



Research Article

The Effect of Fear of Covid-19 on Adherence to Standard Precautions in Surgical*

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Abstract

This descriptive and cross-sectional study was conducted to determine the effect of surgical nurses' fear of COVID-19 on compliance with standard precautions. The research was conducted on with 303 nurses working in surgical units in Turkey who voluntarily to participate in the study between January 01 and May 01, 2022. Data were collected through Google Forms using the Introductory Information Form, the Compliance with Standard Precautions Scale, and the Fear of COVID-19 Scale. SPSS 25.0 program was used to analyze the data. The mean age of the nurses was 30.68 ± 7.94 years, 83.2% were female, 54.1% worked in the clinic. The total mean score of the Nurses' Compliance with Standard Precautions Scale was 14.98 ± 2.79 , and the total mean score of the Fear of COVID-19 Scale was found to be 15.77 ± 5.67 . It was found that the mean score of the Fear of COVID-19 Scale increased with age, years of work in the profession, and years of work in the unit increased. It was found that surgical nurses' fear of COVID-19 and compliance with standard precautions were moderate, and there was no significant relationship between fear of COVID-19 and compliance with standard precautions.

Keywords: COVID-19, Fear, Perioperative nursing, Universal precautions.

Özet

Bu tanımlayıcı ve kesitsel çalışma, cerrahi hemşirelerinin COVID-19 korkusunun standart önlemlere uyum üzerindeki etkisini belirlemek amacıyla gerçekleştirilmiştir. Araştırma, 01 Ocak-01 Mayıs 2022 tarihleri arasında Türkiye' de cerrahi birimlerde çalışan ve çalışmaya gönüllü olarak katılan 303 hemşire ile yürütülmüştür. Veriler, Google Forms aracılığıyla Tanıtıcı Bilgi Formu, Standart Önlemlere Uyum Ölçeği ve COVID-19 Korkusu Ölçeği kullanılarak toplanmıştır. Verilerin analizinde SPSS 25.0 programı kullanılmıştır. Hemşirelerin yaş ortalaması $30,68 \pm 7,94$ olup, %83,2' si kadın ve %54,1' i klinikte çalışmaktadır. Hemşirelerin Standart Önlemlere Uyum Ölçeği toplam puan ortalaması $14,98 \pm 2,79$; COVID-19 Korkusu Ölçeği toplam puan ortalaması ise $15,77 \pm 5,67$ olarak bulunmuştur. COVID-19 Korkusu Ölçeği puan ortalamasının yaş, meslekte çalışma yılı ve birimde çalışma yılı arttıkça yükseldiği belirlenmiştir. Cerrahi hemşirelerinin COVID-19 korkusunun ve standart önlemlere uyumlarının orta düzeyde olduğu ve COVID-19 korkusu ile standart önlemlere uyum arasında anlamlı bir ilişki bulunmadığı saptanmıştır.

Anahtar Kelimeler: COVID-19, Korku, Perioperatif hemşirelik Evrensel önlemler.



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INTRODUCTION

Healthcare workers have been a vulnerable and at-risk group in all pandemics that have plagued humanity. This risk has continued throughout the COVID-19 pandemic (Kumar et al., 2020). Coronaviruses can cause a wide range of illnesses, from mild conditions such as the common cold to more severe illnesses such as pneumonia (Chen et al., 2020). The COVID-19 pandemic has affected the nursing profession in many ways. As the healthcare professionals on the front lines of the pandemic, nurses faced many physical and psychological challenges (Duygulu et al., 2020; İnanç Yılmaz & Özdemir, 2022). Standard precautions are the minimum infection prevention practices that apply to all patient care in a healthcare setting, regardless of the patient's suspected or confirmed infectious status (Mudedla et al., 2014). The elements of standard precautions for COVID-19 are: Hand hygiene, Respiratory hygiene, Use of personal protective equipment according to risk, Safe injection practices, Sharps management and injury prevention, Safe use and disinfection of patient care equipment, Environmental cleaning and safe management of body fluid spills, Safe handling and cleaning of soiled linen, and Safe disposal of medical waste (Ahorsu et al., 2022; Donati et al., 2019; Jorgensen et al., 2021). In the current pandemic environment, it is critical to identify and understand the factors that influence nurses' compliance and adherence to infection prevention and control procedures (Adams & Walls, 2020; Bani-Issa et al., 2021). Healthcare workers are the most important resource in controlling an outbreak. Therefore, high compliance and adherence to globally standardized measures are essential to ensure a competent infection prevention and control resource to manage current and future outbreaks (Etafa et al., 2021; Jin et al., 2020; Wong et al., 2021). Healthcare workers, particularly nurses, play a critical role in preventing the spread of infections, treating infections, and ensuring compliance with prevention measures (Alhumaid et al., 2021). This study was conducted to determine the effect of surgical nurses' fear of COVID-19 on adherence to standard precautions.

