Original Article

Assessment of psychological resilience, job satisfaction, and fear level of nurses infected and not infected with the COVID-19 virus

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Abstract

Objectives: The worldwide outbreak of coronavirus 2019 (COVID-19) has had broad consequences for individuals and societies. The pandemic has had a particular effect on nurses' mental health, as well as their social and occupational life. The aim of this study was to evaluate and compare the psychological resilience, job satisfaction, and fear levels of nurses who had and had not developed COVID-19.

Methods: This cross-sectional study was conducted in a university hospital in Turkey with data collected between March 2021 and April 2021. A total of 66 nurses infected with the virus that causes COVID-19 were included in 1 group and 66 nurses who had not been infected were included in a second group. A personal information form, the Psychological Resilience Scale (PRS), the Job Satisfaction Scale (JSS), and the Fear of COVID-19 Scale (FCV-19S) were used to gather the study data. Data analysis was performed using descriptive analysis, Student's t-test, chi-squared testing, Pearson's correlation coefficient measurement, and one-way analysis of variance.

Results: The mean PRS of the nurses was 58.44±10.12, the mean JSS score was 66.19±12.81, and the mean FCV-19S score was 18.46±6.56. COVID-19 infection did not result in a significant difference in these variables (p>.05). However, the professional satisfaction levels of the nurses who had to be hospitalized for COVID-19 treatment were lower than that of the others (p=.009) and their fear levels were higher (p=.004).

Conclusion: The findings of the study indicated that while the psychological resilience, job satisfaction and fear levels of nurses who were infected with the COVID-19 virus and those who were not were not high, the infection did not result in a significant difference between the groups. Nurses who had been hospitalized for COVID-19 treatment demonstrated lower levels of professional satisfaction and higher levels of fear. Appropriate measures should be taken to increase nurses' psychological resilience and professional satisfaction.

Keywords: COVID-19; fear; job satisfaction; nurses; psychological resilience.

In December 2019, cases of an infectious disease of unknown etiology causing severe pneumonia were observed in Wuhan, China. A new coronavirus (2019-nCoV) was detected, which spread rapidly and became a global challenge. [1] Transmission through droplets accelerated the spread of the disease. Infection with the virus has led to many deaths worldwide. The outbreak was declared a pandemic by the World Health Organization on March 11, 2020. The virus was subsequently redefined as severe acute respiratory syndrome coronavirus 2 and the resulting disease was named coronavirus 2019 (COVID-19). The first case was detected in Turkey on March 11, 2020.[2] Respiratory symptoms, such as cough and dyspnea, as well as a fever, muscle pain, and fatigue are common early symptoms.[3,4]

What is presently known on this subject?

- Nurses work in difficult conditions, and the COVID-19 pandemic has significantly increased the level of stress and risk. COVID-19 is highly transmissible and the work conditions are extremely demanding, which has had a psychological effect. Job satisfaction levels are not high.

What does this article add to the existing knowledge?

- The results revealed that there was no significant difference in the measures of psychological resilience, job satisfaction, or fear of COVID-19 between nurses who had and had not become infected, but hospitalization due to COVID-19 negatively affected their job satisfaction and fear level.

What are the implications for practice?

- Greater knowledge of the psychological resilience, job satisfaction, and fear level of nurses who have and have not become infected during the ongoing COVID-19 pandemic may be a valuable source of information and potential solutions, now and in the future. Furthermore, this study draws attention to the fact that nurses who had to be hospitalized due to COVID-19 may need more institutional support in order to increase their job satisfaction and maintain quality of care by strengthening their mental health.

