Is there a difference between the sleep problems experienced by nurses working in wards where patients with and without COVID-19 are hospitalized?
- Is there a relationship between the fear levels of nurses and their sleep problems?

SUBJECTS AND METHODS

Study design

This research was descriptive and cross-sectional in type.

Participants

The sample consisted of 211 nurses who agreed to participate in the survey and work in the wards of a university hospital located in a city in the east of Turkey. The sample consisted of 104 nurses working in wards where patients with COVID-19 are hospitalized, and 107 nurses working in wards where patients without COVID-19 are hospitalized.

Measurement tools

Descriptive features form: This form includes 15 questions created by the researchers to ascertain the descriptive characteristics of the nurses.

COVID-19 fear scale: This scale was developed by Ahorsu et al. in 2020 and adapted to Turkish in 2020 by

Satici et al. (Ahorsu et al. 2020, Satici et al. 2020). It is a 5-point Likert-type scale that consists of seven items. The lowest score that can be obtained from the scale is seven, and the highest score is 35. A high score on the scale indicates that there is a high level of fear of COVID-19. The Cronbach's alpha value of the scale was calculated as 0.82 (Satici et al. 2020). In this study, this value was found to be 0.87.

Post-sleep inventory: Webb et al. developed this scale in 1976. Menteş et al. conducted a Turkish validity and reliability study of this scale (Webb et al. 1976, Menteş et al. 1998). The Post-Sleep Inventory consists of three groups of questions with 12 positive and 12 negative answers. In the first group of questions, expressions explore the feelings of healthcare workers regarding bedtime (P1), the second group questions their feelings about night sleep quality (P2), and the third group enquires about their feelings regarding waking time (P3). The sum of P1, P2, and P3 constitutes the evaluation score after total sleep. Positive answers to the questions are evaluated as "0" points and negative responses as "1" point. Once the total score is added up, it is evaluated as 0 = 'No problem,' 1-3 = 'Little problem,' 4-6 = 'Moderate problem,' 7-9 = 'Serious problem,' and 10-12 = 'Very serious problem'. In this study, the Cronbach's alpha value was found to be 0.83.

Data collection

This research was conducted between May and June 2020. Since COVID-19 is transmitted through droplets and contact, data collection tools were prepared online. The online link was sent to the relevant nurses via phone applications such as WhatsApp and social media accounts to prevent contamination.

Data analysis

In this study, power data collection of the sample was calculated with a margin of error of 0.05 by using G Power 3.1.9.2. An independent samples t-test was applied to compare the fear levels of nurses. Accordingly, the effect size of the study was calculated as 3.28, the alpha value as 0.05, and the power as 0.99.

The data obtained from the research were evaluated utilizing the SPSS 18.0 package program. Number and percentage, mean, chi-square test, independent samples t-test, and Pearson correlation analysis were employed in the evaluation of the data.

Ethical statement

Ethics committee approval (28.05.2020-06 / 50) was obtained from Atatürk University Faculty of Medicine Non-Invasive Clinical Research Ethics Committee and written permission was obtained from the relevant institution. Verbal consent was obtained from the nurses participating in the study.

RESULTS

When the distribution of the nurses included in the study was examined according to their descriptive characteristics in Table 1, it was determined that the average age of the nurses working in wards where patients with COVID-19 are hospitalized was 29.04 ± 6.42 , 41.3% had undergraduate or graduate education, and 42.3% had worked for 6–10 years in the profession. It was identified that 72.1% of the nurses were exposed to negative

discrimination by society during the COVID-19 period since they were healthcare workers, 48.2% of them stayed in a dormitory/apartment or guesthouse other than their homes during the pandemic period due to fear of infecting their families, 97.1% followed the news about COVID-19 on TV or the internet, and 74% experienced fear due to the news.

