

Biopsychosocial Problems and Coping Methods of Nurses During the COVID-19 Pandemic: A Descriptive and Cross-Sectional Study

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Abstract

Background: Studies have shown health care workers experience physical and psychological problems during the COVID-19.

Aim: This study aimed to define nurses' biopsychosocial problems and coping methods during the pandemic.

Methods: This study was planned as a descriptive and cross-sectional study between 1 September and October 30, 2020, in the 1st year of the pandemic. The sample of the study consisted of 438 nurses. An information form was used to collect the data, including the sociodemographic characteristics of the nurses, the problems they experienced during the pandemic, and their coping methods. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to analyze the data.

Results: The mean age of the nurses was 29.20 ± 6.38 . The most intense emotions experienced by nurses during the pandemic period were fear, anxiety (31.7%); concern, doubtfulness (22.9%); and fatigue, distress, and burnout (18.4%). The most important reason for their anxiety was infecting their family, loved ones, relatives, and children (44.3%). The sleep of 30.3% of nurses was irregular. The ways of coping with problems were talking with loved ones (14.8%), taking precautions to avoid getting sick (14.4%), doing activities (13.7%), and positive thinking (10.3%). Of them, 55.7% stated that they had worked in an inadequate and insecure environment.

Conclusion: During the pandemic, nurses experienced biopsychosocial problems and worked in an inadequate and unsafe environment. Nurses should be supported in biopsychosocial and working conditions, including reducing busy working hours, increasing the number of nurses, and increasing the number and accessibility of equipment should be improved.

Keywords: Coping, COVID-19, nurses, physical problems, psychosocial problems

Introduction

The COVID-19 outbreak, which emerged in Wuhan, China's Hubei province, at the end of December 2019, has turned into a global epidemic in a short time.^{1,2} Healthcare workers working at the forefront and under challenging conditions during the pandemic process have been recognized as one of the vulnerable populations. It has been predicted that psychiatric problems such as post-traumatic stress disorder, depression, and alcohol use disorders will be seen at high rates in health-care workers associated with the COVID-19 pandemic.³ A study conducted with 1257 healthcare professionals in China determined that 50.4% experienced depression, 44.6% anxiety, 34% insomnia, and 71.5% distress symptoms.⁴ Another study conducted with 82 doctors and 98 nurses who care for patients with COVID-19 in China determined that as the participants' stress levels increased, their anxiety levels also increased.⁵

In a study conducted on front-line nurses, caring for people with COVID-19 had psychological effects, including fear, anxiety, stress, social isolation, depressive symptoms, uncertainty, and frustration. In addition, they also experienced some symptoms such as fear of infecting or being infected with family members, anger, obsessive thoughts, impulsivity, introversion, anxiety, somatization, and feelings of betrayal.⁶ Furthermore, in a study conducted in Kuwait, 88.3% of nurses caring for patients with COVID-19 were affected cognitively, 56.0% emotionally, 98.7% behaviorally, and 75.0% physically.⁷ It was determined that nurses experienced sleep problems, depressive symptoms,

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anxiety, stress, fear of being infected, and infecting others during the pandemic.⁸

Many factors affected nurses' emotional, physical, and social problems. Especially the fear of being infected or infecting their relatives increased their stress levels.^{6,8} Apart from these, the stigma they experience due to being healthcare workers, working in intensive services, lack of social support, the inadequacy of the measures taken, lack of personnel, inability to take a vacation, and ineffective coping styles increased their psychological problems such as anxiety, depression and post-traumatic stress disorder.^{9,10}

Nurses caring for patients with COVID-19 experienced and perceived more stress than nurses working with non-infected patients.¹¹ Nurses experienced a state of chaos and anxiety with a lack of confidence.¹² Nurses used coping strategies such as COVID-19 protective measures, avoidance strategies, social support, faith-based practices, psychological support, and management support during the COVID-19 outbreak.¹³ Some use positive coping methods such as disconnecting, distraction, hobbies, pets, relationships, self-care (diet, exercise, meditation, quiet time, and home), car travel, religion, and resilience. On the other hand, some have tried to cope by using methods such as drugs, alcohol, suppressing feelings, crying, and lack or loss of regular coping mechanisms.¹⁴ Most of the studies revealed that nurses had difficulties in coping with the pandemic process.

The pandemic process hurt nurses and all health-care professionals. The effects of the pandemic and heavy working conditions still continue. It is essential that the problems they experience are determined, necessary precautions are taken, and they are supported financially and morally. Nurses who need psychological support should be identified and supported. Working conditions for nurses should be improved. The findings obtained in this study will form a basis for the planning of supportive interventions for nurses after the pandemic. Therefore, this study was planned to determine nurses' biopsychosocial problems and coping methods in Türkiye in the 1st year of the pandemic.

