The Relationship between the Fear, the Perceived Risk of COVID-19 and Compliance with Standard Precautions of Nurses

Hemşirelerin COVID-19 Korkusu ve Algılanan COVID-19 Riski ile Standart Önlemlere Uyumu Arasındaki İlişki

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ABSTRACT

Aim: it was aimed to examine the correlation between the fear of COVID-19 and the perceived risk of COVID-19 and compliance with standard precautions of nurses working in pandemic clinics.

Materials and Methods: The study conducted in a cross-sectional research design. The sample consists of 194 participants who worked in COVID-19 clinics between November 2020 - January 2021 in an Education and Research Hospital in Ankara, and met the inclusion criteria. Data collection form consisted of the Introductory Information Form (18 questions), the Fear of COVID-19 Scale (7 items), the Perceived COVID-19 Risk Scale (8 items) and the Standard Precautions Scale (20 items). The data were collected by considering the pandemic conditions, using an online questionnaire. Mann Whitney U Test and Kruskal Wallis Variance Analysis were used to compare continuous data. Spearman Correlation Analysis was used to determine the correlation between the scales' scores.

Results: The mean age of the participants was 29.01 ± 6.73. Participants' mean scores were on the Fear of COVID-19 Scale, the Perceived COVID-19 Risk Scale, and the Standard Precautions Scale were 19.83 ± 6.36, 29.89 ± 5, and 14.05 ± 2.81, respectively. It was determined that there was a moderate and positive significant correlation between the Fear of COVID-19 Scale mean scores of the participants and the Perceived COVID-19 Risk Scale ($r = 0.619$; $p = 0.001$). There was no statistically significant correlation between the mean scores of the Fear of COVID-19 Scale, Perceived COVID-19 Risk Scale and, the Compliance with Standard Precautions Scale and the mean scores of ($p > 0.05$).

Conclusion: In line with the results obtained in the study, it was determined that the nurses' fear of COVID-19 and the perceived risk of COVID-19 were above average. However, it was revealed that fear of COVID-19 and perceived risk were not related to Compliance with Standard Precautions.

Keywords: COVID-19, Nursing, Fear, Risk, Standard Precautions

ÖZET

Amaç: Bu çalışmada, pandemi kliniklerinde çalışan hemşirelerin COVID-19 korkusu ve algılanan COVID-19 riski ile standart önlemlere uyumu arasındaki ilişkinin incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Çalışma, kesitsel araştırma tasarımında uygulanmıştır. Örneklemi, Ankara'da bir Eğitim ve Araştırma Hastanesi, Pandemi Hastanesinde Kasım 2020- Ocak 2021 tarihleri arasında, COVID-19 kliniklerinde çalışan ve dahil edilme kriterlerini karşılayan 194 katılımcı oluşturmaktadır. Veri toplama formu; Tanıtıcı Bilgi Formu (18 soru), COVID-19 Korkusu Ölçeği (7 madde), Algılanan COVID-19 Risk Ölçeği (8 madde) ve Standart Önlemler Ölçeğinden (20 madde) oluşmaktadır. Veriler, pandemi koşulları dikkate alınarak, çevrimiçi anket formu ile toplanmıştır. Sürekli verilerin karşılaştırılmasında Mann Whitney U Testi ve Kruskal Wallis Varyans Analizi kullanılmıştır. Ölçek puanları arasındaki ilişkinin saptanmasında, Spearman Korelasyon Analizi uygulanmıştır.

Bulgular: Katılımcıların yaş ortalaması 29.01±6.73'tür. Katılımcıların COVID-19 Korkusu Ölçeği, Algılanan COVID-19 Riski Ölçeği ve Standart Önlemlere Uyum Ölçeği puan ortalamaları sırası ile 19,83±6,36, 29,89±5 ve 14,05±2,81'dir. Katılımcıların

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COVID-19 Korkusu Ölçeği puan ortalamaları ile Algılanan COVID-19 Riski Ölçeği arasında orta düzeyde ve pozitif yönde anlamlı ilişki olduğu saptanmıştır (r=0,619; p=0,001). Katılımcıların Standart Önlemlere Uyum Ölçeği puan ortalamaları ile COVID-19 Korkusu Ölçeği ve Algılanan COVID-19 Riski Ölçeği puan ortalamaları arasında istatistiksel açıdan anlamlı ilişki bulunmamıştır (p>0,05).

Sonuç: Çalışmada elde edilen sonuçlar doğrultusunda, hemşirelerin COVID-19 korkusu ile algılanan COVID-19 riski düzeylerinin ortalamanın üzerinde olduğu belirlenmiştir. Bununla birlikte COVID-19 korkusu ve algılanan COVID-19 riskinin, standart önlemlere uyumla ilişkili olmadığı ortaya konulmuştur.

Anahtar kelimeler: COVID-19, Hemşirelik, Korku, Risk, Standart Önlemler

INTRODUCTION

In the first three months of 2020, the virus COVID-19, which has extremely high infectivity, pathogenicity, and mortality, caused a pandemic-level epidemic (1-3). According to the World Health Organization (WHO), as of September 2021, 221,648,869 people worldwide are infected with the COVID-19 virus, and 4,582,338 people have died directly from it (4). The United States (US) (39,893,580 cases; 644.318 deaths), Brazil (20,899,933 cases; 583,810 deaths), and India (39,893,580 cases; 644.318 deaths) are the top three countries with the most COVID-19 cases and deaths in September 2021. In September 2021, there were 6,542,654 COVID-19 cases in our country, with 58,651 deaths resulting from COVID-19. (4)

