

Examining the relationship between nurses' fear levels and insomnia during the COVID-19 pandemic in Turkey

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Abstract

Purpose: This study was conducted to examine the relationship between nurses' fear levels and their insomnia, influencing sociodemographic factors during the COVID-19 pandemic.

Design and Methods: This study utilized cross-sectional methods and the data were collected between July 15 and August 15, 2020. In the data collection, "Socio-demographic question form," "Covid-19 Fear Scale," and "Bergen Insomnia Scale" tools were used. Descriptive statistics, numbers, percentages, independent samples *t* test, analysis of variance test, and correlation were used on the Statistical Package for Social Science (SPSS) 22.0 package program in evaluating the research data. Ethical approval was obtained from the Ethics Committee of Batman University.

Findings: A positive correlation was found between COVID-19 Fear Scale and the Bergen Insomnia Scale ($r = .392$; $p = .001$). The relationship between COVID-19 Fear and Bergen Insomnia Scale score averages and nurses' educational status, income level, shift working status, the status of their relatives being diagnosed with COVID-19, the state of being satisfied with the management of the pandemic process by the Ministry of Health, the situation of having resources in the settings where they work, the status of being in quarantine was statistically significant ($p < .05$).

Conclusion: The relationship between the nurses' fear levels of COVID-19 and their insomnia levels was moderate.

Practice Implications: The results of this study are important in terms of understanding the nurses' fear and insomnia during the pandemic and provide data support for the proper interventions. Also, nurses working in Turkey may call for more attention and support from policymakers during the COVID-19 pandemic.

KEYWORDS

COVID-19, fear, insomnia, nurse

1 | INTRODUCTION

The first cases of COVID-19 disease were seen on December 12, 2019, in the market for seafood and wild animals in the Wuhan region of Hubei Province of China (Lu et al., 2020). Since the etiology of COVID-19 disease is unknown, the first patients were diagnosed

with pneumonia (Rothan & Byrareddy, 2020). In the following process, COVID-19 was defined as the type of disease that caused severe lower respiratory tract infection, pneumonia, acute respiratory distress syndrome, and death. COVID-19 disease transmission from person to person was first reported in the United States on January 30, 2020 (Rothan & Byrareddy, 2020). The COVID-19 disease started

to threaten China and the whole world in a short time. The first COVID-19 disease was diagnosed in our country on March 11, 2020, and the World Health Organization (WHO) declared a pandemic on the same date. It shows that COVID-19 disease affects the entire age group, but the elderly with chronic (comorbidity) disease are more likely to get it and the disease process is more severe (Wu et al., 2020). The main transmission of the virus is through respiration and droplets; it is reported that it is also transmitted by contact with human and environmental surfaces, but it can be seen in any person with or without clinical symptoms (Amodio et al., 2020; Nishiura et al., 2020).

The COVID-19 disease was spreading rapidly, lacking a specific treatment and causing a severe disease picture (Maben & Bridges, 2020). The government has introduced some regulations that reduce social mobility to reduce the rate of contamination, prevent hospital congestion, provide the necessary services to patients, and spread the disease rate over a long period. These regulations include flexible working, allowing those with chronic diseases to take administrative leave, and online training in universities and all educational institutions started. Moreover, a ban on going out on weekends was imposed in cities that pose a risk (Magnavita et al., 2020). The increase in hospitalizations due to COVID-19 disease has caused healthcare workers an increase in their workload, get sick, and work far beyond their capacity (Kang et al., 2020). During the COVID-19 disease process, a significant portion of the people who got the virus were healthcare workers, and many healthcare workers died during this process (Xiao et al., 2020a). Nurses faced psychological problems due to the risk of contracting COVID-19 and transmitting it to their loved ones, the lack of definitive treatment of the disease, having to make decisions on their own in the treatment of severe patients with intubation, and witnessing deaths (Nemati et al., 2020; Xiao et al., 2020b). Psychological well-being levels among healthcare workers in Turkey reported the lowest in nurses. In the same study, it was stated that the group with the highest depression levels among healthcare workers was again nurses (Ceri & Cicek, 2021). The intensive work of healthcare professionals in COVID-19 disease, excessive contact with sick individuals, being quarantined, staying away from their families, concerns about losing family members and colleagues, radically affected by daily life routines, and exposure to negative news in the media can cause psychological problems (Wu et al., 2009). Studies have reported that healthcare professionals are at risk psychologically during the pandemic process and accordingly show symptoms, such as anxiety, fear, stress, and anger, but healthcare professionals experience widespread anxiety (Nemati et al., 2020; Xiao et al., 2020b). These symptoms also cause insomnia and increase the risk of getting COVID-19 disease (Chan & Chan, 2004). If there is insomnia, it prevents the individual from having difficulty falling asleep at night and waking up early in the morning. This causes negative effects on the physical, mental, social performance, and daily life quality of the individual (Yetkin & Aydın, 2014). Sleep quality is an important indicator of health. Healthcare professionals with good sleep quality increase patient satisfaction and job