This study has an important novelty in that it is one of the first studies to examine the relationship between fear of COVID-19 and precautionary behaviors. Although there are several studies in the literature on the psychological effects of COVID-19 on individuals and the reflections of these effects on health behaviors, there is a lack of a comprehensive and systematic analysis of how emotional reactions, especially fear of COVID-19, affect individuals' adherence to health precautions. The present study fills this gap and makes an original and valuable contribution to the scientific literature. This study not only fills the research gap in this area, but also contributes to policy development processes for similar situations in the future by revealing the effects of individuals' emotional reactions on health behaviors during global crises such as pandemics. Knowing how well surgical nurses adhere to standard precautions is a very important step in preventing the spread of the pandemic. This will ensure that deficiencies are known and the necessary training is provided. Research questions:

1. What is the compliance of surgical nurses with isolation precautions?
2. What is the level of fear of COVID-19 among surgical nurses?
3. Does surgical nurses' fear of COVID-19 affect their adherence to standard precautions?

METHOD

Purpose and Type of Research

This descriptive and cross-sectional study was conducted to determine the effect of surgical nurses' fear of COVID-19 on compliance with standard precautions.

Population and Sample of the Study

The population of the descriptive and cross-sectional study consisted of a total of 227.292 nurses working in Turkey according to the "Health Statistics Yearbook Newsletter" published by the Ministry of Health of the Republic of Turkey on September 30, 2021. However, since the focus of the study was on nurses working in surgical wards, a sample was selected from this large population according to the established criteria. The sample size was calculated with a 90% confidence interval and a 5% margin of error. This calculation was made using the standard sample calculation formula, taking into account the size of the population, and it was determined that a minimum of 271 nurses should be reached. In this case, when the finite population correction was applied, the sample size was determined to be approximately 271 nurses.

Data Collection and Analysis

The research data was collected between January 1, 2022 and May 1, 2022. Participants were selected from nurses working in surgical units who volunteered to participate in the study. Snowball sampling was used to select the sample. The snowball sampling method was preferred because direct access to nurses working in surgical units is limited, individual access is difficult due to nurses' busy work schedules, and this method has the advantage of reaching a wider audience through participants. Initially, nurses working in specific surgical units were contacted and those who agreed to participate in the study were asked to invite other colleagues who met the study criteria to participate in the study. This method gradually increased the number of participants.

Descriptive Information Form, Compliance with Standard Precautions Scale and the Fear of COVID-19 Scale were used to collect the data. The Descriptive Information Form included a total of 9 questions about the sociodemographic and professional characteristics of the nurses. The Standard Precautions Scale was developed by Lam based on the international precautions of the Centers for Disease Control and Prevention and the World Health Organization (Lam, 2011). This 20-item scale uses a four-point adjective scale (never, rarely, sometimes, and always). Its Turkish validity and reliability were conducted by Samur and colleagues (Samur et al., 2020). When calculating the total score of the scale, the response "always" in positively scored items is given 1 point and the others 0 points, the response "never" in negatively scored items is given 1 point and the others 0 points. Scale scores range from 1 to 20. As the score on the scale increases, so does the adherence to standard measures. The Cronbach's alpha internal consistency coefficient of the original scale was 0.73, while the Cronbach's alpha value in this study was 0.653. The Fear of COVID-19 scale was developed by Ahorsu et al. (2022) and consists of seven items, all of which are collected in a single dimension (Ahorsu et al., 2001). Each item in the scale is in 5-point Likert type. Higher scores on the scale indicate that nurses' level of anxiety about COVID-19 is increasing. The Turkish validity and reliability were conducted by Artan et al (Artan et al., 2021). The Cronbach's alpha internal consistency coefficient of the original scale was 0.82 and 0.870 in this study. Data were collected online using "Google Forms" to reach surgical nurses throughout Turkey.