Around the world, there is currently insufficient nursing power to reach the goal of universal health coverage. There is a significant shortage of nurses, especially in low- and middle-income countries, where the number of nurses can hardly keep up with population growth. While the number of nurses per 10,000 people in 2018 was between 50-100 in developed countries such as Italy, the Netherlands, England, and Canada, it was 20-29 in Turkey.[5] In the era of globalization, the COVID-19 pandemic has once again demonstrated the key position of nurses on a national and international scale.[3] Throughout the still ongoing COVID-19 pandemic, healthcare professionals in Turkey and all over the world have experienced many serious challenges in terms of their ability to provide adequate service to patients as well as to protect themselves in the face of a potentially deadly disease.[4] The rapid daily increase in the number of infected individuals with a new disease created a huge burden for healthcare staff and others. The International Council of Nursing (ICN) reported that as of December 31, 2020, in 59 countries, 2262 nurses worldwide had lost their lives due to COVID-19, and the number of nurses who become infected and die continues to increase.[6] Infected/sick nurses are returned to work after an isolation period of 7-10 days if they are monitored at home or 14 days if hospitalization is required.[7]

The use of the personal protective equipment required in pandemic circumstances for long periods of time has adverse effects, such as discomfort, additional fatigue, and skin damage. Furthermore, conditions such as longer working hours; the inability to meet physiological needs, such as appropriate nutrition and sleep; and providing care to COVID-19 patients in an unusual and challenging clinical setting affects nurses physically, socially, and psychologically.[4,8] Psychological resilience, which is defined in this context as the ability of nurses to easily adapt and readjust to the many and varied problems caused by COVID-19 and to use positive coping methods in these difficult conditions, is an important factor in the provision of care.[9] Nurses with a low level of psychological resilience experience

more anxiety, fear, depression and burnout, which can lead to job dissatisfaction. Moreover, becoming infected with the virus that causes COVID-19 and undergoing the subsequent quarantine and the adverse health consequences, which can even result in death, also affect job satisfaction.[9,10] Psychological resilience is an especially important concept for nurses who are currently faced with additional risk factors in their occupational life and who have to provide professional care and comfort to patients who are in great need under difficult circumstances.[4,11] The literature notes that there is a significant relationship between psychological resilience and job satisfaction.[12] Therefore, additional knowledge of the psychological resilience, job satisfaction, and level of fear of COVID-19 among nurses will be a valuable resource, particularly as guidance for pandemic conditions now and in the future.

COVID-19 has also had negative effects on community mental health. Karaşar and Canlı[13] determined that as psychological resilience decreased, the depression level of individuals in society increased, and 16.6% of the study group demonstrated a high level of depression. The pandemic has caused stress, anxiety, and fear in individuals around the world as a result of numerous changes to daily life in the face of the pandemic.[14] Fear of COVID-19 has been measured in many studies, including research carried out in Iran,[15] Malaysia,[16] and Russia and Belarus.[17]

This study was designed to evaluate and compare the psychological resilience, job satisfaction, and fear level of nurses who have and have not been infected with COVID-19.

Study Questions

1. Is there a difference between the psychological resilience level of nurses infected and not infected with COVID-19?

2. Is there a difference between the job satisfaction level of nurses infected and not infected with COVID-19?

3. Is there a difference between the level of fear of COVID-19 of nurses infected and not infected with COVID-19?

4. Do the individual characteristics of nurses infected with COVID-19 have an effect on their level of psychological resilience, job satisfaction, and fear of COVID-19?

Materials and Method

A cross-sectional study examines dimensions of the population on the same plane at a given point in time using data that may include characteristics such as risk factors and outcomes.[18,19] Studies in the international literature examining the psychological resilience, job satisfaction, and fear of COVID-19 among nurses are limited. This cross-sectional study was conducted with data collected in March-April 2021 from a university hospital in western Turkey.

Ethics Approval

Approval for this study was obtained from the Scientific Re-

search Ethics Committee of the Trakya University Faculty of Medicine on April 12, 2021 (no: 09/18). Permission was obtained for the use of the Psychological Resilience Scale (PRS) from Prof. Dr. Işık, who developed the scale; from Prof. Dr. Hamamcı, one of the authors of the Job Satisfaction Scale (JSS); and from Research Assistant Ladikli, who took part in the validity and reliability study of the Turkish version of the Fear of COVID-19 Scale (FCV-19S). The participating nurses were informed about the aim and methods of the research. The study group was told that the information they provided would only be used for research purposes, and verbal consent was obtained.

