ORIGINAL ARTICLE

Investigation of the reasons that affect nurses mentally negatively during the Covid-19 pandemic

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Abstract

It was aimed to investigate the causes of negative psychological states that may occur in nurses due to the COVID-19 pandemic and the degree of importance of these reasons. This is a cross-sectional study conducted in two government hospitals. The data were obtained from 134 nurses by the face-to-face survey method. First, scientific studies on the topic were examined, and the authors created a pool of criteria. These criteria were examined one by one under the supervision of experts with experience in the field. In the review, the criteria that dealt with a similar topic were combined, the unsuitable criteria were removed from the pool, and the criteria that dealt with the topic in the same scope were grouped under headings. As a result, 20 final criteria in total were determined under 3 different headings. The headings were grouped as negative situations that individuals feel about themselves (5 criteria), negative situations that individuals feel about their families (5 criteria) and negative situations that individuals feel about their profession (10 criteria). In the second part, 16 questions were created to collect the participants' demographic and work-related information. The Analytic Hierarchy Process Method was used to analyze the data. When the answers (general) were examined, regardless of sociodemographic and working conditions, it was seen that "the feeling of hopelessness and uncertainty" was the primary feeling among the identified negative situations that the individuals felt about themselves. At the top of the participants' negative feelings regarding their families, "the anxiety of transmitting the virus to their family, friends and colleagues" was found, whereas "inequality in supporting employees in terms of wages" came at the top of their negative situations related to their profession. In the fight against the pandemic, measures taken by policymakers and decision-makers are of great importance in protecting nurses and ensuring the sustainability of the health system. This study demonstrates the primary corrective-preventive actions by revealing in which cases nurses feel more negativity.

Keywords: Nurse, COVID-19 pandemic, mental problems, AHP analysis

Introduction

The COVID-19 pandemic, which emerged in the city of Wuhan in the People's Republic of China in December 2019, has spread all over the world in a year and a half, causing more than 177 million people to contract the disease and approximately 3.9 million to lose their lives [1].

The rapid spread of the disease around the world and the fear of uncertainty brought along with it have increased the anxiety levels of healthy individuals, as well as those already having mental health issues. As a result, this has caused social breakdown and mental problems in individuals [2, 3].

Besides affecting society, pandemics also negatively affect health professionals psychologically [4,5]. As with all pandemics, first responders to the COVID-19 outbreak are exposed to various risks and hazards. These occupational hazards include exposure to pathogens, heavy workload, stigma, violence, harassment, discrimination, and long-term use of personal protective equipment (PPE) [6].

Additionally, healthcare professionals, who become ill, feared, or lose a relative during the pandemic, are exposed to trauma and at significant risk in terms of negative mental health outcomes [2, 7]. Healthcare professionals, especially those working in contact with suspected or confirmed COVID-19 patients or quarantined patients, face both infection and mental health hazards [3, 8]. Indeed, studies have shown that the risk of being infected with COVID-19 can cause significant psychosocial stress in healthcare professionals [9] and may seriously adversely affect their well-being [10]. It was found that the mean depression and anxiety scores of health professionals during the pandemic were

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significantly higher than the mean scores of the general population [11], and in comparison, to other occupational groups, the sleep quality of health professional was found to be affected worst [12].

Nurses are health professionals who are most affected by the COVID-19 outbreak because of their closer and longer contact with patients [13]. The pandemic has caused nurses to face unprecedented professional, social, and psychological challenges [14]. As a result of many studies evaluating the effects of the COVID-19 pandemic on nurses, it has been determined that depression, anxiety, insomnia, stress, and distress symptoms are frequently seen among these health professionals [15]. These symptoms were found to be higher in nurses who were in direct contact with patients and those who were first responders, in comparison to nurses working in other units [9, 15]. Additionally, compared to first responder doctors, it was seen that nurses were affected more negatively [16,17].

When the causes of anxiety were investigated, it was determined that the fear of contracting the disease and transmitting the virus to family members or loved ones was among the most significant reasons. Some studies showed that anxiety levels about family members being infected were higher than anxiety levels about getting infected oneself [18]. The increase in workload and prolonged working hours due to the pandemic also cause nurses to experience burnout [19].

