

The Relationship Between Psychological Resilience and Stress Perception in Nurses in Turkey During the COVID-19 Pandemic

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ABSTRACT

Background: In Turkey, nurses are responsible for the treatment and care of patients with coronavirus disease (COVID-19) and for tracing their contacts. Healthcare professionals exposed to COVID-19 face high levels of stress.

Purpose: This study was designed to determine the influence of psychological resilience and several sociodemographic and professional characteristics on stress perception in nurses during the COVID-19 pandemic.

Methods: A cross-sectional design was used in this study, which was conducted between June 16 and 29, 2020. Two hundred one nurses living in Turkey were enrolled as participants. Data were collected using an information form, the Perceived Stress Scale, and the Brief Psychological Strength Scale. This study aligns with the Strengthening of Reporting of Observational Studies in Epidemiology Checklist.

Results: According to the results of the multivariate linear regression analysis, the psychological resilience score of the participants accounted for 25.2% of the variance related to stress perception ($p < .05$). However, several of the demographic and professional characteristics considered in this study were not found to statistically significantly influence stress perception ($p > .05$).

Conclusions/Implications for Practice: The findings support that psychological resilience is significant in explaining perception of stress in nurses in Turkey. Interventions targeting psychological resilience are needed to reduce nurses' stress perceptions.

KEY WORDS:

pandemic, nurse, perceived stress, psychological resilience.

agent (WHO, 2020a). This new coronavirus spread rapidly in China and many other countries and caused a pandemic (Bao et al., 2020). The WHO declared this outbreak a pandemic on March 11, 2020 (WHO, 2020b). The numbers of COVID-19 cases and deaths have increased rapidly worldwide since the outbreak began. As of July 11, 2020, the virus had infected 12,286,664 people and killed 555,642 people in 216 countries (WHO, 2020c). No specific treatment or vaccine has been found for COVID-19; the WHO has recommended only protective measures such as staying at home, social distancing, washing hands with soap or disinfectant, and wearing a mask (Wadood et al., 2020). Until an effective antiviral treatment and vaccine for COVID-19 is found, the psychological effects of this disease will be largely neglected. However, pandemics such as this are not only a medical problem, as they tend to affect quality of life and cause social dysfunction in people who contract the disease (Lai et al., 2020).

Considering the rapid transmission of coronavirus, the high numbers of cases and deaths, and the uncertainties in vaccination and treatment, the outbreak created not only the risk of death because of infection but also high levels of psychological pressure (Cao et al., 2020). Stress, which is expressed as emotional tension caused by the disruption of physiological and psychological adaptation as a result of an organism's interaction with the environment in daily life, may cause a person to experience problems in the physical, emotional, behavioral, and mental dimensions and promote the development of chronic diseases (Özel & Karabulut Bay, 2018). Sources of stress during the outbreak include the unpredictability of the condition and the uncertainty regarding when the disease will be brought under control and the severity of related risks (Bao et al., 2020). In addition, those working in clinics during the pandemic were under great pressure and experienced significant physical and psychological tension

Introduction

Coronavirus is a large family of viruses that causes disease in animals and humans. In humans, coronaviruses are known to be the cause of many diseases such as the common cold form of Middle East Respiratory Syndrome and more serious respiratory infections such as severe acute respiratory syndrome (World Health Organization [WHO], 2020a). The coronavirus discovered in Wuhan, China, in December 2019 (COVID-19) has been identified as an infectious pneumonia

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because of insufficient medical resources and the large numbers of seriously ill patients in need of help (Mo et al., 2020; Zhang et al., 2020).

Nurses have played an important public health role in the prevention and control of infection during the COVID-19 pandemic (Smith et al., 2020). The infectious nature, relatively high risk of fatality, and lack of proper medical treatment associated with COVID-19 represent risks to the health and safety of nurses. Anxiety about unknown working environments and processes, a lack of work experience with contagious diseases, fear of transmission, heavy workloads, long-term fatigue, treatment-failure-related depression, having children, and worrying about family members have been identified as important sources of psychological stress (Mo et al., 2020; Shen et al., 2020). A study conducted in China on a large sample of mostly nurses investigated the psychological stress created by the COVID-19 outbreak on healthcare workers. The results found that a significant proportion of participants reported symptoms of depression, anxiety, insomnia, and distress. Nurses, women, frontline health workers, and employees in Wuhan, China, reported severer grades than other healthcare workers of all measures of mental health symptoms (Lai et al., 2020).