Participants

Nurses working in the hospital where the study was conducted formed the population. In order to calculate the sample size to be used, the PRS was administered to 22 nurses (12 who had been diagnosed with COVID-19 and 10 who had not) who had been informed about the study and volunteered to participate. The data were analyzed, and based on the mean scale scores of the 2 groups, it was determined that at least 51 individuals should be included in the groups to achieve an effect size of 0.5, a confidence interval of 95%, and a power of 80%. Additional data were collected to account for possible data losses and error. The total sample comprised 132 nurses: 66 nurses who had previously been diagnosed with COVID-19 and volunteered to participate in the study were included in 1 group and 66 nurses who had not been infected with the virus that causes COVID-19 were enrolled in the second group.

Data Collection Tools

The study data were gathered using an personal information form prepared by the researchers according to the relevant literature,[10,12] the PRS, the JSS, and the FCV-19S.

Psychological Resilience Scale: A Turkish version of the PRS was developed by Işık[20] in 2016. The instrument consists of 21 items and 3 subdimensions: challenge, dedication, and control. A 5-point, Likert-type scale (0=strongly disagree and 4=strongly agree) is used to score the items. Two items are reverse coded, and the total possible score is 0-84. High scores indicate greater psychological resistance. The subscale scores and the total score can be used. Işık reported a Cronbach alpha value of 0.76. In this study, the Cronbach alpha value was 0.86.

Job Satisfaction Scale: The Turkish JSS, which was developed by Kuzgun, Sevim, and Hamamcı[21] in 1999, consists of 20 items in total and 2 subdimensions: conformity to qualifications and desire for improvement. The items are answered using a 5-point, Likert-type (5=always and 1=never). Six items are reverse coded and the total possible score is 20-100. A high score indicates greater job satisfaction. Kuzgun et al. determined a Cronbach alpha value of 0.90. In this study, a Cronbach alpha the value was 0.88.

Fear of COVID-19 Scale: A Turkish version of the FCV-19S was developed by Ahorsu et al.,[15] and a reliability and validity study was conducted by Ladikli et al.[22] The scale consists of 7 items in total and is scored using a 5-point, Likert-type scale (1=strongly disagree and 5=strongly agree). The total possible score is 7-35. A high score indicates greater fear of COVID-19. The Turkish scale was reported to have a Cronbach alpha value of 0.86.[22] In this study, a Cronbach alpha value of 0.88 was determined.

Data Collection

Before the study, the hospital nurses were informed about the research and asked if they wanted to participate. Volunteers were asked whether they had been diagnosed with COVID-19. This response determined the group placement. Data collection forms were distributed, and the nurses were given time to complete the forms and were asked if there was anything that was not understood.

Statistical Analysis

The data obtained in the study were analyzed using IBM SPSS Statistics for Windows, Version 22.0 software (IBM Corp., Armonk, NY, USA). Descriptive analysis, Student's t-test, chi-squared testing, Pearson's correlation coefficient calculation, and one-way analysis of variance were used to evaluate the data. The appropriate analysis method was determined according to the results of normal distribution and homogeneity of variance. A value of $p<0.05$ was accepted as the level of statistical significance.

Results

The mean age of the nurses participating in the study was 31.40±7.67; 72.7% were female, 54.5% were married, and 45.5% had been employed as nurses for 0-4 years. In all, 83.3% of the nurses did not have a chronic disease, and cohabitants of 66.7% did not become infected with COVID-19. Of the group, 57.6% stated that they actively provided care to COVID-19 patients, and 52.5% reported that they had been quarantined after contact. Of the nurses infected with COVID-19, 86.4% stated that they received outpatient treatment, 74.2% had a hospital-acquired infection, and 27.3% had a health problem afterward. The individual characteristics of the nurses are provided in Table 1. When individual variables were compared, it was determined that there was no significant difference between the groups with the exception of sex and quarantine characteristics (Table 1).

