

“Sleep Quality and Depression Level in Nurses in COVID-19 Pandemic”

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Abstract

The COVID-19 spread rapidly all over the world and pandemic process has negatively affected nurses. Sleep disorders and depression are among these negative effects. Managers' awareness of problems experienced by nurses and taking precautions will increase employee and patient satisfaction and provide quality patient care. The study was conducted in descriptive, cross-sectional and correlational design to explain nurses' sleep quality and depression levels and relationship between them during the COVID-19 pandemic with 142 nurses who completed Personal Information Form, Pittsburgh Sleep Quality Index (PSQI) and Beck Depression Index (BDI). Sleep quality of nurses (64.8%) was poor, 33.1% had depression, and high school education, having a chronic illness and PSQI score increased the risk of depression level of nurses. Results highlight COVID-19 pandemic affected nurses' sleep quality and depression levels. All managers should be pioneers in providing psychological support to nurses and preparing and implementing a program for prevention of insomnia and depression.

Keywords

COVID-19, depression level, nursing, sleep quality, work condition

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Introduction

At the end of 2019, The novel coronavirus disease (COVID-19) first emerged in Wuhan, Hubei Province of China. The emergence of COVID-19 has brought great anxiety and psychological problems not only a pandemic for many reasons such as the concern of infection spread, and the safety of working conditions of health workers (Zhang et al., 2020). This process, in which nurses especially work at the forefront in extremely difficult conditions, has made it necessary to adapt to new protocols and the “new normal” situation along with the intensity of the work. They had to assume the role of a family member for patients who could not see their family members due to quarantine period (Maben & Bridges, 2020). As in the studies on epidemic diseases in the past, it has been determined that mental health of people with are adversely affected due to the growing workload, infection fear, physical fatigue, and lack of personal equipment for healthcare workers in the COVID-19 pandemic (Salazar de Pablo et al., 2020) and it is seen that they are increasingly experiencing sleep problems as well as depression during the pandemic process (Esterwood & Saeed, 2020).

The circadian system has a central role in the sleep–wake cycle regulation and includes behavioral and physiological changes of approximately 24 hours generated by endogenous biological clocks (Güzel-Özdemir & Işık, 2020; Liu et al., 2021). Proper regulation of this rhythm as 24-hours day-night and light-dark is an important component in ensuring both mental and physical well-being. The circadian clock maintains many rhythms, including behavior, body temperature, sleep, nutrition, and hormonal levels (Güzel-Özdemir & Işık, 2020). Disruption in circadian rhythm affects cognitive abilities such as learning, memory and attention in daily life, including work and academic life (Salehinejad et al., 2022). The most important way to maintain the circadian rhythm is quality sleep (Güzel-Özdemir & Işık, 2020). Sleep is the temporary, partial and periodic loss of the person’s communication with the environment (Asi-Karakaş et al., 2017). It is a physiological need associated with learning, memory, and regulation of mood. It is a different state of consciousness for the normal and healthy functioning of the human body (Keskin & Tamam, 2018).

The health of the individual depends on meeting the basic needs. Sleep, which is one of these needs, is extremely important in the preparation of the individual for the day and the restoration of body, soul and brain functions (Kirhan & Uzer, 2019). Sleep; It can be expressed as quality sleep when it is sufficient, quality and regular. In addition, good sleep is vital for health and is one of the most important signs of the transition between health and illness (Luo et al., 2021). The change in sleep quality also directly affects the daily life activities of the individual. Qualitatively poor sleep quality negatively affect the individual’s working life and social life as well as the general health and mental status of the individual due to emotional variability and may cause attention/memory disorders (Kirhan & Uzer, 2019).