Statistical analysis of the data was performed using SPSS v.25. Continuous variables were expressed as means and standard deviations, and categorical variables were expressed as counts and percentages. Skewness-skewness coefficients, histogram plots, Kolmogorov-Smirnov and Shapiro-Wilk tests were used to determine whether the data were normally distributed. When comparing two independent groups, the independent samples t-test was used when parametric test assumptions were met, and the Mann-Whitney U test was used when parametric test assumptions were not met. When comparing

three or more independent groups, one-way ANOVA was used when parametric test assumptions were met, and Kruskal-Wallis test when they were not. Correlation analyses were used to examine relationships between continuous variables. Spearman's rank correlation coefficient was used for correlation analyses, as all variables did not show a normal distribution. The level of statistical significance was accepted as $p < 0.05$ in all analyses.

Ethical Aspects of the Research

In order to conduct the study, necessary permissions were obtained from the Ege University Medical Research Ethics Committee (Date: 30.12.2021 Approval Number: 21-12.2T/3), the Ministry of Health, the authors who conducted the Turkish validity and reliability of the scales, and the nurses, via Google Forms, with an informed consent form.

RESULTS

The mean age of the nurses participating in the study was 30.68 ± 7.94 years. Of the nurses, 83.2% were female, 48.2% were undergraduate, and 54.1% worked in the clinic (Table 1).

Table 1. Distribution of descriptive characteristics of nurses (n=303)

Variable	n	%
Gender		
Female	252	83.2
Male	51	16.8
Education Status		
High School	60	19.8
Associate Degree	49	16.2
Undergraduate	146	48.2
Master's Degree/Doctorate	48	15.8
Unit		
Operating Room	41	13.5
Clinic	164	54.1
Intensive Care	98	32.4
Total	303	100.0

It was found that the nurses had worked in the profession for an average of 9.20 ± 7.95 years, in the unit where they worked for 5.34 ± 5.71 years, 62.0% of them had a relative with whom they shared the same house had COVID-19, and 97.7% of their colleagues working in the same unit had COVID-19. The mean total score of the nurses on the Compliance with Standard Precautions Scale was 14.98 ± 2.79 and the mean total score on the Fear of COVID-19 Scale was 15.77 ± 5.67 (Table 2).

Table 2. Mean total scores of nurses' compliance with standard precautions and the fear of covid-19 scale

Scales	Min.- Max.	Mean±SD
Compliance with Standard Precautions	3.00 – 20.00	14.98 ± 2.79
The Fear of COVID-19	7.00 – 35.00	15.77 ± 5.67

Min: Minimum Max: Maximum SD: Standard Deviation

When the relationship between the total score of the Compliance with Standard Precautions Scale and the nurses' gender, the unit they work in, and the status of having a relative with whom they share the same house with COVID-19 was analyzed by correlation analysis, no significant relationship was found among them ($p>0.05$). When the relationship between the total score of the Fear of COVID-19 scale and the nurses' gender, the unit in which they work, and the status of the person with whom they share the same house with COVID-19 was analyzed by correlation analysis, no significant relationship was found among them ($p>0.05$). According to the results of the test for comparison of compliance with standard precautions and fear of COVID-19 scores according to the educational status of nurses, it was found that the compliance with standard precautions of high school graduates was higher than that of undergraduate graduates, and the fear of COVID-19 scores did not show a statistically significant difference ($p>0.05$) according to the educational status (Table 3).