The total mean score of the PRS for the study group was 58.44±10.12, while it was 59.14±8.82 for those diagnosed with COVID-19 and 57.74±11.30 for those not infected (Table 2).

Examination of the effect of the individual characteristics of nurses who contracted COVID-19 on psychological resilience revealed that there was a moderate negative correlation

Table 1. Individual characteristics and comparison of nurses infected and not infected with COVID-19

	Total	Infected with COVID-19	Not infected with COVID-19	Test value	p-value
Individual characteristics, n (%)	132 (100)	66 (100)	66 (100)		
Age (years), mean±SD	31.40±7.67	31.76±8.29	31.06±7.06	t=.520*	p=.604
Sex, n (%)					
Female	96 (72.7)	40 (60.6)	56 (84.8)	X^2=9.778**	p=.003
Male	36 (27.3)	26 (39.4)	10 (15.2)		
Marital status, n (%)					
Married	72 (54.5)	32 (48.5)	40 (60.6)	X^2=1.956**	p=.221
Single	60 (45.5)	34 (51.5)	26 (39.4)		
Employment as a nurse (years), n (%)					
0-4	60 (45.5)	32 (48.5)	28 (42.4)	X^2=1.492**	p=.474
5-9	32 (24.2)	13 (19.7)	19 (28.8)		
≥10	40 (30.3)	21 (31.8)	19 (28.8)		
Chronic disease, n (%)					
Yes	22 (16.7)	13 (19.7)	9 (13.6)	X^2=.873**	p=.484
No	110 (83.3)	53 (80.3)	57 (86.4)		
COVID-19 infection in a cohabitant, n (%)					
Yes	44 (33.3)	25 (37.9)	19 (28.8)	X^2=1.227**	p=.356
No	88 (66.7)	41 (62.1)	47 (71.2)		
Providing care to a patient with a definitive diagnosis of COVID-19, n (%)					
Yes	76 (57.6)	37 (56.1)	39 (59.1)	X^2=.124**	p=.860
No	56 (42.4)	29 (43.9)	27 (40.9)		
Post-contact isolation, n (%)					
Yes	69 (52.3)	48 (72.8)	21 (31.8)	X^2=22.127**	p<0.001
No	63 (47.7)	18 (27.2)	45 (68.2)		
Hospitalization for COVID-19 treatment, n (%)					
Yes	–	9 (13.6)	–	–	–
No	–	57 (86.4)	–	–	–
Transmission source, n (%)					
Hospital	–	49 (74.2)	–	–	–
Social environment	–	17 (25.8)	–	–	–
Health problem afterward, n (%)					
Yes	–	18 (27.3)	–	–	–
No	–	48 (72.7)	–	–	–

*Student t-test; **Chi-squared test. COVID-19: COVID-19: Coronavirus infectious disease 2019; SD: Standard deviation.

between the mean age and the mean PRS score (r=-.344, p=.005).

A significant difference in the mean PRS score was observed according to the years of experience of nurses who had COVID-19 (F=3.219, p=0.047), and it was also noted that the psychological resilience level of nurses who had worked for 0-4 years (61.06±8.76) was higher than those who worked for ≥10 years (55.24±8.30) (t=2.417, p=.019). Furthermore, it was determined that the mean PRS score of the nurses who provided care to patients diagnosed with COVID-19 (61.41±9.33) was higher than that of those who did not (56.24±7.31) (t=2.448, p=.017).

The total mean JSS score of the nurses who participated in the study was 66.19±12.81. The mean was 66.17±13.38 for those who had COVID-19 and 66.21±12.32 for those who had not been infected (Table 2). The mean JSS score of the nurses who had been infected and were hospitalized for treatment (55.44±12.47) was lower than that of the nurses who received outpatient treatment (67.86±12.81) (t=-2.711, p=.009).