The prevalence of complaints related to sleep, the fact that poor sleep quality may be one of the medical diseases symptoms, and the strong relationship between sleep health and physical and psychological well-being makes it a priority to investigate sleep and

sleep quality. It is stated that individuals who sleep less have cognitive dysfunction and depression symptoms are common (Chattu et al., 2019). Sleep disorders are associated with age, gender, lifestyle habits, and comorbid diseases (Shim & Kang, 2018). In addition, a person's sleep quality is affected by occupational factors and working conditions. (Asi-Karakas et al., 2017). It has been found that sleep problems are more common due to the high workload at work (Linton et al., 2015). Many diseases and disorders are mentioned in studies on the shift work effects on health, and these include also sleep disorders and depression (Haile et al., 2019). Nurses have more physical health problems and sleep disorders due to night shift work and it is a risk factor for nurses' sleep quality and health (Feng et al., 2021). Work-related stress is also among the main causes of sleep disorders (Van Laethem et al., 2015). Impairment in sleep quality may cause negative effects on their performance and productivity, as well as cause sleepiness/fatigue and errors in practice (Åkerstedt et al., 2015; Khatony et al., 2020). Additionally, nurses are at risk for disruption in the sleep-wake cycle, more frequent sleep disorders, and poor sleep quality according to working conditions and it also creates a risk for the safety of patient care (Akçay et al., 2021).

In a study of 1257 health workers exposed to coronavirus disease 2019 in China reported that nurses experience insomnia at a rate of 34%, depression at a rate of 50.4% and nurses have more sleep problems and depression than other healthcare workers (Lai et al., 2020). Wang et al. also stated about 61.6% of healthcare workers reported sleep problems, 22.6% experienced anxiety, and 35% exhibited depressive symptoms during the COVID-19 outbreak in Hubei province, China (Wang, Song, et al., 2020). The nurses resided in accommodation places organized by the government for them to reduce the risk of infection spread in the province where the current study was carried out during the COVID-19 pandemic. This situation has caused them to be away from their families for a long time, as well as not being able to fulfill their existing roles and responsibilities in the family. The social lives of those who provide 24-hour uninterrupted service have also been adversely affected. In addition to working in shifts, the study was planned based on the idea that when the extremely intense and various challenging working conditions of nurses during the COVID-19 pandemic process are considered, their sleep quality may be affected by this situation and they may experience depression due to the conditions they are in. Because sleep quality can also affect the emotional state of nurses. For this reason, the study was carried out to determine the sleep quality and depression level in nurses during the COVID-19 pandemic, to reveal whether there is a relationship between both results.

In the study, answers were sought to the questions of what is the sleep quality and depression level of nurses during the COVID-19 pandemic, and whether there is a significant relationship between nurses' sleep quality and depression levels.

Methods

As mentioned, the study was carried out as descriptive, cross-sectional and correlational to state nurses' sleep quality and depression level and the relationship between

them in the COVID-19 pandemic process. The STROBE statement was used to report this study.

Sample and Setting

The universe of the study consisted of 280 nurses who were actively working in a hospital during the COVID-19 pandemic process. Without using any sample selection method, the study was conducted with 142 (50.7%) nurses who were not on leave or leave due to illness at the time of the study and were willing to participate in the study. Due to the ongoing pandemic at the time of the study, it was difficult to reach the whole nurses.

Data Collection and Instruments

The face-to-face interview method was used for collecting the data by the researcher between March 10-April 10, 2021. The Personal Information Form, Pittsburgh Sleep Quality Index (PSQI) and Beck Depression Index (BDI) were used for collecting of the data.

Personal Information Form. It was made by the researchers including the questions about age, gender, educational status, marital status, having children, working year in the profession working unit, having a chronic illness, smoking status and respiratory distress.

Pittsburgh Sleep Quality Index. The original PSQI was developed by Buysse et al. (1989). It comprises 19 self-rated questions. The score provides detailed information about the quality of sleep and the type and severity of sleep disturbance that a person has experienced during the past 1 month. The PSQI consists of seven components. Each component score is rated from 0 to 3 (0 point means not in the past month; 1 point means less than once per week; 2 points means once or twice per week; and 3 points means three or more times per week). The sum of scores yields one global score. It ranges from 0 to 21, with higher scores than 5 indicating significantly poor sleep quality. Turkish adaptation was evaluated by Ağargün et al. (1996) and Cronbach α value of the scale was found as .80 (Ağargün et al., 1996; Buysse et al., 1989). In this study, the Cronbach's α value was found as .88.