Research Questions

- What are the biopsychosocial problems experienced by nurses during the COVID-19 pandemic?
- How did nurses cope with the problems they experienced during the COVID-19 pandemic?

Methods

Research Type

The study was carried out with descriptive and cross-sectional design. This study was prepared in line with "STROBE Checklist: cross-sectional studies."

Sample of the Study

The study population consisted of all nurses working during the COVID-19 pandemic in Turkey. The number of nurses working in Türkiye in 2020 was 198.405. The snowball sampling technique was used to collect the information from participants. The questionnaire link was sent to all researchers' associates, and the respondents were asked to forward or post the links among their contact groups. The study sample was defined as 384, with the sample size calculated with a 5% error margin at a 95% confidence interval.¹⁵ The sample consisted

of 438 nurses who accepted to participate in the study and filled out the forms completely between September 01 and October 30, 2020.

Instruments

The nurse information form, which was prepared by the researchers in line with the literature, was used to collect the data.^{3-5,7,9} This form consisted of two parts. The first part of the form consisted of 17 questions, including sociodemographic characteristics. These questions are gender, age, educational status, marital status, having a child, the number of children, living with a person, duration of working, working status in the pandemic service before, working status in the pandemic service when participating in the study, anxiety status regarding the pandemic, support resources, coronavirus test status, change in relations with family members, change in the sleep process, receiving psychological support and treatment during the pandemic.

The second part of the form consisted of open-ended questions to determine the biopsychosocial problems experienced by nurses and their coping methods. These questions are:

1. Can you write down your feelings about the COVID-19 pandemic?
2. Do you have any concerns about the COVID-19 pandemic? If so, can you share your concerns?
3. What has changed in your life during this period?
4. How do you deal with the problems you experience in this process?
5. Have you had any changes in your sleep process? If there has been a change in your sleep process, what changes have occurred?
6. Have there been any changes in your relationships with family members? If there have been changes in your relationships with family members, what changes have occurred?
7. What do you think about your working environment in this process?
8. How do your feelings and thoughts about working at the hospital reflect on your private life during this period?

Data Collection

Data were collected with Google Forms to reach as many nurses as possible. A link has been shared via social media groups. An informative text about the research was added to the beginning of the form, and the data were collected after their consent was obtained. The confidentiality of the information of all nurses was taken into account, and only the researchers viewed this information through Google Form.

Data Analysis

IBM SPSS Statistics for Windows, Version 25.0 program (IBM SPSS Corp.; Armonk, NY, USA) evaluated the data. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to analyze the data. In the analysis of open-ended questions, the answers given were read repeatedly by both researchers and grouped according to the participants' statements. Then, it is presented with descriptive statistics such as numbers and percentages.

Ethical Considerations

Before starting the study, written permission was obtained from Aksaray University Human Research Ethics Committee (Approval Number: 2020/03-30-60, Date: 24.04.2020). After receiving the permission of the ethics committee, an application was made to the Scientific Research Platform of the General Directorate of Health Services of the Ministry of Health, and permission was obtained.

Nurses participating in the study were informed about the study, an explanation was given that individual information would be kept confidential, and their written consent was obtained. The principles of the Declaration of Helsinki were taken into account at all stages of the research.

Results

The mean age of the nurses was 29.20 ± 6.38 (min: 20, max: 50). Of the nurses, 83.1% were women, 80.2% were graduates from university, 53.2% were married, 40.2% had children, and 73.1% had lived with their families (Table 1).

The average working years of the nurses was 6.79 ± 6.72 . Of them, 76.9% worked in the pandemic service, and 52.7% worked in the pandemic service at the time of the study. Of the nurses, 92.5% experienced anxiety due to the pandemic, and 61.3% received support from

Characteristics	n	%
Gender		
Female	364	83.1
Male	74	16.9
Age, years		
20–30	296	67.6
31–40	106	24.2
41–50	36	8.2
Educational status		
High school	24	5.5
College	30	6.8
University	351	80.2
Master/PhD	33	7.5
Marital status		
Single	205	46.8
Married	233	53.2
Having a child		
Yes	176	40.2
No	262	59.8
Number of children		
No child	262	59.8
1	77	17.6
2	83	18.9
3	16	3.7
Living with a person		
Roommate	21	4.8
Alone	97	22.1
Family	320	73.1

Table 2. Occupational and Pandemic Process-Related Features (n: 438)