The total mean FCV-19S score of the entire study group was 18.46±6.56, while it was 18.62±7.65 for those infected and 18.30±5.31 for those who did not develop COVID-19 (Table 2). The mean FCV-19S score of the nurses diagnosed with COVID-19 who were hospitalized for treatment (25.22±6.87)

Table 2. Mean scale scores and comparison of nurses infected and not infected with COVID-19

Scales and subdimensions	Total (n=132)	Infected with COVID-19 (n=66)	Not infected with COVID-19 (n=66)	Test value	p-value
Psychological resilience	58.44±10.12	59.14±8.82	57.74±11.30	t=.790[*]	p=0.130
Challenge	21.37±4.47	21.50±4.21	21.24±4.75	t=.330[*]	p=0.742
Dedication	18.56±4.23	18.70±3.87	18.42±4.58	t=.369[*]	p=0.713
Control	18.51±3.26	18.94±3.05	21.50±4.21	t=1.530[*]	p=0.128
Job satisfaction	66.19±12.81	66.17 ±13.38	66.21±12.32	t=-.020[*]	p=0.984
Conformity to qualifications	42.64±9.57	42.59±9.64	42.68±9.58	t=-.054[*]	p=0.957
Desire for improvement	23.55±4.70	23.58±4.96	23.53±4.47	t=.055[*]	p=0.956
Fear of COVID-19	18.46±6.56	18.62±7.65	18.30±5.31	t=.278[*]	p=0.782

[*]Student t-test. COVID-19: COVID-19: Coronavirus infectious disease 2019.

was higher than that of the nurses who received outpatient treatment (17.58±7.28) (t=2.946, p=.004).

A comparison of the mean score of the PRS, JSS, and FCV-19S scores of the nurses who had been infected and those who did not develop COVID-19 did not reveal a statistically significant difference (Table 2).

Other individual characteristics also yielded no significant effect on the mean scale scores (p>.05).

Discussion

The results of this study revealed that the levels of psychological resilience, job satisfaction, and fear of COVID-19 in nurses who acquired COVID-19 and those who had not been infected were not high overall and that there was no significant difference between the groups.

The psychological resilience score of the nurses in both groups was above the median possible score. Similarly, when Afshari et al.[23] examined the resilience level of nurses during the pandemic and predictive factors of resilience, they also found a value only just above the median possible score, but only 12% demonstrated high psychological resilience. Lin et al.[24] determined that while in general, the psychological resilience of the healthcare professionals studied was high, the resilience level of nurses working during the pandemic was lower than that of other groups. In the study carried out by Roberts et al.[25] with nurses working in chest diseases clinics during the COVID-19 pandemic, the authors reported that the psychological resilience of the majority of nurses was moderate and that becoming infected with COVID-19 or being in isolation did not significantly affect psychological resilience. The results suggest that many nurses working during the pandemic have a moderate level of psychological resilience, regardless of being infected with COVID-19.

Our findings indicated that the psychological resilience level decreased with increased age and years of work experience in nurses who developed COVID-19. Negative psychological conditions, such as fear, anxiety, depression, and anger also adversely affect psychological resilience.[26] The prolongation of work hours, stress due to extraordinary work conditions, and providing nursing care at an exhausting pace can lead to psychological symptoms, such as anxiety and depression, and when nurses are more psychologically vulnerable, do not receive enough social support, or cannot cope with the situation, there may be a corresponding increase in psychological symptoms and a decrease in psychological resilience.[27] The pandemic has led to intense pressure on hospitals, and nurses are significantly affected by this situation. Huang et al.[10] and others have observed that the persistence of the pandemic, with increased numbers of patients, the constant risk of infection, and changes to procedures, in addition to factors such as violence in the healthcare field and other challenges, might increase emotional fatigue and decrease psychological resilience.

However, our study determined that the psychological resilience level of nurses providing care to patients diagnosed with COVID-19 was higher than that of those who did not provide care to patients diagnosed with COVID-19. Despite the difficulties and risk factors, nurses can maintain their resilience through protective personal, familial, and work-related factors. Nurses' exposure to stress can improve their personal ability to cope with difficult and challenging situations. Developing such skills facilitates adaptation and increases resilience.[11,28] The level of psychological resilience of nurses providing care to patients diagnosed with COVID-19 may be related to the fact that many of the nurses who work in pandemic clinics are young, have less professional experience, and do not have chronic diseases. Moreover, nurses with high psychological resilience may have volunteered more frequently to care for patients with an active infection.