An official statement by Turkey's Health Minister on April 29, 2020, noted that 7,428 healthcare workers in the country had been diagnosed with COVID-19 (Turkish Medical Association, 2020). In a study conducted in Turkey, healthcare workers stated that they were uncertain about their working conditions and were particularly concerned about getting infected and transmitting the virus to their families (Eriş & İnan, 2020). A study conducted in Turkey to determine the psychological effect of the COVID-19 outbreak on nurses and midwives found that the lives of 54.5% of nurses and midwives had worsened since the outbreak started, 62.4% had difficulties in dealing with the uncertainty during the outbreak, 42.6% desired psychological support, and 11.8% had become estranged from their professions (Aksoy & Koçak, 2020). The American Nurses Association (2011) identified the acute and chronic effects of stress and overwork as one of the most important safety and health problems in nurses. Nurses' perceived stress affects the care and safety quality in their lives as well as in the lives of their patients (Tehrani, 2018). Addressing the feelings of nurses toward COVID-19 may also promote positive outcomes such as increased job satisfaction, decreased stress levels, and reduced intention to quit the profession (Labrague & de Los Santos, 2020). On the basis of the above, it is important to understand the factors that may assist nurses who are actively engaged in combating the COVID-19 outbreak to withstand and cope effectively with professional stress.

Psychological strength (resilience) refers to the ability of a person to recover from difficult life experiences and overcome disasters successfully (Çam & Büyükbayram, 2017). Psychologically strong individuals manage stress better in business life and exhibit a calmer and more correct attitude in conflict and crisis. They do not allow sources of stress to wear them down or reduce their commitment to the organization, so they do

not experience job dissatisfaction (Kavi & Karakale, 2018). In nurses, this feature is undoubtedly important for stress perceptions and coping mechanisms in today's working environment.

This study was designed to determine the influence of psychological resilience and several sociodemographic and professional characteristics on the stress perceptions of nurses during the COVID-19 pandemic. Thus, the following research questions were formulated:

- How do the sociodemographic and professional characteristics of nurses affect their perception of stress?
- How does psychological resilience affect the stress perception of nurses?

Methods

Design and Participants

This research, which used a cross-sectional design, was conducted between June 16 and 29, 2020. Two hundred four nurses currently living in Turkey were enrolled as participants. Sample selection was not used. The inclusion criteria included aged 18 years or older, currently a nurse, and providing online informed consent. The exclusion criteria included working as a nonnurse healthcare worker and filling in the questionnaire incompletely or incorrectly. Three of the enrolled participants were excluded from the research because they failed to complete the questionnaire, leaving the data from 201 participants available for analysis.

Measures

The research data were collected using an information form, the Perceived Stress Scale (PSS), and the Brief Psychological Strength Scale (BPSS).

Information form

The information form was prepared by the researchers and consisted of nine questions, including four questions on sociodemographic features (age, gender, marital status, and school graduated), three questions on professional characteristics (institution, department, and length of tenure), and two questions on the COVID-19 pandemic (training in the institution and worries about uncertainties in the control of the COVID-19 outbreak).

Perceived stress scale

The PSS, developed by Cohen et al. in 1983, was adapted into Turkish by Eskin et al. in 2013. The 14-item PSS was designed to measure the degree to which specific situations are perceived as stressful in the respondent's life. Respondents evaluate each PSS item using a 5-point Likert scale ranging from *never* (0) to *very often* (4). Seven of the items contain positive statements and are scored in reverse (Items 4–7, 9, 10, and 13). The total possible PSS score ranges from 0 to 56, with higher scores indicating excessive stress perceptions. The internal consistency coefficient of this scale was assessed

as .84 (Eskin et al., 2013), and in this study, the internal consistency coefficient was .86.

Brief psychological strength scale

The BPSS was developed by Smith et al. (2008) to measure psychological resilience and was adapted into Turkish by Doğan (2015). The BPSS is a six-item, self-report measurement tool that uses a 5-point Likert-type scale ranging from *not suitable at all* (1) to *completely suitable* (5). Items 2, 4, and 6 are reverse scored (Doğan, 2015). After the items in the scale are reverse coded and translated, a higher score indicates higher psychological strength. The internal consistency coefficient of the BPSS was previously assessed as .83, and in this study, it was assessed as .78.

Variables

The dependent variable in this study was the PSS total score. The independent variables were the BPSS total score and the demographic, professional, and COVID-19 characteristics of the participants.

Data Collection

The online questionnaire was uploaded and shared on two website platforms (Facebook and WhatsApp). The questionnaire could be completed via computer or smartphone via the website link. The questionnaire also included a section that described the purpose of the study and the anonymity and privacy policies governing participation. The participants completed the questionnaire by connecting to the website, filling in the questionnaire, and pressing the send button.