Features	n	%
Duration of working, years		
≤ 1	110	25.2
2–6	157	35.8
7–11	93	21.2
≥ 11	78	17.8
Working status in the pandemic service before		
Yes	337	76.9
No	101	23.1
Working status in the pandemic service when participating in the study		
Yes	231	52.7
No	207	47.3
Anxiety status regarding the pandemic		
Yes	405	92.5
No	33	7.5
Support resources (n=550)*		
Family/spouse	352	63.9
Friend	144	26.2
Spirituality/praying	24	4.4
Music/book/spor/internet	22	4.0
Counseling	7	1.3
Medication	1	0.2
Coronavirus test status		
No	181	41.3
Yes, the test is negative	220	50.3
Yes, the test is positive	37	8.4
Change in relations with family members		
Yes	244	55.7
No	194	44.3
Change in the sleep process		
Yes	256	58.4
No	182	41.6
Receiving psychological support during the pandemic		
Yes	18	4.1
No	420	95.9
Receiving psychological treatment during the pandemic (N=18)**		
Medication	6	33.3
Counseling	8	44.4
Medication + Counseling	4	22.3

*Since the questions were open-ended, the answers were evaluated over more than one option.

**The answers were evaluated on 18 people who stated that they received psychological support.

Problems	n	%	Problems	n	%
Feelings					
Fear, anxiety	177	31.7	My ability to adapt and cope with problems has increased	31	4.1
Worry, restlessness	128	22.9	I experience loss of motivation and burnout	22	2.9
Fatigue, weariness, and burnout	103	18.4	I do not want to do anything	21	2.8
Helplessness, despair	56	10.0	Nothing has changed	12	1.5
Sadness	29	5.2	Total*	759	100
Uncertainty	29	5.2	Changes in the sleep process		
Stress	24	4.3	My sleep is irregular	85	30.3
Anger	13	2.3	I don't feel rested even though I have slept	67	23.8
Total*	559	100	I cannot sleep	56	19.9
Concerns			I sleep less	27	9.6
Infesting my family, loved ones, relatives and children	186	44.3	I wake up now and then	26	9.3
Catching the disease and thinking that it will cause permanent damage	95	22.6	I sleep too much	20	7.1
Thinking that the epidemic will not end	50	11.9	Total *	281	100
Feeling uncertainty	41	9.8	Problems in relationships with family members		
Worrying about losing loved ones	32	7.6	They stay away from me because I am a healthcare worker	47	19.3
Dying	16	3.8	I can't hug my children or my family to the fullest	41	16.8
Total*	420	100	I'm more aggressive	41	16.8
Changes in your life			I can't meet them	33	13.5
I have stayed away from my family or friends	161	21.2	I see them less	25	10.3
I am feeling anxious	127	16.7	Arguments and tensions have increased within the family	25	10.3
I have started to pay more attention to hygiene	71	9.4	I'm being too protective	12	4.8
It has turned into a stressful and tiring life	70	9.2	We are more connected to each other	11	4.5
My working conditions have changed. I is struggling	66	8.7	We have started living in different houses	9	3.7
My social life is over	66	8.7	Total *	244	100
I am having psychological distress	63	8.3			
I have insomnia and feel tired	49	6.5			

*Since the questions were open-ended, the answers were evaluated over more than one option.

their family/spouse. Of them, 50.2% had a coronavirus test, and the result was negative, 55.7% had a change in their relationship with their family, 58.4% had a change in the sleep process, and only 4.1% received psychological support (Table 2).

The most intense emotions experienced by nurses during the pandemic were fear, and anxiety (31.7%). The reasons for their concerns were infecting my family, loved ones, relatives and children (44.3%). The most critical change in their life was staying away from their family or friends (21.2%). About a third of them (30.3%) had irregular sleep.

Of the nurses, 19.3% stated that their families stayed away from them, 16.8% could not hug their children or family to the fullest, could not get close, and 16.8% became more aggressive (Table 3).

Nurses tried to cope with the problems they experienced during the pandemic by talking to their loved ones (14.8%), taking precautions not to get sick (14.4%), doing activities (13.7%), and thinking positive things (10.3%) (Table 4). When the opinions of the nurses regarding their working environment were evaluated, 55.7% thought that they were working in an inadequate and insecure environment. The

Table 4. Nurses' ways of coping with problems (n: 438)

Ways of coping	n	%
I'm talking to my loved ones	69	14.8
I'm taking precautions not to get sick	67	14.4
I'm doing activities	64	13.7
I can't cope	59	12.7
I'm thinking positive things	48	10.3
I'm trying to cope spiritually	40	8.8
I'm trying to get used to it	31	6.6
I'm trying not to think	27	5.8
I'm sleeping	13	2.8
I'm not doing anything	10	2.1
I'm getting psychiatric help	10	2.1
I remember my professional responsibilities	10	2.1
I'm going to non-crowded environments, walking	8	1.6
I pay attention to my diet	5	1.1
I'm crying	5	1.1
Total*	466	100

*Since the questions were open-ended, the answers were evaluated over more than one option.

nurses' thoughts about working in the hospital were that they were anxious and stressed (21.6%) (Table 5).