Table 3. Comparison of compliance with standard precautions scale and COVID-19 Fear Scale Scores according to nurses' descriptive characteristics

Descriptive Characteristics	Compliance with Standard Precautions	COVID-19 Fear
	Mean±SD	Mean±SD
Gender		
Female	15.12±2.53	15.75±5.32
Male	14.29±3.79	15.86±7.24
	p:0.486*	p:0.689*
Education Status		
High School(a)	16.08±2.29	15.82±5.92
Associate Degree(b)	14.57±3.73	15.65±6.05
Undergraduate(c)	14.76±2.63	15.32±5.31
Master's Degree/Doctorate(d)	14.69±2.42	17.19±5.97
	p:0.004** a>d, a>c	p:0.218**
Unit		
Operating Room	15.10±3.39	17.27±5.92
Clinic	14.98±2.77	15.48±5.66
Intensive Care	14.93±2.57	15.62±5.56
	p:0.622**	p:0.186***
The status of a relative with whom they share the same household contracting COVID -19		
Yes	15.10±2.64	15.38±5.54
No	14.79±3.02	16.40±5.86
	p:0.531*	p:0.128****

*:Mann Whitney U, **:Kruskal Wallis H, ***:ANOVA, ****:t-test

According to the results of the correlation analysis between age, years of working in the profession, years of work in the unit where nurses were employed and scale scores: With increasing age, years of work in the profession and years of work in the unit where the nurse worked increased ($p<0.05$), fear of COVID-19 increased with age, years in the profession, and years on the unit ($p<0.05$), no significant relationship between age and adherence to standard precautions, compliance with standard precautions increased with years of employment in the profession and years of employment in the unit ($p<0.05$), there was no significant relationship between compliance with standard precautions and fear of COVID-19 ($p>0.05$) (Table 4).

Table 4. Correlation between nurses' age, years of work in the profession, years of work in the unit and scale scores

		1	2	3	4	5
1. Age	r	-	-	-	-	-
	p	-	-	-	-	-
2. Years of work in the profession	r	0.860*	-	-	-	-
	p	0.000	-	-	-	-
3. Years of work in the unit	r	0.599*	0.748*	-	-	-
	p	0.000	0.000	-	-	-
4. Compliance with Standard Precautions	r	0.028	0.129*	0.201*	-	-
	p	0.631	0.025	0.000	-	-
5. COVID-19 Fear	r	0.242*	0.187*	0.156*	-0.042	1.000
	p	0.000	0.001	0.007	0.463	.

r: Spearman rank correlation coefficient was used. *There is a significant relationship at p<0.05 level.

DISCUSSION

It is very important that nurses adhere to isolation measures when caring for COVID-19 patients in order to protect themselves and their patients from COVID-19 infection (Zeyrek et al., 2023). This study investigated the effect of COVID-19 fear among nurses working in surgical units on adherence to standard precautions. During the COVID-19 pandemic, nurses' adherence to standard precautions is important because nurses are known to be on the front line and in close contact with patients. Adherence to standard precautions by nurses will help nurses to protect themselves and prevent infection in patients. It is emphasised that nurses play an important role during the COVID-19 pandemic and that nurses are the professional group with the highest adherence to protective behaviours (Jorgensen et al., 2021).

The mean total score of the nurses obtained from the Fear of COVID-19 Scale is 15.77±5.67. The scores that can be obtained from the scale vary between 7 and 35. In this study, it was found that nurses' fear of COVID-19 was at a moderate level. This result of the study supports the literature (Bakırhan & Tan, 2023; Karadeniz et al., 2022; Kaplan et al., 2021; Labrague & De Los Santos, 2021; Oğuz & Ozdemir, 2021; Sakib et al., 2022; Saracoglu et al., 2020; Ünver & Yeniğün, 2021; Yılmaz & Uysal, 2021). The mean of the total scores obtained by the nurses from the Compliance with Standard Precautions scale is 14.98±2.79. The scores that can be obtained from the scale vary between 3 and 20. In studies conducted during the COVID-19 pandemic, the mean scores of nurses' compliance with standard precautions varied. A study conducted in Brazil reported that the mean score of nurses' compliance with standard precautions during the COVID-19 pandemic was 12.8 (Pereira et al., 2021). A study conducted by Oğuz & Ozdemir (2021), it was reported that the mean score of the level of compliance with standard measures was 14.05 (Oğuz & Ozdemir, 2021). In this study, the level of compliance with standard measures during the COVID-19 outbreak was found to be in line with the literature.