Data Analysis

The data obtained in the study were analyzed using SPSS Statistics Version 20.0 (IBM Inc., Armonk, NY, USA). The average and standard deviation of continuous variables and the frequency and percentage values of categorical variables were calculated. The PSS total score was obtained for difference statistics. The two-category variables and PSS total mean score difference were evaluated using independent samples *t* tests. One-way analysis of variance was performed using more than two categorical variables and the total mean score difference of the PSS. The relationship between the PSS total score and the BPSS total score was evaluated using the Pearson correlation coefficient. In the last stage, multivariate linear regression analysis was applied to determine the predictor variables. Statistical significance was set at $p < .05$ for all of the variables.

Ethical Considerations

Permission to conduct this research was obtained on June 8, 2020, from the local noninterventional clinical research ethics committee (#81829502.903/48) and from the Republic of Turkey Ministry of Health. Online informed consent was obtained from all of the participants after they had

received an explanation of the purpose and confidentiality policy of this research.

Results

The sociodemographic and professional characteristics of the participants are presented in Table 1. Their average age was 36.21 years ($SD = 8.15$, range: 21–56 years), and their average tenure was 14.99 years ($SD = 9.19$; range: 2 months to 38 years). Nearly all (95.5%) of the participants were women, 63.2% were married, 65.7% held a bachelor's degree, 64.2% worked at public or private hospitals, and 56.2% reported providing services that may be considered risky in terms of COVID-19 (i.e., emergency room, surgery, intensive care, and inpatient services). Two thirds (68.7%) reported having received training on COVID-19 at the institution where they worked, and 95% were concerned about the uncertainties involved in effectively controlling the COVID-19 outbreak. The mean BPSS score of the participants was 19.18 ($SD = 4.39$, range: 6–30).

Table 1
Descriptive Findings (N = 201)

Variable	<i>n</i>	%
Age (years; <i>M</i> and <i>SD</i>)	36.21	8.15
Gender		
Female	191	95.5
Male	10	5.0
Marital status		
Single	74	36.8
Married	127	63.2
Education		
Health vocational high school	6	3.0
Two-year degree	33	16.4
Bachelor's degree	132	65.7
Master's degree/doctorate	30	14.9
Institution		
University hospital	47	23.4
Public/private hospital	129	64.2
Primary healthcare organization	25	12.4
Department		
Emergency	24	11.9
Intensive care	17	8.5
Surgery	44	21.9
COVID-19 service	28	13.9
Services outside COVID-19	88	43.8
Length of tenure (months; <i>M</i> and <i>SD</i>)	14.99	9.19
Received training on COVID-19 at work		
Yes	138	68.7
No	63	31.3
Concerned about uncertainties in controlling the COVID-19 outbreak		
Yes	191	95.0
No	10	5.0
Brief Psychological Strength Scale (<i>M</i> and <i>SD</i>)	19.18	4.39

Table 2
Nurses' Perception of Stress ($N = 201$)

Perceived Stress Scale	Mean	SD
1. Feeling uncomfortable because something unexpected has happened	2.28	1.12
2. Feeling like you cannot control the important things in your life	2.28	1.12
3. Feeling nervous and stressed	2.58	1.06
4. Feeling unable to overcome daily challenges	1.62	0.99
5. Feeling unable to deal effectively with significant changes in your life	1.71	0.99
6. Feeling insecure in your ability to handle personal problems	1.66	1.11
7. Do not feel like everything is going right	2.13	1.03
8. Realizing that you cannot handle things that need to be done	1.94	1.05
9. Feeling unable to control the difficulties in your life	1.76	0.95
10. Do not feel like you can handle everything	1.81	0.98
11. Being angry about events beyond your control	2.24	1.08
12. Finding yourself thinking about the things you need to achieve	2.45	1.00
13. Feeling unable to control how you use your time	1.82	1.03
14. Feeling that problems have increased too much for you to overcome them	2.05	1.13
Total score	28.47	7.23

The average scores for stress perception scale items and the overall total score for stress perception in the last month are presented in Table 2. The mean PSS score was 28.47 ($SD = 7.23$), and the four items with the highest mean scores were "Feeling nervous and stressed" (2.58, $SD = 1.06$), "Finding yourself thinking about the things you must achieve" (2.45, $SD = 1.00$), "Feeling uncomfortable because something unexpected has happened" (2.28, $SD = 1.12$), and "Feeling like you cannot control the important things in your life" (2.28, $SD = 1.12$).