Many studies conducted in different countries have clearly revealed that all healthcare professionals, especially nurses are adversely affected by the COVID-19 outbreak, from an individual point of view. However, this situation is of great importance in terms of health systems and the sustainability of the services provided. Some studies showed that the COVID-19 pandemic negatively affected the job satisfaction of nurses, while also increasing job stress and intention to leave [20].

In this study, it was aimed to investigate the causes of negative psychological states that may occur in nurses due to the COVID-19 pandemic and the degree of importance of these causes. Moreover, it was aimed to find whether the order of importance of these factors changes according to the characteristics of nurses such as sociodemographic and working conditions. Thus, it is thought that policymakers and decision-makers in the health system may benefit from the results of this study in planning preventive and corrective actions for protecting nurses against the negative effects of the pandemic.

Analytic Hierarchy Process Analysis (AHP)

The Analytic Hierarchy Process Method, developed by Thomas L. Saaty in the 1970s, is an advanced analysis technique for the solution of multi-criteria decision-making (MCDM) problems [21]. Certain steps must be followed for decision-making in the Analytic Hierarchy Process. These steps are listed as follows [22]:

• Defining the problem and deciding on the type of desired information,

• Creating the decision hierarchy with the goal of the decision at the top and the criteria later,

• Constructing the pairwise comparison matrix,

• Use of priorities derived from comparison of their weights.

In the sample modeling of the decision hierarchy, there is a three-stage configuration with goals, criteria, and alternatives. The first and most important step of this stage is to determine the goal of the problem. The goal should be clear and specific. After determining the goal of the problem to be solved, the criteria of the problem are determined. The experience and intuition of people can be used in determining the criteria. Then, there is the stage of determining the weights of the criteria. At this stage, each alternative criterion is compared in pairs by experts using a scale of 1-9, and a matrix is obtained. In the comparison, 1 is accepted as an equal relative importance, and larger numbers indicate increasing relative importance, where 1/9 represents the lowest relative importance, and 9 represents the highest relative importance [21].

The comparison matrix obtained by using expert opinions is evaluated in terms of consistency. If the consistency ratio is greater than the cutoff value of 0.1, it indicates the presence of inconsistency, and a reassessment is required.

Materials and Methods

The aim of this study is to investigate the causes of negative psychological states that may occur in nurses due to the COVID-19 pandemic and the degree of importance of these causes.

All nurses working in the two government hospitals operating in Istanbul where the study was carried out constituted the population of the study. During the period in which the study was conducted, the total number of nurses who were on duty in these hospitals was 1083. A total of 145 nurses provided feedback. After the initial examinations, 11 survey forms were excluded because they were not filled correctly. As a result, 134 nurses formed the sample of the study.

In the study, the Analytic Hierarchy Process Method developed by Thomas L. Saaty in the 1970s was employed.

The data in the study were obtained by using the face-to-face survey method. The survey created in this context consisted of 2 parts. In the first part, questions suitable for the AHP technique were included. First, scientific studies written on the topic were reviewed, and a criteria pool was created by the authors. These criteria were examined one by one under the supervision of experts with experience in the field. In the review, the criteria that dealt with the similar topic were combined, the unsuitable criteria were removed from the pool, and the criteria that dealt with the topic in the same scope were grouped under headings. As a result, 20 final criteria in total were determined under 3 different headings. The headings were grouped as negative situations that individuals feel about themselves (5 criteria), negative situations that individuals feel about their families (5 criteria) and negative situations that individuals feel about their profession (10 criteria). In the second part, 16 questions were created to collect the demographic and work-related data of the participants.

Approval numbered 2020-07-15T00_14_21 from the Turkish Ministry of Health Scientific Research Platform and approval

numbered 161 and dated 22/07/2020 from Zeynep Kamil EAH Ethics Committee were obtained to conduct the study.

Results

The mean age of the participants in the study was 29.5±7.5. The mean working experience of the participants in the field of health was 7.2±7.7 years (min: 1 – max: 35 years).

Table 1 presents the demographic and work-related information of the participants. It was observed that most of the participants were female (86.6%) and single (59.0%). It was determined that 2% of the participants had children, most of them had an undergraduate level education (68.7%), and 9% lived in the same house with at least one person aged 65 or older. It was observed that most of the participants (62.7%) worked in clinics with patients diagnosed with COVID-19. Most of the participants stated that they (68.7%) were not diagnosed with COVID-19, and the people who shared the same house with most of the participants (73.9%) were not diagnosed with COVID-19.