In our study, there is a weak and positively significant relationship between nurses' age, length of service in the profession and in the unit where they work and fear of COVID-19. Fear of COVID-19 increases with age, occupation and working hours in the unit where they work. A study by Erdoğan and colleagues (2022) found that nurses in the middle age group had a higher fear of losing their lives

due to COVID-19 (Erdoğan et al., 2022). This correlation between length of time in the profession and length of time in the unit may be explained by the increase in age in our study.

There is a very weak and positively significant relationship between years of employment and compliance with standard precautions. The fact that years of employment and seniority were positively associated with adherence to standard precautions supports the view that experience is an important factor in infection control. It can be expected that nurses will become more aware of and more consistent in their use of standard precautions with increasing length of service. Findings in the literature that experienced nurses are more likely to adhere to standard precautions support the findings of the current study (Cruz et al., 2016; Lam, 2014). Experienced nurses are better equipped in terms of both knowledge and practice, and may be more likely to adhere to infection control protocols due to professional habits acquired over many years.

The scores for nurses' compliance with standard precautions show a statistically significant difference according to educational status. It was observed that the compliance with standard precautions scores of nurses with a high school diploma who participated in the study differed from other levels of education. It was observed that the compliance with standard precautions scores of nurses with a high school diploma who participated in the study differed from other levels of education. There is a significant difference between the compliance with standard precautions of nurses with a high school diploma and nurses with a master's/doctoral degree. Adherence to standard precautions is higher among graduate nurses than among postgraduate and undergraduate nurses. There are studies in the literature with mixed results. In a study conducted by Pereira et al. (2021) in Brazil, compliance with standard precautions was reported to be higher among nurses with higher levels of education than among nurses with lower levels of education (Pereira et al., 2021). In another study conducted by Oğuz (2019) in Turkey, no significant difference was found between educational status and compliance with standard precautions (Oğuz & Ozdemir, 2021). The presence of differences between the study results during the ongoing coronavirus pandemic may be due to the effects of the pandemic. This study shows that fear of COVID-19 is not a major determinant of nurses' adherence to standard precautions, but that other factors such as length of experience and educational level are more determinant. It can be said that the factors influencing nurses' protective behaviour should be studied more comprehensively. There is no significant relationship between adherence to standard precautions and fear of COVID-19. Although the literature suggests that fear of COVID-19 may influence nurses' adherence to standard precautions, no significant relationship was found in this study (Oğuz & Ozdemir, 2021; Zeyrek et al., 2023). This means that the level of anxiety does not have a direct effect on nurses' implementation of standard precautions. This study aims to provide data on how the pandemic is affecting nurses' behaviour by investigating the impact of COVID-19 anxiety on this adaptation.

CONCLUSION

The study concludes that surgical nurses have average levels of fear of COVID-19 and compliance with standard measures. No direct relationship was found between fear of COVID-19 and adherence to standard precautions. To improve compliance with standard precautions, the study recommends that training, counselling, supervision, and inspection activities should be strengthened, especially for nurses working in pandemic clinics. It also suggests that future studies should examine other factors that may influence surgical nurses' adherence to standard precautions, and that institutions should implement training, counselling, monitoring, and supervision activities to improve adherence. Finally,

it calls for more studies in different cultures to further explore COVID-19 induced fear and compliance, as well as intervention studies to examine the effects of these interventions.

Limitations of the Study

This study is limited by its cross-sectional design, which does not allow causal interpretation. Data were based on self-reported online questionnaires and may be subject to bias. Snowball sampling restricts sample representativeness and generalizability. In addition, the internal consistency of the Compliance with Standard Precautions Scale was lower than in the original study, which may have influenced measurement reliability.

Declaration of Interests: The authors declare that there is no conflict of interest.

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Ethical Approval: This study was approved by the Ege University Medical Research Ethics Committee with the decision dated 30-12-2021 and numbered 21-12.2T/3.

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