We observed no significant difference between the job satisfaction level of nurses who were and were not infected with the virus that causes COVID-19. The level in both groups was moderate. This finding is consistent with reports in the literature. Giménez-Espert et al.[29] and Nia et al.[30] found a moderate

level of job satisfaction among nurses during the pandemic. The medical work environment, as well as other concerns, such as the potential of infecting family members, during a pandemic is very stressful and exhausting, especially for nurses who often spend more time in direct contact with patients than other staff members. This can lead to a decrease in the job satisfaction and thoughts of leaving the job.[31] Therefore, whether or not they become infected, the extra difficulties of the work environment during a pandemic may adversely affects the job satisfaction level of nurses.

In this study, there was no significant difference between the level of fear of COVID-19 of the nurses infected and not infected with the virus, and the level of fear of COVID-19 of the participants was below the median possible score. García-Reyna et al.[32] and Arpacıoğlu et al.[33] determined that nurses had a higher level of fear of COVID-19 compared to other healthcare professionals. The literature has several reports of high levels of fear of not being able to provide adequate care to patients with limited resources, fear of acquiring or transmitting the virus to family and friends, fear of death and fear of COVID-19 among nurses.[4,32,34] The fact that our study data were obtained after a vaccination was available and it was conducted approximately a year after the onset of the pandemic may have reduced the level of fear of COVID-19.

We found that nurses who had been hospitalized for COVID-19 treatment had a lower level of job satisfaction and a higher level of fear of COVID-19. Gasparro et al.[35] reported that perceived job insecurity and fear of COVID-19 led to increased symptoms of depression among dentists, and that the negative effects of perceived job insecurity were higher among those with a high fear level. He et al.[36] determined that while nurses who developed COVID-19 as a result of caring for infected patients under difficult conditions expressed some fear and anxiety, they also felt guilty and frustrated because they could not continue to work, despite the risks. Severe cases of COVID-19 require hospital treatment, however, patients whose clinical condition is not critical receive outpatient treatment. The seriousness indicated by hospitalization for COVID-19 treatment can lead to heightened fear of death. Therefore, it is not unexpected that these nurses may display high levels of negative mental health symptoms and fear.

To increase psychological resilience and job satisfaction during the pandemic, suggestions such as providing psychosocial support to healthcare professionals with a team of psychiatrists, psychologists, mental health nurses, and psychological counselors; informing nurses about coping strategies; and providing regular training and information on the care of patients diagnosed with infection, the circumstances of the pandemic, and institutional decisions have been reported in the literature.[9,10,23] Adequate supplies of the appropriate personal protective equipment and other medical equipment to be used in patient care should also be assured. These measures have positive effects; however, more scientific research is needed to determine additional interventions to support the psychological resilience and job satisfaction of nurses, particularly during a pandemic.

The primary limitation of this study is that the research was conducted at a single center. However, considering the current deficiency in the literature, the topic is original and up-to-date. Strengths of the study include methods planned and conducted according to the scientific literature, such as using a pre-test and using a computer program to determine an appropriate sample size. The results obtained represent a useful and needed addition to the literature.

Conclusion

The results of this study indicated that the psychological resilience of nurses during the pandemic was above the median possible score, their job satisfaction was moderate, and their fear of COVID-19 was low, and that having been diagnosed with COVID-19 had no effect on these variables. It was determined that the level of psychological resilience decreased as age and length of career increased in nurses infected with the virus that causes COVID-19, and that the levels of psychological resilience of nurses providing care to patients diagnosed with COVID-19 were higher. The job satisfaction level of nurses who were hospitalized for COVID-19 treatment were lower and their fear level was higher. We recommend that interventions such as psychosocial support and training be implemented to increase the psychological resilience and job satisfaction of nurses, especially those who are hospitalized due to COVID-19.

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