The participants were asked whether there was a positive effect of the social assistance (e.g., free public transportation, food, and beverage offerings) provided to health workers during the COVID-19 pandemic. There were only 33 participants (24.5%) who thought that social assistance had a positive effect. Most of the individuals who thought that it had a positive effect (67.8%) stated that this effect was moderate or high.

In the analyses conducted with the Analytic Hierarchy Process (AHP), each heading was examined in terms of its own criteria.

Figure 1 shows the distribution of the criteria for negative situations that the individuals felt about themselves. The participants stated under this heading that "the feeling of experiencing hopelessness and uncertainty" affected them most negatively. The second factor was "high risk of infection and fear of being infected". In the lowest rank, there was the criterion of "concerns on not being able to access the latest updated information about COVID-19 and lack of social communication".

Table 1. Demographics & work life variables of nurses

Variables	Groups	n	%
Gender	**Male**	18	13.4
	Female	116	86.6
Marrital Status	**Single**	79	59.0
	Married	53	39.6
	NA	2	1.5
Having Children	**Yes**	28	20.9
	No	105	78.4
	NA	1	0.7
Living with an Adult Older Than 65 Years old	**Yes**	12	9.0
	No	121	90.3
	NA	1	0.7
Education	**High School**	15	11.2
	Associate Degree	8	6.0
	Bachelor's Degree	92	68.7
	Master's Degree	19	14.2
	Emergency Room	2	1.5
Working Unit	**Covid-19 Clinics**	84	62.7
	ICU	8	6
	Non specific patient clinics	25	18.7
	Blood Related Units	6	4.5
	Administrative	4	3
	Others	5	3.7
Diagnosed With Covid-19	**Yes**	39	29.1
	No	92	68.7
	NA	3	2.2
Family Members Diagnosed With Covid-19	**Yes**	33	24.6
	No	99	73.9
	NA	2	1.5

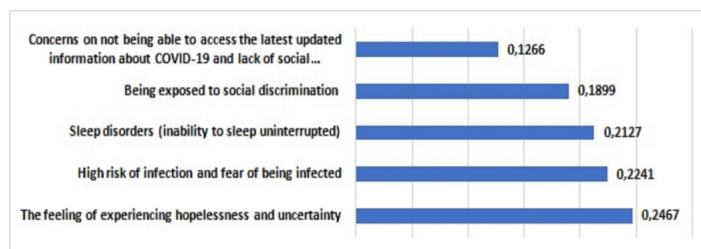NA= Not answered; ICU= Intensive Care Unit

Figure 1. Distribution of criteria for negative situations that the individuals felt about themselves

The results on the other heading, which included the criteria for negative situations that the individuals felt about their family, are shown in Figure 2. The criterion that the participants stated that they were most affected by was "the fear of transmitting the virus to their family, friends or colleagues as a result of being infected". In the second place, there was the situation of experiencing the loss of a colleague or a loved one. "Being isolated from their families or having to practice social distancing towards family members" was stated as the third most important criterion.
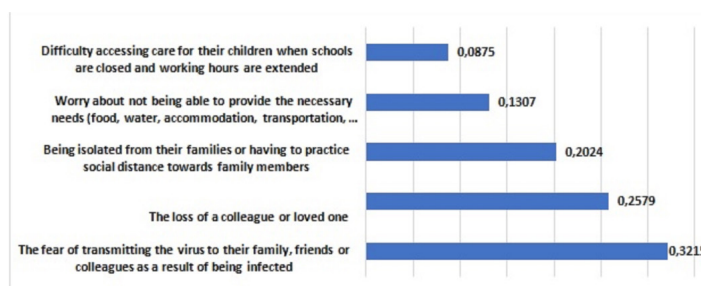

Figure 2. Distribution of criteria for negative situations that the individuals felt about their family