Discussion

Nurses experienced fear, anxiety, worry, restlessness, fatigue, weariness, and burnout during the pandemic period. Some expressions were: "It has turned into a stressful and tiring life." "I am experiencing loss of motivation and burnout." "I have insomnia and feel tired." Similarly, in one study, nurses caring for patients with COVID-19 reported experiencing fear, anxiety, and stress.⁶ Another study determined that nurses with a fear of COVID-19 experienced more anxiety and psychological distress.¹⁶ Another study determined that frontline nurses experienced moderate burnout, high levels of fear, and severe anxiety.¹⁷ In another study, the increase in mortality rates of COVID-19, the unknown nature of the disease, and the fact that patients had severe respiratory problems and died due to the disease increased both the anxiety and death anxiety of the nurses.¹⁸ When these negative emotions experienced by nurses last for a long time, or they cannot manage these emotions effectively during the pandemic process, severe mental health problems may develop, leading to a loss of workforce and a decrease in the quality of care.

Nurses reported being most worried about the fear of infecting their families, loved ones, relatives, and children. Similarly, in studies, nurses feared infecting family members or contracting the disease.^{6,3} According to a study in Türkiye, nurses with children had high anxiety levels.¹⁹ In a study abroad, nurses, especially those with small children, experienced problems such as anxiety and stress because they

Table 5. Nurses' thoughts on the working environment (n: 438)

	n	%
Thoughts on the work environment*		
The environment is inadequate and unsafe	200	55.7
The environment is safe and adequate	62	17.3
There is an insufficient equipment support	26	7.3
There is a shortage of staff	22	6.1
There is a lack of hygiene	17	4.7
There is a supportive environment	17	4.7
There is mobbing	10	2.8
No comment, I don't know	5	1.4
Total*	359	100
Thoughts about working in a hospital		
I feel anxious and stressed	102	21.6
I feel unhappy, hopeless, and exhausted	63	13.3
It limits social life	60	12.7
I'm more angry and nervous	46	9.7
It negatively affects my family or private life	39	8.2
People treat us like we're infected	37	7.8
It is no change	35	7.4
I feel tired and bored	33	7.0
I have no private life	29	6.1
I do not want to work	23	4.9
People are more positive towards u	6	1.3
Total*	473	100

*Since the questions were open-ended, the answers were evaluated over more than one option.

had to be separated from them. They even stated that the fear of infecting a family member created a sense of guilt.¹⁸ Nurses should be supported to cope with this fear effectively. This fear may cause nurses to be more isolated, and being isolated may trigger the emergence of physical and mental problems and weaken effective coping.

Nurses reported that the most critical change in their lives was away from their families or friends. Some expressions were: "I can't hug my children and my family to the fullest, and I can't get close." "They stay away from me because I am a healthcare worker." In a similar study, nurses stated that they could not have close contact with their family members because of the potential risk of being a carrier. They were always afraid and anxious about being a carrier. Therefore, they could not see their family members for a few days,¹⁸ especially at the pandemic's beginning, some nurses could not go to their homes for fear of contagious coronavirus and stayed in hotels or dormitories. Some of them sent their children to their families, they could not see them for a long time, they could not spend time with them, and they

missed them very much.²⁰ Considering that family is one of the most important sources of social support, nurses had to distance themselves from support sources. Being away from an essential source of social support such as family can lead to serious mental problems. Therefore supportive interventions should be planned, and the work environment should be structured to support them.

Nurses experienced sleep problems. Some expressions were: "I can not sleep." "I don't feel rested even though I'm asleep." "My sleep time and duration have changed." A study conducted with healthcare professionals during the pandemic process determined that more than half of them had poor sleep quality, nurses had the highest number of poor sleep quality among healthcare professionals, and social support and family support increased sleep quality. It was also found that poor sleep quality was associated with high trauma levels.²¹ In a study conducted with nurses working on the front lines of the pandemic, it was determined that more than half of them had poor sleep quality. As insufficient sleep quality increased, symptoms of stress, anxiety, and depression increased.²² Again, in a study conducted with nurses, about two-thirds of them had sleep disorders, and sleep quality deteriorated as anxiety increased.²³ Similar to other studies, this study found that most nurses had sleep problems. Sleep problems should be handled carefully, as they may cause mental problems in nurses or be a symptom of a fundamental mental health problem and may negatively affect their work efficiency and quality of care.