The differences between participants' demographic, occupational, and COVID-19-related characteristics and stress perceptions are shown in Table 3. No statistically significant differences were found between stress perception score and the variables of gender, marital status, educational level, institution, and department. However, the mean stress perception score of those trained on COVID-19 was statistically significantly lower than those who did not receive COVID-19 training ($p < .05$). In addition, the mean stress perception score of those who stated that uncertainties over control of the COVID-19 pandemic increased their concerns was statistically significantly higher than of those who did not ($p < .05$).

The relationships among PSS scores, participant demographics and professional characteristics, and BPSS scores are presented in Table 4. No statistically significant

relationships between age and length of tenure and PSS score were found ($p > .05$). However, a negative and moderately statistically significant relationship between BPSS total score and PSS total score was found ($p < .001$).

The psychological resilience total score was shown to be a significant predictor of perception of stress ($R^2 = .25$, $F = 22.14$, $p < .001$), with psychological resilience scores found to account for 25.2% of the variance in stress perception. Thus, perceived stress decreased as psychological resilience increased (Table 5).

However, the statistically significant effect on stress perception was eliminated when the variables of concern (i.e., uncertainties related to COVID-19 training in their institutions and the control of the COVID-19 outbreak) were included in the regression model ($p > .05$).

Discussion

In order to reduce the stress caused by traumatic situations, to increase the coping skills of the person for long and short-term adaptation, and to improve the quality of care in disaster situations, the stress situations of nurses and the affecting factors should be examined (Kılıç & Şimşek, 2018). The aim of this study was to assess the influence of psychological resilience and several demographic and professional characteristics on nurses' perceptions of stress during the COVID-19 pandemic. The results highlight the importance of psychological resilience in protecting the mental health of nurses.

In line with the first research question, the potential relationships between the several demographic and professional characteristics of nurses and their perceived stress scores were evaluated. No statistically significant relationship was found between the perceived stress score and the variable of age, gender, marital status, educational level, institution, department, or length of tenure. These results show that the mean perceived stress score was similar for all of the participants independent of age, gender, marital status, educational level, institution, department, and length of tenure.

The mean PSS score in this study was 28.47 ($SD = 7.23$), which indicates a moderate level of perceived stress. The total possible range for PSS scores is 0–56, with higher scores indicating higher perceived stress. This scale has no breakpoint (Eskin et al., 2013). The most stressful situations for the participants during the previous 1-month period were described as feeling nervous and stressed, finding themselves thinking about the things they had to achieve, and feeling uncomfortable because something unexpected had happened. During the COVID-19 pandemic in Turkey, the participants expressed perceiving high levels of stress when feeling nervous or stressed, when they felt compelled to succeed, when they experienced an unexpected event, and when they were unable to control important things in their lives. During the COVID-19 pandemic, two thirds of the nurses participating in a study in Austria and more than half of those in Nepal perceived moderate stress levels (Hoedl et al., 2020; Neupane et al., 2020). In a cross-sectional study that aimed to determine the prevalence

Table 3
Differences Between Independent Variables and Stress Perception Scale (N = 201)

Independent Variable	Perceived Stress Scale			
	Mean	SD	t/F	p
Gender				
Female	28.55	7.19	0.70	.482
Male	26.90	8.25		
Marital status				
Single	28.13	7.00	-0.50	.615
Married	28.66	7.38		
Education				
Health vocational high school/2-year degree	29.64	8.93	1.12	.262
Graduate or higher	28.19	6.76		
Institution				
University hospital	27.31	7.25	F = 0.87	.419
Public/private hospital	28.71	7.40		
Primary healthcare organization	29.40	6.24		
Department				
Services with COVID-19-positive hospitalization	28.51	7.88	0.09	.928
Services without COVID-19-positive hospitalization	28.42	6.34		
Received training on COVID-19 at work				
Yes	27.47	6.82	-2.94	.004*
No	30.65	7.66		
Concerned about uncertainties in controlling the COVID-19 outbreak				
Yes	28.78	7.08	2.72	.007*
No	22.50	7.84		

Note. *t* = independent samples *t* test; *F* = one-way analysis of variance.