performance. The nurses are unable to focus adequately on their work due to insomnia, which causes tiredness. Thus, the rate of making mistakes during the study increases, and it has been observed that they show low performance (Espie et al., 2012). In a study, it was reported that nurses who struggled with COVID-19 disease had insufficient sleep quality and the incidence of insomnia was 64.15% (Wu et al., 2020; Zhan et al., 2020). It has been observed that healthcare professionals, who have to work constantly due to the patient density, cannot rest enough and cannot sleep well (Lai et al., 2020). In a study conducted in China during the COVID-19 pandemic process, it was observed that 50% of healthcare workers had depression, 45% had symptoms of anxiety, and 25% had sleep difficulties or insomnia (Lai et al., 2020; Zhang et al., 2020). Studies specifically suggest that poor sleep quality is a risk factor for posttraumatic stress disorder (Kang et al., 2020; Yin et al., 2020). The main concern is that the COVID-19 epidemic has a permanent psychological effect on healthcare workers. In a study, it was found that 13.5% of healthcare workers had depression, 24.1% had anxiety symptoms, and 29.8% had stress symptoms (Luo et al., 2020; Yin et al., 2020).

1.1 | Aim

This study was conducted to examine the relationship between nurses' fear levels and their insomnia, influencing sociodemographic factors during the COVID-19 pandemic in Turkey.

2 | MATERIALS AND METHODS

2.1 | Design and sample

This study utilized cross-sectional methods and the data were collected between July 15 and August 15, 2020. The population of the research consists of nurses working in any healthcare provider in Turkey. The study population consisted of nurses ($N = 198,465$) in Turkey. The sample size was aimed to reach at least 662 people with 50% unknown prevalence, 1% absolute deviation, and 99% confidence level. At the end of 4 weeks, it is determined that 845 nurses completed the questionnaire. This sample size was calculated using OpenEpi, Version 3 (2013), an open-source calculator. A snowball sampling technique was used. The inclusion criteria were working for at least 6 months as a nurse in public hospitals (university, state hospital, and family health center/community center). The exclusion criteria were (1) taking paid and unpaid leave and (2) nurses working in private hospitals.

2.2 | Data collection tools

In the data collection, "Sociodemographic question form," "Covid-19 Fear Scale," and "Bergen Insomnia Scale" tools were used.

2.2.1 | The Sociodemographic question form

The Sociodemographic question form was prepared by the researchers as a result of reviewing the literature, and it consists of 14 questions, including nurses' age, gender, workplace, last graduation, and so on.

2.2.2 | Covid-19 Fear Scale

Covid-19 Fear Scale was developed by Ahorsu et al., and it is used to measure individuals' fear levels caused by COVID-19. The scale is a 5-point Likert scale with seven items and the scale has no sub-dimensions (Ahorsu et al. 2020). Turkish validation of the scale was done by Satici et al. and the Cronbach's alpha value of the COVID-19 Fear Scale was found to be 0.84 (Satici et al., 2020). On the scale, the minimum score is 5 and the maximum score is 35. The level of fear increases when the score increased (Satici et al., 2020). In this study, the Cronbach's alpha value of the COVID-19 Fear Scale is 0.88.

2.2.3 | Bergen Insomnia Scale

Bergen Insomnia Scale was developed by Pallesen et al. and is used to measure different symptoms of insomnia (Pallesen et al., 2008). The scale is an 8-point Likert scale with six items and the scale has no subdimensions. On the scale, the minimum score is 0, and the maximum score 42. The level of insomnia increases as the score increases. Turkish validation of the scale was done by Bay and Ergun and the Cronbach's alpha value of the Bergen Insomnia Scale was found 0.72 (Bay & Ergün, 2018). In this study, the Cronbach's alpha value of the Bergen Insomnia Scale is 0.84.

2.3 | Data collection

A web-based questionnaire was created by the researchers to include the nurses in the study. The created questionnaire was forwarded to the chief nurses and the head nurses for the services, and it was forwarded from them to the nurses. The questionnaire form was sent via WhatsApp, e-mail, Instagram, and Facebook. Participants were able to fill in the questionnaires with desktop, laptop, tablet, or mobile devices. Nurses were allowed to fill out the questionnaire once in the survey system. Data were collected voluntarily. The data obtained were only used within the scope of the study and will not be shared with third parties.