Among the criteria for negative situations felt due to professional reasons, "injustice in supporting the employee in terms of wages" was at the top of the list. It was seen that "injustice in working conditions and among health professionals" occupied the second place, while "the feeling of uncertainty due to the lack of a definitive treatment and vaccine for the disease" was in the third place. In the last place, there was the criterion of "working with patients with negative emotions".
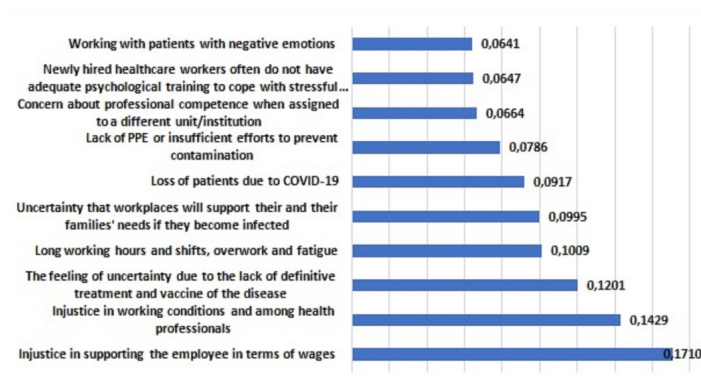

Figure 3. Distribution of criteria for negative situations that the individuals felt due to professional reasons

In this study, whether there was a difference between the groups in terms of some selected variables was also examined (Table 2). In this context, the answers of the groups were analyzed separately according to the criteria under each heading in terms of gender,

the participant's own status of having received a diagnosis of COVID-19, having a child, living with an individual aged 65 or older at home, and working in COVID-19 clinics.

While the criterion with the highest score under the heading of "negative situations individuals feel about self" was "a high sense of infection and fear of being infected" in the male participants, it was determined as "the feeling of hopelessness and uncertainty" in the female participants. Among the criteria of "negative situations felt about one's family", the male participants provided the highest score for "the loss of a colleague or a loved one", while the most important criterion was "the fear of transmitting the virus to their family, friends or colleagues because of being infected" for the female participants. On the other hand, the criterion of "injustice in supporting the employee in terms of wages" got the highest score in both gender groups.

In the groups created based on whether the nurses were diagnosed with COVID-19 during the pandemic period, while those who had been diagnosed with COVID-19 gave the highest score for the "sleep disorders (inability to sleep uninterrupted)" criterion in terms of negative situations, "the feeling of hopelessness and uncertainty" was determined as the most important criterion in those who had not been diagnosed with COVID-19. On the issue of family-related negative situations, those who had been diagnosed with COVID-19 stated the most important criterion as "the loss of a colleague or a loved one", and those who had not been diagnosed with COVID-19 stated that "the fear of transmitting the virus to their family, friends or colleagues because of being infected" was the most negative factor. In the heading of "negative situations that individuals felt about their profession, those who had been diagnosed with COVID-19 evaluated "injustice in working conditions and among health professionals" as the most important criterion, while those who had not been diagnosed with COVID-19 considered "injustice in supporting the employee in terms of wages" as the most important one.

According to the nurses' statuses of having children and living in the same house with an individual aged 65 or older, the groups categorized based on these statuses provided the highest scores for the same criteria in all three headings as "the feeling of hopelessness and uncertainty" in negative situations that the individuals felt about themselves, "the fear of transmitting the virus to their family, friends or colleagues as a result of being infected" in negative situations related to family and "injustice in supporting the employee in terms of wages" in negative situations due to professional reasons.

In the groups created according to whether the participants worked in COVID-19 clinics, different results were observed only in terms of the negative situations that the individuals felt about themselves heading. Nurses working in COVID-19 clinics evaluated "the feeling of hopelessness and uncertainty" as the most important criterion, while those who did not work stated "the high risk of infection and fear of being infected" as the most important criterion. The most important criteria were identified as "the fear of transmitting the virus to their family, friends or colleagues because of being infected" in negative situations related to the family and "injustice in supporting the employee in terms of wages" in negative situations regarding professional reasons.