**p* < .05.

of perceived stress and risk factors among healthcare providers in Ethiopia, the prevalence of perceived stress was found to be very high among healthcare providers, with the highest stress scores found among nurses (Chekole et al., 2020). In a study conducted in Hubei, China, from January to March 2020 to determine the psychological impact and ways of coping with the outbreak (Cai et al., 2020), health workers reported that they were concerned about their families' safety and increased mortality rates. In another study on health workers in China during the COVID-19 outbreak (Xiao et al., 2020), it was determined that the COVID-19 pandemic induced stress in healthcare workers and that

healthcare workers experienced high rates of anxiety and depression. During pandemics, the burden on health systems and the workload and stress of health professionals increase significantly. These health professionals experience long working hours, aggravated working conditions, increased expectations and anxiety from society, high patient numbers, and elevated risks of becoming sick themselves. All of these factors affect the overall psychosocial functionality and resilience of health workers (Enli Tuncay et al., 2020). The results of this study indicate that the level of stress perceived by nurses is not significantly influenced by sociodemographic and professional variables.

In this study, the variables related to COVID-19 and the effect of psychological resilience on perceived stress in nurses were evaluated using a multivariate simple linear regression model. When the analysis results were examined, the total psychological resilience score was found to significantly predict the participants' perceptions of stress (*p* < .05). According to Graber et al. (2015), psychological resilience is defined as a developmental process in which individuals exposed to potentially traumatic events experience positive psychological adaptation over time. The ability to return to the psychological state that prevailed before a traumatic experience has been defined as psychological resilience. In other words, psychological resilience refers to the mental processes and behaviors that an individual uses

Table 4
Correlation Between Stress Perception Scale and Independent Variables (N = 201)

Independent Variable	Perceived Stress Scale	
	<i>r</i>	<i>p</i>
Age	-.03	.629
Length of tenure	.03	.728
Brief Psychological Strength Scale	-.49	< .001

Table 5*Perceived Stress Scale: Simple Linear Regression Model (N = 201)*

Independent Variable	Perceived Stress Scale				
	B	95% CI	β	t	p
Constant	41.12	[34.86, 47.38]		12.96	< .001
Total BPSS point	-0.74	[-0.95, -0.53]	-0.45	-6.92	< .001
Trained on COVID-19 at work (0 = no, 1 = yes)	-1.43	[-3.38, 0.52]	-0.09	-1.45	.149
Concerned about uncertainties in controlling the COVID-19 outbreak (0 = no, 1 = yes)	2.62	[-1.53, 6.76]	0.08	1.24	.215

Note. Adjusted $R^2 = .24$, $R^2 = .25$, $F = 22.14$ ($p < .001$). BPSS = Brief Psychological Strength Scale; CI = confidence interval.

to protect himself or herself from the potential negative effects of stress factors (Devi, 2020). Psychological resilience is also a concept that represents the functions used to adapt to psychopathologies such as depression, anxiety, and post-traumatic stress disorder (Graber et al., 2015). Enli Tuncay et al. (2020) report that rates of psychiatric disorders such as anxiety, depression, posttraumatic stress disorder, and burn-out are higher in healthcare professionals than in the general population during a pandemic. Furthermore, the psychosocial aspects of pandemics affect women and nurses more than others (Enli Tuncay et al., 2020). In light of this information, the results of this study highlight the importance of psychological strength in reducing perceived stress in nurses who live and work in Turkey. Thus, assessing the resilience of nurses is important to assess their mental health.

Limitations

This study was affected by several limitations. First, the sample size of this study was small. To improve statistical significance and the generalizability of the results, future studies on this subject should use larger sample sizes. Another limitation was the use of a cross-sectional design, which does not allow causal relationships to be evaluated.

Conclusions

The complex, infectious, and sensitive nature of the COVID-19 outbreak poses significant challenges for healthcare professionals and nurses working on the front lines. To protect and maintain mental health, it is necessary to focus on improving the psychological resilience of nurses and on understanding their perceived stress. This study showed the presence of perceived stress in nurses, whereas psychological resilience was determined as a factor affecting the perception of stress. The results of this study may be used as a reference for community mental health nurses and psychiatric nurses in psychological intervention programs that will be provided during or after the COVID-19 pandemic in Turkey.

Implications for Practice

The results of this study showed that psychological resilience is an important predictor of perceived stress in nurses. Protecting

the mental health of nursing staff is essential for nurses to combat COVID-19 effectively. Community mental health and psychiatric nurses should develop, implement, and evaluate interventions designed to enhance psychological resilience in clinical nurses. Therefore, community mental health and psychiatric nurses should inform nursing managers and clinician nurses about the active mobilization of nurses' social support systems, assist nurses to deal with stress and express their managerial skills and emotions, and organize leisure activities and training to help healthcare professionals reduce stress.

Author Contributions

Study conception and design: HK

Data collection: HK, FK

Data analysis and interpretation: FK

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