Beck Depression Index. It was developed by Beck et al. in 1961 to measure the behavioral manifestations of depression in adolescents and adults. In 1978, the entire scale was revised, duplications describing violence were removed, and individuals were asked to mark their last week's status, including today. Four options in each question of the scale score between 0 and 3. The highest score that can be obtained from the scale is 63. A high total score indicates a high level or severity of depression symptoms. 10–17 points from the scale indicate mild depression, 18–29 points moderate, and 30–63

points severe depression. The cut-off point of BDI is accepted as 17. The validity and reliability study of the scale in Turkish was performed by Hisli (1989) and the Cronbach's α value of the scale was found to be .80 (Hisli, 1989) and in this study it was found as .96.

Data Analysis

Statistical Package for Social Sciences (SPSS) 26.0 software program was used for data analysis. Arithmetic mean and standard deviation, minimum, maximum, median values, frequency, and percentage values were calculated from descriptive statistics. The normal distribution of data was evaluated with the Kolmogorov-Smirnov test. Non-parametric tests were used because the data were not normally distributed. Kruskal-Wallis test, Mann-Whitney U test, Bonferroni Corrected Mann-Whitney, Spearman correlation and Binary Logistic regression analysis were used to evaluate the data. The level of significance in the study was taken as .05.

Ethical Considerations

Ethical approval of the study, carried out following the principles of the Declaration of Helsinki, was obtained from the Clinical Research Ethics Committee of a training and research hospital (Number: 2021/126, Date: 1/03/2021). Based on their willingness and voluntariness to participate in the study, the participating nurses were informed about the purpose of the study and they were told that they would not write their names on the personal information form.

Results

The mean age of the nurses in the sample group was 27.25 ± 6.25 years with a range of 20–48. 78.2% were women, 76.1% were single, 89.4% had an undergraduate degree or higher, 18.3% had children, 58.5% had worked for 2 years or less and 70.4% of them worked in inpatient unit, 9.9% of the nurses had a chronic illness, 69% didn't smoke, 30.3% had respiratory distress. While the sleep quality of the nurses was found to be poor (64.8%), depression was found to be in 33.1%. The mean of PSQI score of nurses was determined as 7.53 ± 3.94 (*Median: 7 Min-Max: 0–17*), and the BDI score was determined as 15.61 ± 14.41 (*Median: 12 Min-Max: 0–60*) (Table 1).

The total PSQI score of those aged 29 and over was found to be higher than those 23 and under ($p = .016$) and the total PSQI scores of the married ones were higher than singles ($p = .033$), and the BDI total scores of the high school graduates were higher than those with a university degree and higher ($p = .002$). In addition, smokers and those who smoked 11 or more times a day had higher PSQI score ($p = .006$) than non-smokers, and the statistical significance of the results was seen in the analysis (Table 2).

Table 1. Individual Characteristics of Nurses and the PSQI Score and the BDI Score (n=142).

Variables	n		%
Age		27.25 ± 6.25	
23 and ↓	35		24.6
24–28	75		52.8
29 and ↑	32		22.6
Gender			
Female	111		78.2
Male	31		21.8
Marital status			
Married	34		23.9
Single	108		76.1
Educational status			
High school	15		10.6
Undergraduate degree and higher	127		89.4
Having a child			
Yes	26		18.3
No	116		81.7
Working year		4.50 ± 6.81	
2 year and ↓	83		58.5
3–10 year	39		27.4
11 year and ↑	20		14.1
Working unit			
Inpatient unit	100		70.4
Intensive care unit	42		29.6
Having a chronic illness			
Yes	14		9.9
No	128		90.1
Smoking status			
Yes	44		31.0
No	98		69.0
If your answer yes, number/day		4.18 ± 7.38	
1–10	22		15.5
11 and ↑	22		15.5
Respiratory distress			
Yes	43		30.3
No	99		69.7
PSQI score/Sleep quality		7.53 ± 3.94	
	(min-max:0–17)		(median:7)
Good	50		35.2
Poor	92		64.8

(continued)

Table 1. (continued)

Variables	n	%
BDI score/Having depression	15.61 ± 14.41 (min-max:0–60)	(median:12)
Yes depression	47	33.1
No depression	95	66.9
Total	142	100

Abbreviations: PSQI: pittsburgh sleep quality index, BDI: beck depression index.