2.4 | Data analysis

Descriptive statistics, numbers, percentages, independent samples *t* test, analysis of variance test, and correlation were used on the

Statistical Package for Social Science (SPSS) 22.0 package program in evaluating the research data.

2.5 | Ethical considerations

Ethical approval was obtained from the Ethics Committee (07.07.2020: Decision 2020/3.22). Besides, the necessary legal permissions were obtained from the Ministry of Health.

3 | FINDINGS

In total, 72.2% of the nurses were female, 78% were graduates, 57.2% were single, 53.8% had a medium-income level, 69.7% were working in a state hospital, and 7.6% had a chronic disease. In total, 32.4% of the nurses participating in the study stated that they performed a COVID-19 diagnostic test, 3.4% of them were diagnosed with COVID-19, 54.8% had relatives diagnosed with COVID-19, and 59.3% remained in quarantine. And, 30.1% of them think that they have a shortage of resources in their settings and 44.4% of them think that the pandemic process is well managed (Table 1).

The relationship between COVID-19 Fear Scale score averages and nurses' gender, educational status, income level, shift working status, the institution where they work, the status of their relatives being diagnosed with COVID-19, the state of being satisfied with the management of the pandemic process by the Ministry of Health, the situation of having resources in the settings where they work, and the status of being in quarantine was statistically significant ($p < .05$) (Table 2).

The relationship between Bergen Insomnia Scale score averages and nurses' educational status, income level, marital status, shift working status, chronic disease status, the status of their relatives being diagnosed with COVID-19, the state of being satisfied with the management of the pandemic process by the Ministry of Health, the situation of having resources in the settings where they work, and the status of being in quarantine was statistically significant ($p < .05$) (Table 2).

The relationship between the COVID-19 Fear Scale and the Bergen Insomnia scale is displayed in Table 3. A positive correlation was found between the COVID-19 Fear Scale and the Bergen Insomnia scale ($r = .392$; $p = .001$).

4 | DISCUSSION

In our study, the difference between gender and the mean score of the fear scale was statistically significant, and the fear level of women was found to be higher than men. The results of our study concurred with the results of An et al. (2020), Hu et al. (2020), and Kang et al. (2020). They found that female healthcare professionals have high levels of depression, anxiety, and insomnia.

TABLE 1 Descriptive characteristics of nursing (n = 845)

Characteristics	n	%
Age (years)		
18–40	781	92.4
41 and up	64	7.6
Gender		
Female	610	72.2
Male	235	27.8
Educational status		
High school	46	5.4
Associate degree	54	6.4
License	659	78.0
Master	86	10.2
Marital status		
Married	483	57.2
Single	362	42.8
Income level		
Poor	242	28.6
Middle	455	53.8
High	148	17.5
The way nurses worked		
Only daytime shift	232	27.5
Daytime-night shift	613	72.5
The institution where they work		
Primary healthcare (family health center/ community center)	100	11.8
Secondary (state hospital)	589	69.7
Tertiary (university hospital)	156	18.5
Presence of chronic illness		
Yes	64	7.6
No	781	92.4
The status of performing COVID-19 test		
Yes	274	32.4
No	571	67.6
Status of being diagnosed with COVID-19		
Yes	29	3.4
No	816	96.6
The status of their relatives being diagnosed with COVID-19		
Yes	463	54.8
No	382	45.2
The status of being in quarantine		
Yes	501	59.3
No	344	40.7

(Continues)

TABLE 1 (Continued)

Characteristics	n	%
The situation of having resources in the settings where they work		
Yes	284	33.6
No	561	66.4
The state of being satisfied with the management of the pandemic process by the Ministry of Health		
Well	375	44.4
Bad	370	54.6

In our study, the difference between the education levels of nurses and the mean scores of COVID-19 fear and Bergen Insomnia Scales is statistically significant, and their levels of fear and sleeplessness decrease as their education levels increase. The reason for this is to show how to act consciously and manage the negative situation with the increase in education level.

In our study, the difference between the income status and the average score of COVID-19 Fear and Bergen Insomnia Scale is statistically significant, and fear levels decrease as income increases. Our study concurred with Zhan et al.'s (2020) studies. Nurses working in our country work with low wages. They earn most of their income from additional payments. They lose their income when they get sick or take leave. During quarantine, they do not benefit from additional income. This situation affects the sleep quality and fear levels of low-income nurses who do not receive economic support in the family.