It was determined that the average age of nurses working in wards where patients without COVID-19 are admitted was 26.22 ± 4.89 , 39.3% had an associate degree

Table 1. Distribution of nurses' descriptive characteristics

Descriptive characteristics	Nurses working in wards where patients with COVID-19 are hospitalized (N=104)		Nurses working in wards where patients without COVID-19 are hospitalized (N=107)		All nurses (N=211)	
	n	%	n	%	n	%
Mean age	29.04±6.42		26.22±4.89		27.61±5.85	
Gender						
Female	90	86.5	81	75.7	171	81.0
Male	14	13.5	26	24.3	40	19.0
Marital status						
Married	40	38.5	49	45.8	89	42.2
Single	64	61.5	58	54.2	122	57.8
Have a child						
Yes	24	23.1	31	28.9	55	26.1
No	80	76.9	76	71.1	156	73.9
Income level						
Income less than expenditure	28	26.9	31	29.0	59	28.0
Income more than expenses	16	15.4	17	15.9	33	15.6
Income equal to expenditure	60	57.7	59	55.1	119	56.4
Educational background						
Vocational school of health	33	31.7	37	34.6	70	33.2
Associate degree	28	26.9	42	39.3	70	33.2
Undergraduate and postgraduate	43	41.3	28	26.2	71	33.6
Working years						
1–5 years	29	27.9	54	50.5	83	39.3
6–10 years	44	42.3	39	36.4	83	39.3
11–15 years	15	14.4	12	11.2	27	12.8
16 years or more	16	15.4	2	1.9	18	8.5
Work shift						
Night	17	16.3	33	30.8	50	23.7
Day	26	25.0	19	17.8	45	21.3
Alternating night and day shift	61	58.7	55	51.4	116	55.0
Negative discrimination						
Yes	75	72.1	65	60.7	140	66.4
No	29	27.9	32	39.3	71	33.6
Place of accommodation during COVID-19						
At home with my family	30	28.8	72	67.3	112	53.1
Alone at home	24	23.0	32	30.0	56	26.5
Dormitory/apart/guesthouse	50	48.2	3	2.7	43	20.4
Following news on COVID-19 on TV or the internet						
Yes	101	97.1	101	94.4	202	95.7
No	3	2.9	6	5.6	9	4.3
Fear due to news about COVID-19						
Yes	77	74.0	49	45.8	126	59.7
No	27	26.0	58	54.2	85	40.3

education, and 50.5% had worked for 1–5 years in the profession. It was found that 60.7% of the nurses were exposed to negative discrimination by society during the COVID-19 period since they were healthcare workers, 67.3% lived with their families during the pandemic period, 94.4% followed the news about COVID-19 on TV or the internet, and 54.2% did not experience fear due to the news (Table 1).

When the distribution of the most common difficulties experienced by nurses working in wards where COVID-19 patients are hospitalized was examined (Table 2), it was determined that 49% of the nurses experienced physical discomfort caused by working with protective equipment such as overalls and glasses, 21.1% had psychological problems such as insomnia, fear and stress since they looked after patients with a probable or

Table 2. Distribution of difficulties most frequently experienced by nurses working in wards where patients with COVID-19 are hospitalized (n=104)

Difficulties	n	%
Heavy workload	8	7.7
Unconsciousness of the patients	4	3.9
Adaptation	5	4.8
Physical discomfort caused by working with protective equipment (sweating, fogging of glasses, difficulty in applications, etc.)	51	49.0
Staying away from family due to fear of contagion	14	13.5
Psychological problems such as insomnia-fear-stress	22	21.1

Table 3. Comparison of scores that can be obtained from the COVID-19 fear scale, the average scores of the nurses, and the mean scores between groups

	Possible lowest-highest score	Minimum and maximum scores obtained	COVID-19 Fear Scale X±SD	Test and p-value
Nurses working in wards where patients with COVID-19 are hospitalized	7-34	8-34	21.29±5.59	t=2.151 p<0.05
Nurses working in wards where patients without COVID-19 are admitted	7-34	7-34	19.32±6.07	
All nurses	7-35	7-34	20.23±5.87	

Table 4. Distribution of nurses' sleep quality problem levels according to total scores of the post-sleep inventory and comparison between groups

Descriptive characteristics	Nurses working in wards where patients with COVID-19 are hospitalized		Nurses working in wards where patients without COVID-19 are hospitalized		All nurses	
	n	%*	n	%*	n	%**
No problem (0 points)	0	0	1	100.0	1	0.5
Little problem (1–3 points)	24	45.3	29	54.7	53	25.1
Moderate problem (4–6 points)	17	37.8	28	62.2	45	21.3
Serious problem (7–9 points)	25	55.6	20	44.4	45	21.3
Very serious problem (10–12 points)	38	56.7	29	43.3	67	31.8
Test and p-value		$\chi^2=5.884$		p>0.05		

*Line percentages were considered; **Column percentage was considered

definite diagnosis of COVID-19, and 13.5% stayed away from their families due to fear of transmission.