Some nurses tried to deal effectively with the problems in the pandemic process. Some nurses reported not coping with the problems in this process, but they were very few. Some expressions were: "I spend time on social media." "I'm trying to get used to it." "I'm getting psychiatric help." "I'm not doing anything." A study found that nurses used psychological defense mechanisms such as speculation, isolation, depression, distraction, self-awareness, humor, and rationalization. In the same study, nurses also actively or passively used psychological techniques such as diary and letter writing, breathing exercises, mindfulness, musical meditation, and emotional expression.²⁴ It is necessary to know and use practical coping skills to prevent mental illnesses in this process. Due to the pandemic, nurses experienced acute stress disorder and psychological distress and were at risk for post-traumatic stress disorder. In addition, the risk of acute stress disorder was reduced in nurses with coping self-efficacy.²⁵ In this study, nurses used both emotion-focused and problem-focused coping methods. Some nurses run away from the problem and try not to think or do anything. This condition shows that many nurses cope poorly and need support.

Finally, in this study, nearly half of the nurses reported working in an inadequate and unsafe environment. Working in an insufficient and insecure environment increased their psychological symptoms. Some expressions were: "I feel empty." "We became more angry and nervous." "I do not want to work." "I feel hopeless." A study determined that nurses who negatively defined workplace relations, institutional support, institutional preparation, workplace safety, and access to materials and resources had higher mental health problems.²⁶ In another study, work-related factors such as lack of staff, long working hours, increased workload, and insufficient rest time caused nurses to experience physical fatigue and psychological burnout. Furthermore, wearing personal protective equipment caused them to experience fatigue and burnout. Protective personal equipment caused severe

problems such as difficulty breathing, excessive sweating, headache, backache, skin damage, and pressure on the nose bridge due to glasses strips, vomiting, fainting, and visual disturbances.²⁷ In line with the results obtained in the study, it is necessary to improve the working conditions and bring them to the optimal level.

This study showed that nurses were exhausted, experienced physical and mental burnout, and needed mental and social support during the pandemic. Psychological symptoms such as sleep problems, anxiety, fear, and burnout can be signs of a crucial mental illness. In addition, these symptoms revealed that the nurses could not cope with the problems effectively. The findings showed that nurses need psychological support and work under severe conditions. Working conditions should be improved immediately.

Limitations and Strengths of the Study

This study has some limitations. First, the results obtained from this study cannot be generalized to all nurses. To generalize, a sampling method that will represent the whole universe should be used. Secondly, open-ended questions were asked, but since the data were collected online during the pandemic, in-depth interviews could not be conducted, and detailed answers could not be received from the nurses. Finally, the data were collected on the online platform due to the pandemic process. Responses were based on reports from nurses participating in the study. A standardized measurement tool was not used for nurses to describe the problems they experienced in their own words. However, the study was made in the 1st year of the pandemic, and it was effective in determining the problems experienced by nurses during the crisis.

Conclusion

It has been determined that more than half of the nurses work in an inadequate and unsafe environment during the pandemic process. Due to the pandemic, they have experienced physical and psychological problems such as fear, anxiety, fatigue, burnout, and insomnia. In addition, due to being health-care workers, they fear transmitting the virus and staying away from their families. Some of the nurses are insufficient to cope with the problems of the pandemic. Therefore, it is necessary to provide and support psychological health services to nurses. Mindfulness-based stress reduction programs can be applied to nurses to cope with fear, anxiety, worry, restlessness, fatigue, weariness, and burnout. Online social support programs can be organized to strengthen their coping skills and make them feel that they are not alone. Nurses with severe sleep problems may need to be identified and referred to a psychiatrist for psychiatric evaluation and treatment. It may be beneficial to give psychological and spiritual counseling to nurses who have coping problems and to teach effective coping methods to prevent the development of mental problems. In addition, institutional policies should be reviewed, and procedures should be established to improve and optimize working conditions, including reducing busy working hours, increasing the number of nurses, and increasing the number and accessibility of equipment should be improved. To prevent the contagiousness of the disease, the number of patients per nurse should be reduced. Financial and moral support should be given to increase their motivation.

Ethics Committee Approval: Before starting the study, written permission was obtained from Aksaray University Human Research Ethics Committee (Approval Number: 2020/03-30-60, Date: 24.04.2020).

Informed Consent: Nurses participating in the study were informed about the study, an explanation was given that individual information would be kept confidential, and their written consent was obtained.

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