While there is a very weak positive correlation between age, working year and the PSQI score and the BDI score, a moderate positive correlation was found between the PSQI score and the BDI score ($r = .463$, $p < .01$) (Table 3).

The results of the binary logistic regression model performed to determine the factors affecting the depression level of nurses according to various variables are shown in Table 4. After adjusting for variables (age, gender, marital status, education, child status, working unit and years, chronic illness and smoking status, respiratory distress status, and the PSQI score), it was found that; high school education increased the risk of depression level of nurses 8.420 times ($p < .01$, 95% CI: 1.841–38.517), having a chronic illness increased 8.736 times ($p < .05$, 95% CI: 1.198 - 63.679) and the PSQI score increased 1.217 times ($p < .01$, 95% CI: 1.088–1.360). These variables explained 28% of the total variance (Table 4).

Discussion

In research on SARS or Ebola outbreaks before COVID-19; it has been stated that the life-threatening situation encountered creates great pressure on health workers and they are vulnerable to health problems such as depression and insomnia (Lee et al., 2018). Frontline healthcare providers treating COVID-19 patients have also been found to be experiencing issues such as depression and insomnia heavily. It has also been a great source of stress for nurses to live with an excessive workload in the working environment regarding this unknown (Liu et al., 2020). Additionally, the increased workload related to the pandemic process has an impact on the emotional situation experienced by nurses, and this situation they experience also negatively affects the quality of care (Marvaldi et al., 2021; Shen et al., 2021). In the treatment and care of patients with COVID-19, healthcare workers had to apply personal protective equipment very carefully and with strict measures against the risk of infection. In order not to increase the consumption of protective equipment, they even tried to minimize the need for excretion by delaying the need for fluid intake and eating. Inadequacies in meeting physiological needs have also led to an increase in depression and sleep disorders in nurses as well as in all health workers (Riemann et al., 2020).

Table 2. Nurses' PSQI Score and the BDI Score to Individual Characteristics ($n = 142$).

Individual Characteristics	<i>n</i>	%	PSQI Score Mean \pm Sd Median (Max-Min)	BDI Score Mean \pm SD Median(Max-Min)
Age				
23 and ↓ (1)	35	24.6	7.03 \pm 3.36 7 (2–16)	11.60 \pm 10.76 9 (0–41)
24–28 (2)	75	52.8	7.12 \pm 3.97 7 (1–17)	16.03 \pm 14.48 12 (0–59)
29 and ↑ (3)	32	22.6	9.06 \pm 4.20 8.5 (0–17)	19.03 \pm 16.90 14 (0–60)
KW = 6.820 $p = .033$ Post-hoc (1–3)				
Marital status				
Married	34	23.9	8.56 \pm 4.15 9 (0–17)	17.91 \pm 15.74 15 (0–60)
Single	108	76.1	7.21 \pm 3.84 7 (1–17)	14.89 \pm 13.96 11 (0–59)
$z = 1425.00$ $p = .049$				
Educational status				
High school	15	10.6	9.13 \pm 4.27 8 (3–15)	29.00 \pm 18.64 30 (0–55)
Undergraduate degree and higher	127	89.4	7.35 \pm 3.87 7 (0–17)	14.03 \pm 13.03 11 (0–60)
$z=494.000$ $p=.002$				
Smoking status				
Yes	44	31.0	8.84 \pm 4.29 8 (1–17)	18.81 \pm 16.95 14.5 (0–60)
No	98	69.0	6.95 \pm 3.65 7 (0–17)	14.17 \pm 12.95 11 (0–55)
$z = 1616.50$ $p = .017$				
How many cigarettes do you smoke per day?				
No smoking (1)	98	69.0	6.95 \pm 3.65 7 (0–17)	14.17 \pm 12.95 12 (0–51)
1–10 cigarettes/day (2)	22	15.5	8.18 \pm 4.79 8 (3–15)	16.82 \pm 17.48 12 (1–60)
11 and ↑ cigarettes/day (3)	22	15.5	9.50 \pm 3.73 7.5 (1–17)	20.82 \pm 16.56 11 (0–59)
KW = 7.510 $p = .023$ Post-hoc (1–3)				