Considering the points that can be obtained from the COVID-19 Fear Scale, it can be said that the fear levels of the nurses involved in the study were high according to the average score obtained (20.23±5.87) (Table 3). When the mean scores obtained from the COVID-19 Fear Scale of the nurses working in wards where COVID-19 and non-COVID-19 patients were hospitalized were compared, it was determined that the difference between the groups was statistically significant (p<0.05, Table 3). Therefore, it can be assumed that the fear levels of nurses working in wards where patients with COVID-19 are hospitalized were significantly higher than nurses working in other wards.

Considering the sleep problem assessment categories according to the points that can be obtained from the Post-Sleep Inventory, it was found that 31.8% of the nurses involved in the study had very serious problem during the COVID-19 period, and 21.3% had moderate problem (Table 4). When the nurses' Post-Sleep Inventory categories were compared, it was concluded that the difference between the groups was not statistically significant (p>0.05, Table 4). It can be stated that the sleep problems experienced by nurses during the COVID-19 period were similar.

A statistically significant and positive moderate correlation was discovered between the mean scores of the COVID-19 Fear Scale and the Post-Sleep Inventory of the nurses involved in the study (r=0.423, p<0.001, Table 5). Therefore, it can be assumed that as the fear levels of nurses increased, they experienced more sleep problems.

Table 5. Relationship between the scores the nurses obtained from the scales

Scales	COVID-19 Fear Scale
Post-Sleep Inventory	r=0.423 p<0.001

r = Pearson Correlation Coefficient

DISCUSSION

Both the mental and physical health of nurses, who were at the forefront of combating the COVID-19 pandemic, were significantly affected during this process. In this context, when the most common difficulties experienced by nurses working in wards with COVID-19 patients were examined, it was determined that 49% experienced physical discomfort caused by working with protective equipment such as overalls and glasses, 21.1% had psychological problems such as insomnia, fear and stress since they looked after patients with COVID-19, and 13.5% of them stayed away from their families due to fear of transmitting the disease. Kang et al. reported that healthcare professionals experienced several mental health problems during the COVID-19 epidemic and stated that these problems were generated by long working hours, risk of infection, lack of protective equipment, loneliness, physical fatigue, and being separated from families (Kang et al. 2020).

In the literature, the reasons reported for the decrease in sleep quality are that healthcare professionals are in protective equipment every day, they have to take continuous isolation measures, and they see patients infected with COVID-19 that cannot be treated and die (WHO 2020a,b). In a cross-sectional study conducted with 1257 healthcare professionals in 34 hospitals in many regions of China who were involved in emergency interventions for patients with COVID-19, it was stated that depression, anxiety, insomnia, and distress symptoms were experienced in the majority of nurses who provided care to patients with suspected or diagnosed COVID-19, especially in Wuhan (Lai et al. 2020). Our study findings are similar to the results obtained in other studies. Particularly in a risky period such as during the COVID-19 pandemic, eliminating or taking initiatives to prevent the psychological and physical difficulties experienced by nurses who struggle on the frontline is crucial to successfully fighting the epidemic.

According to the average score of the COVID-19 Fear Scale, the fear levels of the nurses included in the study, especially the nurses working in wards where patients with COVID-19 were hospitalized, were found to be high. Many epidemics have occurred in the world. One of these cases, the SARS-CoV-2 outbreak, has caused fear and stress among healthcare professionals (Brooks et al. 2018). In the study of Urooj et al., it was discovered that 60.3% of healthcare professionals feared complications of the disease, 79.7% feared infecting their family members, 63% feared the rapid spread of

the disease, and 28.8% feared being carriers (Urooj et al. 2020). Cawcutt et al. reported that, contrary to our study findings, healthcare professionals who cared for patients with COVID-19 felt less fear of being infected than healthcare professionals in other units (Cawcutt et al. 2020). In a study conducted in past years, it was stated that the presence of a deadly disease that appears abruptly and unexpectedly during epidemic periods, such as SARS and Ebola, puts intense pressure on healthcare professionals (Liu et al. 2012). In the study on fear and depression among residents of Bosnia and Herzegovina of Šljivo et al. reported that, fear of losing their life due to the COVID-19 infection was reported among more than half (53.0%) of them (Šljivo et al. 2020). Increased workload, intense fear of death, physical fatigue, psychological exhaustion, the risk of infecting their environment, and following the news about COVID-19 may have led to increased levels of fear in nurses.