Table 2. Criteria for negative situations of participants

Criteria	Gender		Diagnosed with Covid-19		Having Child/ren		Living with a person over 65 years of age		Working in Covid-19 Clinic	
	Female	Male	Yes	No	Yes	No	Yes	No	Yes	No
Criteria for negative situations that the individuals feel about themselves										
High risk of infection and fear of being infected	0.2234	**0.2275**	0.2227	0.2239	0.2231	0.2235	0.2645	0.2196	0.1955	**0.2773**
Concerns on not being able to access the latest updated information about COVID-19 and lack of social communication	0.1253	0.1343	0.1301	0.1244	0.1431	0.1223	0.1189	0.1273	0.1173	0.1408
The feeling of experiencing hopelessness and uncertainty	**0.2521**	0.2143	0.2038	**0.2681**	**0.2666**	**0.2409**	**0.2771**	**0.2433**	**0.2476**	0.2404
Sleep disorders (inability to sleep uninterrupted)	0.2132	0.2086	**0.2343**	0.2026	0.2158	0.2112	0.1925	0.2148	0.2345	0.1771
Being exposed to social discrimination	0.1860	0.2153	0.2091	0.1810	0.1515	0.2020	0.1470	0.1949	0.2052	0.1643
Criteria for for the negative situations that the individuals feel about their family										
The loss of a colleague or loved one	0.2560	**0.2649**	**0.2718**	0.2499	0.2517	0.2587	0.2249	0.2614	0.2583	0.2570
The fear of transmitting the virus to their family, friends or colleagues as a result of being infected	**0.3319**	0.2559	0.2717	**0.3453**	**0.3559**	**0.3105**	**0.4121**	**0.3121**	**0.3086**	**0.3441**
Being isolated from their families or having to practice social distance towards family members	0.2004	0.2123	0.1919	0.2059	0.1575	0.2160	0.1744	0.2052	0.2107	0.1892
Difficulty accessing care for their children when schools are closed and working hours are extended	0.0817	0.1333	0.1157	0.0765	0.1201	0.0799	0.0718	0.0894	0.0865	0.0885
Worry about not being able to provide the necessary needs (food, water, accommodation, transportation, etc.) for themselves and their family when working hours are extended	0.1300	0.1336	0.1489	0.1225	0.1148	0.1349	0.1168	0.1318	0.1360	0.1211
Criteria for negative situations felt due to professional reasons										
Long working hours and shifts, overwork and fatigue	0.0987	0.1150	0.0974	0.1025	0.0917	0.1033	0.0782	0.1033	0.0996	0.1018
Lack of PPE or insufficient efforts to prevent contamination	0.0766	0.0909	0.0820	0.0766	0.0680	0.0812	0.0766	0.0785	0.0673	0.1012
Loss of patients due to COVID-19	0.0929	0.0858	0.0905	0.0921	0.1237	0.0841	0.1509	0.0865	0.0830	0.1068
Injustice in supporting the employee in terms of wages	**0.1725**	**0.1604**	0.1421	**0.1856**	**0.1776**	**0.1684**	**0.1616**	**0.1715**	**0.1593**	**0.1886**
The feeling of uncertainty due to the lack of definitive treatment and vaccine of the disease	0.1229	0.1024	0.1211	0.1192	0.1155	0.1208	0.1501	0.1168	0.1252	0.1104
Uncertainty that workplaces will support their and their families' needs if they become infected	0.0984	0.1057	0.1048	0.0973	0.1156	0.0954	0.1070	0.0984	0.1007	0.0967
Concern about professional competence when assigned to a different unit/institution	0.0651	0.0754	0.0763	0.0620	0.0723	0.0646	0.0623	0.0666	0.0667	0.0646
Newly hired healthcare workers often do not have adequate psychological training to cope with stressful working conditions	0.0660	0.0567	0.0698	0.0623	0.0683	0.0635	0.0582	0.0651	0.0689	0.0581
Working with patients with negative emotions	0.0642	0.0633	0.0698	0.0614	0.0526	0.0676	0.0555	0.0648	0.0704	0.0540
Injustice in working conditions and among health professionals	0.1427	0.1445	**0.1461**	0.1409	0.1147	0.1510	0.0994	0.1485	0.1589	0.1178

Discussion

Many studies that have clearly demonstrated the negative effects of the COVID-19 outbreak on nurses have been conducted around the world. Illness, the probability of the transmission of the virus to others, uncertainty about the course of the pandemic, lack of personal protective equipment, separation from loved ones, stigma, increase in workload and similar factors have been identified to have negative physical and psychological effects on nurses [14,23-26]. In this study, it was aimed to rank the negative factors that affected nurses most in the COVID-19 pandemic period. Additionally, considering the sociodemographic and working conditions of the nurses, it was aimed to reveal whether there was a change in the order of importance among these factors.