Abbreviations: PSQI: pittsburgh sleep quality index, BDI: beck depression index, U: mann–whitney U, KW: kruskal–wallis testi, Post-hoc: bonferroni adjusted mann–whitney, $p < .05$.

Table 3. The Correlations among Age, Working Year, the PSQI and the BDI Scores ($n = 142$).

Spearman's Rho	PSQI Score	BDI Score
Age	$r: .218^a$	$r: .187^b$
Working year	$r: .167^b$	$r: .207^b$
PSQI score		$r: .463^a$

^aCorrelation is significant at the 0.01 level (2-tailed).

^bCorrelation is significant at the 0.05 level (2-tailed).

Abbreviations: PSQI: pittsburgh sleep quality index, BDI: beck depression index, r: correlation coefficient.

Table 4. Logistic Regression Model Showing Factors associated with Depression ($n = 142$).

Variables (Reference Category)	β	Standart Error (SE)	Wald	df	p^* Value	Odds	95% CI for EXP(B)	
							Lower	Upper
Age	.090	.103	.771	1	.380	1.095	.895	1.339
Gender (female)	.273	.532	.264	1	.607	1.314	.464	3.726
Marital Status (Married)	-.869	.704	1.523	1	.217	.420	.106	1.667
Education (undergraduate degree and higher)	2.131	.776	7.544	1	.006	8.420	1.841	38.517
Having a child (Yes)	.954	.860	1.230	1	.267	2.596	.481	14.011
Working unit (inpatient unit)	.017	.473	.001	1	.971	1.017	.402	2.571
Working year	-.027	.085	.098	1	.754	.974	.824	1.151
Chronic illness (No)	2.167	1.013	4.574	1	.032	8.736	1.198	63.679
Smoking status (Yes)	.012	.459	.001	1	.978	1.013	.412	2.491
Respiratory distress (No)	.282	.449	.395	1	.530	1.326	.550	3.196
PSQI score	.196	.057	11.923	1	.001	1.217	1.088	1.360
Constant	-4.894	2.750	3.167	1	.075	.007		

Note: Binary logistic regression analysis, $\chi^2 = 32.702$, $p = .001$, Nagelkerke $R^2 = .286$.

Abbreviations: PSQI: pittsburgh sleep quality index.

Zhang et al. stated that more than one-third of health personnel experienced insomnia in their study during the pandemic process (Zhang et al., 2020). In the meta-analysis study on the Sleep Quality of Health Personnel in the COVID-19 Pandemic, it was stated that the sleep quality of the healthcare personnel who provided the treatment and care of the patient with the diagnosis of COVID-19 deteriorated (Sayik et al., 2021). In another study, pediatric healthcare workers in Wuhan had sleep problems in 38%, anxiety and depression in 25% and according to the regression analysis, it is stated that the biggest reason for depression in healthcare workers is contact with COVID-19 patients and having only one child (Wang, Xie, et al., 2020). Huang and Zhao reported that the sleep quality of health workers was worse in their study (Huang & Zhao, 2020). Korkmaz et al. also found that sleep disorders are more common in

nurses than other healthcare professionals, and the result is statistically significant in the study conducted with nurses, physicians, and other healthcare professionals during the COVID-19 pandemic (Korkmaz et al., 2020). Also, it was determined that the average the PSQI of nurses in “Fangcang” hospitals was 6.77 and 59.4% of nurses had the PSQI score of ≥ 5 points in China (Huang et al., 2020). In addition to the studies mentioned, It was found that in the United States, 77.4% of the sample population of nurses have a poor quality of sleep (Khatony et al., 2020) and in Italy 761 (75.72%) of 1005 nurses reported poor sleep quality (Simonetti et al., 2021) and in China, the poor sleep prevalence was reported to be 63.5% among 4951 nurses in tertiary hospitals and severe sleep problems 54.8% (Dong et al., 2017). In the current study, 64.8% of the nurses reported poor sleep quality and the PSQI score of nurses was determined as 7.53 ± 3.94 . The result obtained is in agreement with the studies carried out.