It was observed that 31.8% of the nurses involved in the study had many sleep problems during the COVID-19 period, and 21.3% had severe or moderate problems. However, it was discovered that sleep problems were similar in the nurses in both groups. In a cross-sectional study conducted in China, it was stated that 34% of healthcare professionals experienced insomnia during the pandemic (Lai et al. 2020). In another study in which 33,062 participants were examined with 13 reviews, it was reported that the prevalence of insomnia in healthcare professionals was 38.9% (Pappaa et al. 2020). In another study, it was emphasized that 75% of healthcare workers had low sleep quality (Jahrami et al. 2020). In a study on insomnia in healthcare professionals during the epidemic period in China, it was reported that 36% of healthcare professionals had sleep disorders (Zhang et al. 2020). In their study on healthcare professionals working during the COVID-19 outbreak, Zhou et al. asserted that nurses had lower sleep quality than other healthcare professionals (for instance, doctors and medical technicians) (Zhou et al. 2020). In a meta-analysis study, the prevalence of sleep disorders in healthcare professionals was found to be 40%, and it was stated that they mostly included sleep deprivation, circadian rhythm disorders, and insomnia (Qiu et al. 2020). In a study conducted in the USA, it was discovered that 68.1% of nurses regularly slept less than 7 hours, and 11.4% routinely slept less than 5 hours (Stimpfel et al. 2020). The reasons for the low sleep quality of nurses include having to work in a challenging, stressful, and high-pace environment, a lack of financial and moral support, difficulty falling asleep due to shift-based work, having sleep problems, and uncertainties in sleeping habits (Hasson & Gustavsson 2010). As frontline workers in the healthcare system during the pandemic, nurses give equal care, treatment, and devotion to everyone, regardless of which ward they work in and the process they are undergoing. Consequently, it can be assumed that nurses working in different wards have similar sleep problems.

It was determined that there was a positive relationship between the fear levels of the nurses involved in the study and their sleep problems, and that the nurses experienced more sleep problems as their fear levels increased. In a study, it was reported that there was a negative relationship between fear of COVID-19 and life satisfaction, and a positive relationship between depression, anxiety, and stress (Satici et al. 2020). Harper et al. reported that there was a positive relationship between depression, anxiety, and fear of COVID-19 (Harper et al. 2020). Fear, emotional disturbances, and sleep problems are reported in healthcare workers treating COVID-19 patients and suffering from physical fatigue (Hossain et al. 2019). It was observed that problems such as sleep disturbance, depression, and anxiety were widespread among nurses caring for patients with COVID-19 in Wuhan, China (Tu et al. 2020). Due to long working hours while combating the COVID-19 epidemic, the possibility of developing fear, stress, and anxiety symptoms was high in healthcare workers (Huang & Zhaoa 2020). Salopek-Žiha et al. reported that 67% of the hospital workers are worried, 11% depressed, 17% anxious, and 10% are stressed (Salopek-Žiha et al. 2020). Mosolova et al. reported that healthcare workers in Russia were high rates of stress and anxiety (Mosolova et al. 2020). Usul et al reported that the COVID-19 pandemic caused an anxiety increase in emergency medical services workers in Turkey (Usul et al. 2020). The human body reacts differently to these symptoms (Maunder et al. 2003). It can be stated that the nurses involved in the study also experienced sleep problems as a reaction to the fear that emerged.

Limitations

The results obtained from the present study are limited to the opinions of nurses working at a university hospital in an eastern province in Turkey. Conclusions of the study can be generalized to the nurses included in the study.

CONCLUSIONS

It was discovered that the fear levels of the nurses included in the study, especially the nurses working in wards where patients with COVID-19 were hospitalized, were significantly high. It was determined that the sleep problems experienced by nurses during the COVID-19 period were similar between the groups. Also, it was determined that the higher the fear levels of the nurses, the more sleep problems they experienced.

Nurses, who have a crucial role in world health and in combating the pandemic, should be in good condition both mentally and physically to provide effective and quality care. By minimizing the fear of the epidemic, behaviors that will increase the quality of sleep will be developed. Therefore, individual and institutional support systems should be activated, and working conditions should be improved.