In this study, the difference between the way nurses worked and the average COVID-19 fear and Bergen Insomnia Scale score was statistically significant, while the level of fear in nurses working during the day was higher, while the insomnia level of people working in the night shift was higher. The reason for having a high level of fear in the nurses working in day shift is that they had contact with more people. The possible reason for the nurses working in the night shift to suffer from insomnia could be due to the intensive treatment of the patients and the need for continuous follow-up.

In this study, the difference between the Bergen Insomnia Scale average score of nurses with chronic diseases is statistically significant, and those with chronic diseases suffer more insomnia. Our findings are similar to the current literature (Zhan et al., 2020).

In our study, the mean scores of the COVID-19 fear scale with the institution where the nurses' work was statistically significant, and the level of fear was found to be higher in nurses working in primary healthcare settings compared with those working in other hospitals. A recent study by Lai et al. (2020) found that healthcare professionals working in secondary care have higher levels of depression, anxiety, and insomnia than those working in tertiary care. A study by An et al. (2020) found higher levels of fear among those working in tertiary hospitals. The reason for having a higher level of fear in the nurses could be insufficient use of resources as a result of the payment of the resources by the healthcare professionals and the

TABLE 2 Comparison of COVID-19 Fear and Bergen Insomnia Scale total point averages according to descriptive characteristics of nurses ($n = 845$)

Characteristics	Covid 19 Fear Scale Mean \pm SD	Bergen Insomnia Scale Mean \pm SD
Age (years)		
18-40	19.69 \pm 7.48	22.33 \pm 10.37
41 and up	19.12 \pm 7.08	20.73 \pm 10.04
Sig. (two-tailed)	$t = 0.58$; $p = .55$	$t = 1.29$; $p = .22$
Gender		
Male	17.35 \pm 7.26	21.20 \pm 10.26
Female	20.53 \pm 7.24	22.60 \pm 10.36
Sig. (two-tailed)	$t = 5.701$; $p = .001$	$t = 1.756$; $p = .07$
Educational status		
High school	21.56 \pm 8.15	24.63 \pm 11.04
Associate degree	20.44 \pm 7.74	23.03 \pm 11.61
License	19.67 \pm 7.39	22.15 \pm 10.20
Master	17.93 \pm 6.35	20.32 \pm 10.07
Sig. (two-tailed)	$F = 2.81$; $p = .05$	$F = 2.29$; $p = .05$
Income level		
Poor	21.03 \pm 7.96	25.75 \pm 10.22
Middle	19.63 \pm 7.01	21.50 \pm 9.56
High	17.40 \pm 6.99	18.62 \pm 10.10
Sig. (two-tailed)	$F = 11.38$; $p = .001$	$F = 25.54$; $p = .001$
Marital status		
Married	20.01 \pm 7.75	21.21 \pm 10.52
Single	19.37 \pm 7.08	22.96 \pm 10.17
Sig. (two-tailed)	$t = 1.29$; $p = .216$	$t = 2.43$; $p = .05$
The way nurses worked		
Only daytime swift	21.05 \pm 7.38	20.33 \pm 7.38
Day-night swift	19.11 \pm 7.32	22.92 \pm 10.03
Sig. (two-tailed)	$t = 3.420$; $p = .001$	$t = 3.26$; $p = .002$
The institution where they work		
Primary healthcare (family health center/ community center)	21.47 \pm 7.10	22.28 \pm 10.93
Secondary (state hospital)	19.32 \pm 7.30	21.22 \pm 10.34
Tertiary (university hospital)	19.68 \pm 7.73	21.22 \pm 10.01
Sig. (two-tailed)	$F = 3.61$; $p = .021$	$F = 0.89$; $p = .411$

TABLE 2 (Continued)

Characteristics	Covid 19 Fear Scale Mean \pm SD	Bergen Insomnia Scale Mean \pm SD
Chronic disease status		
Yes	19.93 \pm 8.77	24.35 \pm 11.54
No	19.63 \pm 7.33	22.03 \pm 10.24
Sig. (two-tailed)	$t = 0.210$; $p = .834$	$t = 1.87$; $p = .005$
The status of being diagnosed with COVID-19		
Yes	19.12 \pm 7.36	22.78 \pm 10.22
No	19.90 \pm 7.38	21.94 \pm 10.41
Sig. (two-tailed)	$t = 1.14$; $p = .26$	$t = 1.41$; $p = .153$
The status of their relatives being diagnosed with COVID-19		
Yes	20.74 \pm 7.30	23.15 \pm 10.15
No	18.32 \pm 7.27	21.07 \pm 10.10
Sig. (two-tailed)	$t = 4.804$; $p = .001$	$t = 2.95$; $p = .004$
The situation of having resources in the settings where they work		
Yes	20.75 \pm 7.52	24.48 \pm 10.42
No	19.08 \pm 7.25	21.06 \pm 10.14
Sig. (two-tailed)	$t = 3.12$; $p = .002$	$t = 4.58$; $p = .001$
The status of being in quarantine		
Yes	20.43 \pm 7.33	23.03 \pm 10.04
No	18.50 \pm 7.31	21.02 \pm 10.69
Sig. (two-tailed)	$t = 2.784$; $p = .005$	$t = 3.766$; $p = .001$
The state of being satisfied with the management of the pandemic process by the Ministry of Health		
Well	18.70 \pm 7.08	20.65 \pm 10.45
Bad	20.37 \pm 7.53	23.46 \pm 10.43
Sig. (two-tailed)	$t = 3.330$; $p = .001$	$t = 3.95$; $p = .001$