Because COVID-19 is highly contagious, many healthcare workers have been infected or died during the pandemic (Wang, Xie, et al., 2020). Confronting the risk of infection and death has brought many psychological disorders, especially sleep disorders and depression. It was reported a positive relation in the level of psychological discomfort (stress and anxiety) among nurses who were working in COVID-19 facilities and were over the age of 40 (Alnazly et al., 2021). Wang et al. found that age over 35 years and married with comorbidities, death of a family member, anxiety, and depression were associated with poor sleep quality in their study conducted with healthcare workers (Wang, Song, et al., 2020) The results of this study showed that PSQI score increases with increasing age as the mentioned study.

Anxiety and depression levels are important determinants of sleep problems among nurses battling COVID-19 (Pang et al., 2021). Alnazly et al. found that being married is associated with psychological distress in their study during the pandemic period (Alnazly et al., 2021). It has been stated that being diagnosed or suspected of having COVID-19 in family members significantly increases nurses’ risk of depression and sleep disturbance (Al Maqbali & Al Khadhuri, 2021). In addition, a prospective cohort study of 829 Portuguese nurses revealed that the COVID-19 outbreak seems to have had an impact on nurses’ mental health, who experienced depression, anxiety, stress, fear of infecting others, and fear of being infected (Sampaio et al., 2021). In the current study, it was stated that the PSQI score of married people was worse. It is thought that they have sleep problems caused by staying away from their families, living alone, not being able to fulfill the roles and responsibilities of the family, leaving the family alone, afraid of being infected and transmission especially, during the pandemic.

Zhang et al. found that the insomnia risk among healthcare workers with a high school or lower education was 2.69 times higher than those with a doctorate degree in their study (Zhang et al., 2020). The fear of the COVID-19 outbreak may also affect the sleep quality of individuals with low education levels. In a different study, no relationship was found between the education levels of health workers working during the pandemic process and sleep disorders (Abdoli et al., 2021). In this study, while low education level was not associated with sleep quality, it was found to be associated with

depression level. Low education level was determined to be a factor increasing the risk of depression.

Sleep quality is essential for ensuring and maintaining a person's well-being. Unhealthy habits such as smoking and drinking can cause poor sleep quality. Lifestyle changes also affect sleep quality (Kong et al., 2018). Dugas et al. also defined smoking as a known risk factor for sleep disorders (Dugas et al., 2017). In the study conducted to determine the smoking levels of hospital workers, the rate of smoking was determined to be 29.6% in Turkey (Koç et al., 2015). In parallel with the studies, smokers in the sample group were found to be 31%, and the PSQI scores of those who smoked 11 or more per day were higher than those who did not smoke. Similarly, in a different study conducted during the pandemic process, the PSQI score of nurses who smoked was found to be high (Omar et al., 2022).

According to the results of binary logistics analysis in the current study, it was found that high school education increases the risk of depression. In our country, nursing education is given at the high school level as well as at the university. Nursing students receive education between the ages of 13–17 and graduate at a very young age. The COVID-19 pandemic process is a very difficult process for healthcare professionals, and it is expected that those who start their profession at a very young age will have higher depression levels in this process. In a study conducted in China, young people reported a significantly higher prevalence of depressive symptoms than the elderly, supporting the current study result (Huang & Zhao, 2020). The study also showed that having a chronic illness increases the risk of depression. In addition, other studies have shown that sleep disorders and depression are associated with chronic diseases. In the study conducted with nurses in Oman during the pandemic process, it was determined that the depression levels and sleep quality of those with comorbid diseases were worse (Al Maqbali & Al Khadhuri, 2021). Kong et al. determined that the sleep quality is worse in individuals with hypertension and diabetes (Kong et al., 2018). Pai et al. explained that insomnia, poor sleep quality and short sleep times are common problems in cancer patients (Pai et al., 2020). Also sleep quality was found closely associated with Chronic obstructive pulmonary disease (COPD) by Magnussen et al. and in the study of Vukoja et al. they determined that 38% of COPD patients and 40.4% of asthma patients have poor sleep quality (Magnussen et al., 2017; Vukoja et al., 2018). Güzey-Aras et al. (2017) stated that the sleep quality of COPD patients is poor and most of them suffer from depression.