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Contribution of individual authors:

Aslı Sis Çelik designed and supervised the study and was involved in data collection, statistical analysis, the writing of the paper.

Tuğçe Sönmez designed and supervised the study and the writing of the paper.

All authors approved the final version.

References

1. *Ahaber: Terrible event in Kütahta! He committed suicide due to fear of coronavirus (Covid-19). Retrieved 12 April 2020 from: <https://www.ahaber.com.tr/yasam/2020/03/31/kutahyada-korkunc-olay-koronaviruscovid-19-korkusu-sebebiyle-intihar-etti;2020>*
2. *Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD & Pakpour AH: The fear of COVID-19 scale: development and initial validation. International Journal of Mental Health and Addiction 2020; 1-9. <https://doi.org/10.1007/s11469-020-00270-8>*
3. *Brooks SK, Dunn R, Amlot R, Rubin GJ & Greenberg N: A systematic, thematic review of social and occupational factors associated with psychological outcomes in healthcare employees during an infectious disease outbreak. J Occup Environ Med 2018; 60:248-257*
4. *Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N et al.: The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet 2020; 395:912-20*
5. *Cawcutt KA, Starlin R & Rupp ME: Fighting fear in healthcare workers during the COVID-19 pandemic. Infection Control & Hospital Epidemiology 2020; 41:1192-1193*
6. *Centers for Disease Control and Prevention: Coronavirus Disease 2019 (COVID-19): Manage anxiety & stress. Retrieved March 16, 2020, from: <https://www.cdc.gov/coronavirus/2019-ncov/prepare/managingstress-anxiety.html>. 2020a*
7. *Centers for Disease Control and Prevention: Coronavirus disease 2019 (COVID-19): Reducing stigma. Retrieved March 16, 2020, from: <https://www.cdc.gov/coronavirus/2019-ncov/about/related-stigma.html> 2020b*
8. *Euronews: France: Reims football club's doctor committed suicide due to coronavirus. Retrieved 12 April 2020 from <https://tr.euronews.com/2020/04/06/fransa-reims-futbol-kulubunun-doktoru-koronavirusnedeniyle-intihar-etti;2020>*
9. *Euronews: The couple who thought they had coronavirus committed suicide. Retrieved 12 April 2020 from <https://tr.euronews.com/2020/04/07/koronaviruse-yakalandigini-dusunen-cift-intihar-etti;2020>*
10. *Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He J, et al.: Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med 2020; 382:1708-1720*
11. *Harper CA, Satchell LP, Fido D & Litzman RD: Functional fear predicts public health compliance in the COVID-19 pandemic. International Journal of Mental Health Addiction 2020; 1-9. <https://doi.org/10.1007/s11469-020-00281-5>*