In this study, the factors were discussed under 3 headings and 20 criteria. When the general answers of all participants were examined, regardless of sociodemographic and work-related conditions, it was seen that "the feeling of hopelessness and uncertainty" had the primary importance in negative situations that the individuals felt about themselves. At the top of negative feelings regarding their families, "the anxiety of transmitting the virus to their family, friends and colleagues" was found, whereas "inequality in supporting employees in terms of wages" came at the top of negative situations related to the participants' profession.

"The fear of transmitting the virus to their family, friends or colleagues as a result of being infected" was one of the expressions with the highest importance given by the participants. It was clearly observed that the nurses included in this study were more afraid of infecting their loved ones than getting infected themselves. In a study investigating the causes of stress situations experienced by nurses during the COVID-19 pandemic in the US based on the statements of nurses, work-related problems were found to be the most prominent sources of stress (51.21%), including relationships with co-workers, perceived workplace administrative flaws and failure to provide supplies and training. These factors were followed by infection, illness and death of patients, co-workers or loved ones in the second place. The third highest source among stress sources was the fear of getting sick or infecting others [27].

When the responses of the participants of this study were examined in terms of the groups created based on the categories of their sociodemographic and work-related characteristics, it was seen that the fear of being infected with the virus was expressed more frequently by the male participants and those who did not work in COVID-19 clinics. Although there was no difference regarding the same variables in terms of gender in some studies [9,11,28], many studies have demonstrated that the COVID-19 pandemic affects women more, and they have reported more depression, anxiety, and insomnia in women in comparison to men [10,15,17,29,30]. From this point of view, the findings of this study in terms of gender differed from those reported in previous studies. It is thought that the high level of knowledge about the disease and the use of PPE among employees in COVID-19 clinics reduce the anxiety of being infected, whereas the opposite may be the situation in those who do not work in these clinics.

The most effective factor for the nurses in this study who had been diagnosed with COVID-19 was identified as sleep disorders. It has been frequently stated in the literature that sleep disorders are commonly seen in first responders [4,25,26]. It was reported that the high number of patients provided with care, prolonged working hours, infection and aspirated physical exertion cause more stress and burnout in nurses, and this condition negatively affects the sleep quality of these individuals [26]. It was considered that these were the reasons behind the higher frequency of sleep disturbances experienced by those working in COVID-19 clinics compared to the other nurses.

In studies conducted in different countries, concerns about the lack of PPE were expressed by nurses [14,31]. However, studies in Turkey have suggested that the difficulty of working with personal protective equipment during their shift was perceived to be a more effective factor than the lack of PPE among nurses [32,33]. The findings of this study also showed that the concerns of the participants on lack of adequate PPE were low in importance and ranked last.

Concerns about not being able to access the latest updates on COVID-19 and lack of social communication were identified to be among the factors with the lowest importance in this study. Guidelines and instructions prepared and published by the Ministry of Health and various associations play an important role in terms of perceiving a lack of information. The Turkish Ministry of Health offers open access for such guidelines and patient statistics prepared according to the most up-to-date information on their webpage called the COVID-19 Information Platform [34]. Similarly, the Turkish Intensive Care Nurses Association and the Turkish Nurses Association have also published guidelines for nurses [35,36].

Following the COVID-19 outbreak in Turkey and the rapid increase in the number of patients, the "Regulation on Making Additional Payments to Personnel Working in Health Facilities Affiliated to the Ministry of Health" was published to prevent financial losses and for the motivation and encouragement of health workers [37]. With the regulation, the additional payment rates of the personnel working in various units were changed. However, as seen in the findings of this study, this regulation regarding additional payment distribution was not considered sufficient by the nurses. "Wage-related injustice" was the most frequently expressed item in all groups except one. "Inequality in working conditions and among health professionals" was the second most reported factor in all groups except those with children and those who had a person over 65 years of age at home. As the findings showed, the nurses mainly cared about injustice in wages and working conditions.

Conclusion

Since the beginning of the COVID-19 pandemic, the negative atmosphere created by the pandemic and its effects on health professionals have been investigated in all countries, including Turkey. It is no doubt that the healthcare sector has been one of the most negatively affected sectors during the pandemic. Healthcare staff are under substantial pressure with an enormous number of patients and burden of their care. Nurses have important roles in terms of the treatment of COVID-19 patients. It has been seen that nurse, who have been found as health workers most affected by the pandemic due to closer and longer contact with patients, have had more mental problems than other health workers.