In a study conducted with 352 people, 34.3% of whom were healthcare workers, in Istanbul, Turkey, regarding sleep quality in the COVID-19 pandemic, poor sleep quality and depression were determined as 69.5% and 18.5%, respectively. In this study in which different occupational groups participated, it was stated that the PSQI score of health workers was higher, and in parallel with the study results, it is stated that poor sleep quality increases the risk of depression (Kabeloğlu & Gül, 2021). Also, another study demonstrated that poor sleep quality is positively associated with the prevalence of depressive symptoms in nurses (Wang et al., 2021).

Study Limitations

This study has some possible limitations. The study was conducted in a single center with volunteer nurses working in very intense and difficult conditions and is based on their answers, and the collection of data and the generalizability of the results were adversely affected due to the Covid-19 pandemic. In addition, the sample size of the study was small. Because of some reasons such as the risk of infection, workload, busy working hours and the fact that there are too many studies on the pandemic in the same period, it was difficult to reach nurses. Male nurses' number were less than the female population in the study because they have been heavily involved in the health system of our country in recent years, but their numbers are still less than female nurses. Another study limitation is that nurses who are high school graduates can still work as registered nurses in the health system as a result of the education system in the past.

Conclusions

When the results of the study are examined, the reasons that increase the risk of depression during the pandemic process include high school education, chronic illness, and irregular sleep. Considering these results, it is extremely important to support health workers in the field of education, to maintain and increase their health levels by creating healthier working conditions, and to provide a working order that will create regular sleep circulation.

The COVID-19 process has been not only an epidemic, but also a period of psychological distress caused by it. Especially all healthcare professionals experience great anxiety and stress for the safety of themselves, their families or colleagues. Like all healthcare professionals, nurses intensely experience the feeling of loneliness, uncertainty, and helplessness caused by this difficult process. This situation caused the nurses to deteriorate their sleep quality and experience depression. The reality encountered is that nurses who fulfill the responsibilities of care and are active professionals of the health service are at risk of depression due to the difficult conditions they are in and the inability to meet sleep which is one of the basic needs of human beings in a qualified manner, as well as the risks of infection and even death during the pandemic process.

The studies showed that nurses have more sleep disorders and physical health problems due to night shift work (Feng et al., 2021; Haile et al., 2019), and work-related stress (Van Laethem et al., 2015), working conditions (Akçay et al., 2021). In parallel with the findings of the study, there has been an increase in sleep and psychological disorders experienced by the negative effects of the pandemic process. It is thought that similar studies examining such problems that nurses face during the pandemic process will contribute to the literature by directing solution-oriented studies with different sample groups.

Healthcare providers are vital resources for everyone. The continuation of the functioning at the desired level and the provision of physically and psychologically

suitable working conditions and working hours for nurses and all health workers are one of the prerequisites for controlling the pandemic. Experience shows that countries and health institution managers need to take the necessary precautions and make legal arrangements at an optimal level to protect nurses and their health as well as all health workers against possible pandemics that may arise in the future. It is extremely important to provide psychological support to all healthcare workers as well as nurses in this process. In addition, a program for the prevention of insomnia and depression in all healthcare professionals might be prepared by the authorities, and its effectiveness can be evaluated by future studies.

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Ethical Standards

The study was conducted after receiving approval from the Ethics Commission of Bakırköy Sadi Konuk Training and Research Hospital non-interventional research (Issue: 2021/126, Date: 1/03/2021).

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