12. Hasson D & Gustavsson P: Declining sleep quality among nurses: a population-based four-year longitudinal study on the transition from nursing education to working life. *PLoS ONE* 2010; 5: e14265
13. Hossain I, Mullick AR, Haidar A & Aktaruzzamanet MM: The COVID-19 Pandemic and Mental Health: A Systemic Review. *Texila Int. J Acad Res* 2019; 1-4. doi:10.21522/TIJAR.2014.07.01.Ari023
14. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y et al.: Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet* 2020; 395:497-506
15. Huang Y & Zhao N: Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. *Psychiatry Res* 2020; 288: 112954
16. Jahrami H, BaHammam AS, AlGahtani H, Ebrahim A, Faris M, AlEid K et al.: The examination of sleep quality for frontline healthcare worker during the outbreak of COVID-19. *Sleep and Breath*. 2020; 26:1-9
17. Jiloha RC: COVID-19 and mental health. *Epidem Int* 2020; 5:7-9
18. Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX et al.: The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *Lancet Psychiatry* 2020; 7:e14
19. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N et al.: Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open* 2020; 3:e203976
20. Lin CY: Social reaction toward the 2019 novel coronavirus (COVID-19). *Social Health and Behavior* 2020; 3:1-2
21. Liu X, Kakade M, Fuller CJ, Fan B, Fang Y, Kong J et al.: Depression after exposure to stressful events: lessons learned from the severe acute respiratory syndrome epidemic. *Compr Psychiatry* 2012; 53:15-23
22. Maunder R, Hunter J, Vincent L, Bennett J, Peladeau N, Leszcz M et al.: The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *CMAJ* 2003; 168:1245-51
23. Menteş ÇS, Sezeri M, Dinçer F & Yeşilbilek S: Sleep problems in chronic hemodialysis patients. *Nursing Forum* 1998; 1:166-171
24. Millar RC: Nursing a patient with Covid-19 infection. Editorial commentary. *J Evidence-based Nurs Prac* 2020; 1:4-8
25. Mosolova E, Chung S, Sosin D & Mosolov S: Stress and anxiety among healthcare workers associated with COVID-19 pandemic in Russia. *Psychiatr Danub* 2020; 32:549-556
26. Pappaa S, Ntillac V, Giannakasc T, Giannakoulis VG, Papoutsis E & Katsaounouc P: Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behav Immun* 2020; 88: 901-907
27. Qiu D, Yu Y, Li R, Li YL & Xiao SY: Prevalence of sleep disturbances in Chinese healthcare professionals: A systematic review and meta-analysis. *Sleep Med* 2020; 67:258-266
28. Salopek-Žiha D, Hlavati M, Gvozdanovic Z, Gašić M, Placento H, Jakic H, Klapan D & Šimic H: Differences in distress and coping with the covid-19 stressor in nurses and physicians. *Psychiatr Danub* 2020; 32:287-293
29. Satici B, Gocet-Tekin E, Deniz ME & Satici SA: Adaptation of the fear of COVID-19 scale: Its association with psychological distress and life satisfaction in Turkey. *International Journal of Mental Health Addiction* 2020. doi:10.1007/s11469-020-00294-0
30. Shigemura J, Ursano RJ, Morganstein JC, Kurosawa M & Benedek DM: Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: mental health consequences and target populations. *Psychiatry Clin Neurosci* 2020; 74:281-2
31. Stimpfel AW, Fatehi F & Kovner C: Nurses' sleep, work hours, and patient care quality, and safety. *Sleep Health* 2020; 6:314-320
32. Šljivo A, Kacamakovic M, Quraishi I & Džubur Kulenovic A: Fear and depression among residents of Bosnia and Herzegovina during COVID-19 outbreak - internet survey. *Psychiatr Danub* 2020; 32:266-272
33. T.R. Ministry of Health Covid-19 Information Page: Covid-19 case in Turkey. Retrieved 12 April 2020 from <https://covid19.saglik.gov.tr>
34. Tu ZH, He JW & Zhou N: Sleep quality and mood symptoms in conscripted frontline nurse in Wuhan, China during COVID-19 outbreak: a cross-sectional study. *Medicine* 2020; 99:26(e20769)
35. Urooj U, Ansari A, Siraj A, Khan S & Tariq H: Expectations, fears and perceptions of doctors during Covid-19 pandemic. *Pak J Med Sci* 2020; 36(COVI-D19 S4): 37-42
36. Usul E, Şan İ & Bekgöz B: The effect of the COVID-19 pandemic on the anxiety level of emergency medical services professionals. *Psychiatr Danub* 2020; 32:563-569
37. Webb WB, Bonnet M & Blume G: A post-sleep inventory. *Perceptual and Motor Skills* 1976; 43:987-993
38. World Health Organization (WHO): A Novel Coronavirus (2019-nCoV) technical guidance. Retrieved 12 April 2020 from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance;2020>
39. World Health Organization (WHO): Coronavirus disease 2019 (COVID-19) Situation Report-29. <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200218-sitrep-29-covid-19.pdf;2020>
40. WWSWS: Nurse suicides are on the rise in Europe due to the stress of the COVID-19 outbreak. Retrieved 12 April 2020 from: <https://www.wsws.org/tr/articles/2020/04/03/trez-a03.html;2020>
41. Xiao H, Zhang Y, Kong D, Li S & Yanget N: The effect of social support on sleep quality of medical staff treating patients with coronavirus diseases 2019 (COVID-19) in January and February 2020 in China. *Med Sci Monit* 2020; 26:e923549
42. Zhang C, Yang L, Liu S, Ma S, Wang Y, Caiet Z et al.: Survey of insomnia and related social psychological factors among medical staff involved in the 2019 novel coronavirus disease outbreak. *Front Psychiatry* 2020; 11:306
43. Zhou Y, Yang Y, Shi T, Song Y, Zhou Y, Zhang Z et al.: Prevalence and demographic correlates of poor sleep quality among frontline health professionals in liaoning province, China during the COVID-19 outbreak. *Front Psychiatry* 2020; 11:520

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