In this study, the first two primary reasons affecting the nurses mentally negatively during the pandemic were found as "the feeling of hopelessness and uncertainty" and "the anxiety of transmitting the virus to their family, friends and colleagues". This result showed that nurses should be empowered by various supportive interventions. First, healthcare organizations should provide adequate emotional support for their staff. Some in-service training activities including techniques such as methods of coping with stress and difficult patients may be helpful for nurses during this difficult time. Moreover, administrators of health institutions should make sure that all employees can have enough personal protective equipment, and they know how to use it.

In the fight against the COVID-19 pandemic, measures taken by policymakers and decision-makers are of great importance in protecting nurses and ensuring the sustainability of the health system. This study demonstrates the primary corrective-preventive actions by revealing in which cases nurses feel more negativity.

Limitation

This study had some limitations. It was conducted in only two government hospitals in Istanbul. Different results may be obtained in different provinces of Turkey or different countries. Furthermore, the results are applicable only to the nurses who were surveyed in this study and cannot be generalized to other healthcare staff.

Conflict of interests
The authors declare that they have no competing interests.

Financial Disclosure
All authors declare no financial support.

Ethical approval
Approval numbered 2020-07-15T00_14_21 from TR Ministry of Health Scientific Research Platform and Ethics Committee Approval No. 161 dated 22/07/2020 from Zeynep Kamil EAH Ethics Committee were obtained to conduct the study.

References

1. WHO Coronavirus (COVID-19) Dashboard. https://Covid19.Who.İnt/ access date 20.06.2021.

2. Bao Y, Sun Y, Meng S, et al. 2019-Ncov Epidemic: address mental health care to empower society. Lancet. 2020;395:E37-E38.

3. Shigemura J, Ursano RJ, Morganstein JC, et al. Public responses to the novel 2019 coronavirus (2019-ncov) in Japan: mental health consequences and target populations. Psychiatry Clin Neurosci. 2020;74:281.

4. Chew NW, Lee GK, Tan BY, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. Brain Behav Immun. 2020;88:559-65.

5. Wang S, Wen X, Liu Dong Y, et al. Psychological influence of coronovirus disease 2019 (COVID-19) pandemic on the general public, medical workers and patients with mental disorders and its countermeasures. Psychosomatics. 2020;61:616-4.

6. COVID-19: Occupational Health And Safety For Health Workers. https://Www.Who.İnt/Publications/İ/İtem/WHO-2019-Ncov-HCW_ Advice-2021.1 access date 23.06.2021.

7. Rajkumar RP. COVID-19 and mental health: A review of the existing literature. Asian J Psychiatr. 2020;102066.

8. Xiang YT, Yang Y, Li W, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 2020;7:228-9.

9. Liu CY, Yang YZ, Zhang XM, et al. The prevalence and influencing factors in anxiety in medical workers fighting covıd-19 in china: a cross-sectional survey. Epidemiol Infect. 2020;148:1-17.

10. Pappa S, Ntella V, Giannakas T, et al. Prevalence of depression, anxiety, and ınsomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. Brain Behav Immun. 2020;88:901-7.

11. Chen Y, Zhou H, Zhou Y et al. Prevalence of self-reported depression and anxiety among pediatric medical staff members during the COVID-19 outbreak in Guiyang, China. Psychiatry Res. 2020;288:113005.

12. 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;112954.

13. Cevirme A, Kurt A. COVID-19 Pandemia and Its Reflections to Nursing Profession. Eurasian Journal of Researches in Social and Economics (EJRSE). 2020;7:46-52.

14. Catania G, Zanini M, Hayter M, et al. Lessons from Italian front-line nurses' experiences during the COVID-19 pandemic: A qualitative descriptive study. J Nurs Manag. 2021;29:404-11.

15. Lai J, Ma S, Wang Y, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3:E203976.

16. Shechter A, Diaz F, Moise N, et al. Psychological distress, coping behaviors, and preferences for support among new york healthcare workers during the COVID-19 pandemic. Gen Hosp Psychiatry. 2020;66:1-8.