nurses having contact with patients admitted to their settings could be a carrier without showing symptoms.

The difference between the mean scores of the COVID-19 fear and Bergen Insomnia Scale is statistically significant when one of the nurses' relatives is diagnosed with COVID-19, and the diagnosis of a relative increases the level of fear and insomnia. Our findings are similar to the current literature (Mertens et al., 2020; Tayyib & Alsolami, 2020). It could be said that nurses witness their patients diagnosed with COVID-19 in the environment in which they work so this increases their level of fear and insomnia because they fear that a member of their family will experience these negative conditions if they are infected.

TABLE 3 The relationship between COVID-19 Fear Scale and Bergen Insomnia Scale

	Mean	SD		1	2
Bergen Insomnia Scale	22.21	10.35	Pearson correlation	1	0.392
			Sig. (two-tailed)	-	0.001
Covid 19 Fear Scale	19.64	7.38	Pearson correlation	0.392	1
			Sig. (two-tailed)	0.001	-

The difference between the resources shortage in the institution where he worked and the COVID-19 Fear and Bergen Insomnia Scale score averages were found to be statistically significant. The levels of fear and insomnia of those working in institutions that do not have a resource shortage are lower. Since nurses working in institutions are in close contact during the treatment of patients diagnosed with COVID-19, the inadequacy of protective equipment increases the level of fear of nurses and disrupts their sleep patterns.

The difference between the quarantine of the nurses and the mean scores of the COVID-19 Fear and Bergen Insomnia Scale is statistically significant, and the fear levels of those who are quarantined increase. It can be said that the fear and insomnia scores are higher because they are afraid that they will experience these negative situations, as they witness the negative situations experienced by the patients diagnosed with COVID-19 in the setting they work.

The difference between the Ministry of Health's satisfaction in managing the pandemic process and the COVID-19 fear and Bergen Insomnia Scale score averages is statistically significant, and those with high satisfaction status have lower levels of fear. Due to the measures taken by the Ministry of Health, fear and sleep conditions in nurses were not adversely affected as it prevented the crowding in hospitals (Republic of Turkey Ministry of Health, 2020).

In this study, the relationship between the COVID-19 fear level and insomnia was found to be significant. A recent study by Hu et al. (2020) found a relationship between nurses' fear levels and burnout, anxiety, and depression.

5 | CONCLUSION AND RECOMMENDATIONS

A moderate correlation was found between the nurses' fear levels of COVID-19 and their insomnia levels. It has been found that nurses too are exposed to the virus while working, fear that someone in their family could be infected, and therefore have insomnia. The level of fear and insomnia increasing as if being infected with COVID-19 could cause economic difficulties.

It is recommended to increase the number of nurses to reduce the workload of nurses, to create work and rest environments that will ensure that the need for rest is planned and that other risk

factors related to insomnia and fatigue are controlled, not just the risk of infection.

5.1 | Implication for psychiatric nursing practice

Frontline nurses experienced a variety of mental health challenges, especially burnout and fear, which warrants more attention and support from policymakers. According to the results obtained from this study, it is recommended to rearrange working hours, establish psychological therapy teams to reduce levels of fear and insomnia, prepare special therapy sessions, and organize psychosocial counseling and social life-supporting activities. Future interventions at the organizational and national levels are needed to improve frontline nurses' mental health during the pandemic by building self-efficacy and resilience, providing sufficient social support, and ensuring frontline work willingness.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

ETHICS STATEMENT

The ethical committee approval dated 07.07.2020 and decision numbered 2020/3.22 was obtained from the Ethics Committee of Batman University.

DATA AVAILABILITY STATEMENT

Data are openly available in a public repository that issues data sets with DOIs.

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