17. Zhu Z, Xu S, Wang H, et al. COVID-19 in wuhan: ımmediate psychological ımpact on 5062 health workers. Medrxiv. 2020.

18. Nemati M, Ebrahimi B & Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. Archives Clinical Infectious Diseases. 15(COVID-19). 2020; E102848.

19. Galanis P, Vraka I, Fragkou D, et al. Nurses' burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis. J Adv Nurs. 2021;77:3286–302.

20. Labrague LJ, De Los Santos J. Fear of COVID-19, psychological distress, work satisfaction and turnover intention among front line nurses. Research Square. 2020;1-18.

21. Yıldırım B. ve Önder E. İşletmeciler, Mühendisler ve Yöneticiler İçin Operasyonel, Yönetsel ve Stratejik Problemlerim Çözümünde Çok Kriterli Karar Verme Yöntemleri. İstanbul. Dora. 2015.

22. Saaty TL. Decision making with the analytic hierarchy process. Int J. Services Sciences. 2008;1:83-98.

23. Sayilan AA, Kulakac N, Uzun S. Burnout levels and sleep quality of COVID-19 heroes. Perspect Psychiatr Care. 2020;1-6.

24. Jackson D, Anders R, Padula WV, et al. Vulnerability of nurse and physicians with COVID-19: Monitoring and surveillance needed. J Clin Nurs. 2020;29:3584-7.

25. 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 (Baltimore). 2020;99:E20769.

26. Huang L, Lei W, Liu H, et al. Nurses' sleep quality of "Fangcang" hospital in China during the COVID-19 pandemic. Int J Ment Health Addict. 2020;1-11.

27. Arnetz JE, Goetz CM, Arnetz BB, et al. Nurse reports of stressful situations during the COVID-19 pandemic: qualitative analysis of survey responses. Int J Environ Res Public Health. 2020 3;17:8126.

28. Zhang SX, Liu J, Jahanshahi AA, et al. When the storm is the strongest: The health conditions and job satisfaction of healthcare staff and their associated predictors during the epidemic peak of COVID-19. Medrxiv. 2020.

29. Zhang SX, Liu J, Jahanshahi AA, et al. At the height of the storm: healthcare staff's health conditions and job satisfaction and their associated predictors during the epidemic peak of COVID-19. Brain Behav Immun. 2020;87:144-6.

30. Zhang WR, Wang K, Yin L, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. Psychother Psychosom. 2020;89:242-50.

31. Hofmeyer A, Taylor R. Strategies and resources for nurse leaders to use to lead with empathy and prudence so they understand and address sources of anxiety among nurses practising in the era of COVID-19. J Clin Nurs.

2021;30:298-305.

32. Karasu F, Ozturk Copur E. (2020). An Intensive Care Nurse in the Forefront of the Epidemic While Increasing Cases of Covid19: "HEROES IN FRONT-LINE". Yogun Bakim Hemsireligi Dergisi 2020;24:11-14.

33. Kıraner E, Terzi B. (2020). Covid-19 pandemi sürecinde yoğun bakım hemşireliği. Yoğun Bakım Hemşireliği Dergisi 2020;24(EK-1):83-88

34. COVID-19 Outbreak Management and Study Guide. https://Covid19. Saglik.Gov.Tr/TR-66393/Covid-19-SalginYonetimi-Ve-Calisma-Rehberi. Html. access date 24.06.2021

35. Turkish Intensive Care Nurses Association (2020). Resource Booklet for Nurses to Work in the Intensive Care Unit Specific to the COVID-19 Pandemic.https://Hastane.Ogu.Edu.Tr/Editor_Files/Files/Saglik_ Personeli_%C4%B0cin_COV%C4%B0D-19_Kitapcigi(1).Pdf access date 23.06.2021.

36. COVID-19 Nurse Training Guide and Care Algorithms. https://Www. Thder.Org.Tr/Covid-19-Hemsire-Egitim-Rehberi-VeBakim-Algoritmalari. access date 23.06.2021.

37. Official Gazette. (04/03/2020 date and 31058 Number). Regulation on Making Additional Payments to the Personnel Working in Health Facilities affiliated to the Ministry of Health. https://Resmigazete.Gov.Tr/04.03.2020 access date 25.06.2020.