COVID-19 is known to be transferred by the droplet route and contact (5, 6). The virus shed into the physical environment by coughing or sneezing people with symptoms of COVID-19 infection has been reported to be transmitted to healthy people by being carried through the respiratory tract directly and/or through the hands to the face eyes, and nasal mucosa (1, 7). The most commonly reported symptoms of COVID-19 infection are cough, high fever, sore throat, headache, stuffy nose, malaise, decreased sense of taste and smell, and muscle aches (7-11). While it may be asymptomatic or cause simple upper respiratory illness in the healthy population aged 65 and under, it can cause highly severe infections and death in those aged 65 and over and in individuals with the chronic disease when infected with COVID-19 (1, 12-14). Many countries implemented necessary measures such as curfews, suspension of face-to-face education, social distance in public areas, mask use, and isolation of patients and contacts because of the COVID-19 virus's high infectivity (5, 11, 15-18). COVID-19 infection is still widespread over the world and in our country, despite official precautions. The requirement for home follow-up, clinical therapy, and intensive care grows as the number of cases grows (8, 17, 19, 20). Nursing services occupy an important place in the health care of patients with COVID-19 infection. Nurses who care for patients infected through direct contact with COVID-19 are among the groups at the highest risk for virus transmission in society (5, 11, 19, 21, 22). Our country announced that 10.9% of infected patients were healthcare workers by September 2021, and 216 died from COVID-19 (23). Depending on the amount of time elapsed, it is estimated that this rate has increased significantly (23).

In the context of employee health and safety, patient safety, and the protection of society, it is critical that all healthcare professionals responsible for the care of patients diagnosed with COVID-19 and treated in hospitals fully comply with standard infection control precautions (5, 11, 12, 19, 23, 24). In particular, nurses working in pandemic clinics use full and proper protective equipment and pay attention to hand and material hygiene, which is critical for controlling infection (9, 22, 25). It has been reported that conditions such as the increase in nurses' working hours with the COVID-19 epidemic, the insufficient number of experienced staff, the decrease in the working comfort of protective equipment such as overalls, special masks, visors, and the inadequacy of protective equipment, the frequent use of equipment requiring special equipment such as ventilators, the patient follow-up 24/7 increase work-related psychological stress in healthcare workers (12, 18, 26-30). The thought that nurses might contract COVID-19 infection die from transmitting the disease to family members, or cause the death of a loved one often causes anxiety and fear among professionals (10, 15, 26, 31, 32). The mortality rate from COVID-19 is higher among healthcare workers than the mortality rate in the general population increases the level of anxiety and fear among nurses while increasing the perceived individual COVID-19 risk (8, 10, 26, 29, 33). It is reported that the perceived level of risk for a disease is an essential determinant of the individual's protective behavior to avoid getting that disease (20, 25).

Authorities such as CDC and ECDC, effective in global standards, have established standard precautions that healthcare professionals must diligently follow to protect themselves from infectious diseases as part of patient and employee safety. In hospitals, infection control committees monitor compliance with these standard precautions. Hospital infection control committees implement standard precautions to protect patients and healthcare workers from hospital-acquired pathogenic microorganisms, including the COVID-19 virus (112). In this context, compliance to standard precautions in controlling COVID-19 in pandemic clinics is critical, particularly concerning staff safety (128). The literature reports that individuals' COVID-19 fear and perceived COVID-19 risk at an acceptable level may increase compliance to standard infection prevention precautions, while their perception at a very high level may lead to an adverse effect consistent with the view that the disease is an inevitable outcome (13, 25, 33). There is no study in the literature examining the association between COVID-19 fear and perceived COVID-19 risk among nurses

and the level of compliance with standard infection control precautions. This study aims to examine the relationship between COVID-19 fear and the perceived COVID-19 risk and compliance with standard precautions among nurses working in pandemic clinics.

MATERIALS AND METHODS

Research Design

This study was conducted as a study in a cross-sectional design. The study was applied between November 2020 and January 2021 in the COVID-19 pandemic clinics of a training and research hospital in Ankara. The study's population consists of 350 nurses who work as nurses in the training and research hospital where the application was submitted and in pandemic clinics. The sample is made up of 194 individuals that took part in the study. Nurses who worked in the pandemic clinic for less than seven days were excluded from the study. Criteria for inclusion in the research; volunteering for research, to do the nursing profession and exclusion criteria; working in a shorter time in feeding in the pandemic clinics.

Sample Size and Characteristics

The study's sample size was calculated by assuming that the relationship between the G Power 3.1.9.2 package program and the Fear of COVID-19 Scale in nurses and the perceived COVID-19 risk score and the standard measures scale score was moderate reaction size. When d=0.30, it was calculated that at least 134 nurses should be included in the research at the 95% power and 0.05 error level (G* Power 3.1.9 2 sample size calculation). It was decided to contain 10% backup participants during the examination period to accommodate possible data loss. In this regard, the study's sample size was set at 148 participants. The study comprised 194 nurses who volunteered to participate.

Data Collection Forms

The researchers created the data collecting form used in this study as a result of their review of the literature (3, 8, 9, 11-13, 15, 22, 24, 27, 30, 34-36). The data collection form consists of four main parts. Included in these sections are the introductory information form (15 questions), the Fear of COVID-19 Scale (7 items), the COVID-19 Perceived Risk Scale (8 items), the Standard Precautions Scale (20 items).

The Fear of COVID-19 Scale (FC-19S)

The Turkish validity and reliability study of the Fear of COVID-19 Scale developed by Ahorsu et al. was carried out in 2020 by Satıcı et al. the Fear of COVID-19 Scale is one-dimensional and consists of 7 items. On the five-point Likert scale, each item is rated "1 = I strongly disagree," "2 = I disagree," "3 = I am undecided," "4 = I agree," and "5 = I strongly agree." There are no reverse-coded items on the

scale (14, 15). The total score of the scale is between 7 and 35 points. The cut-off point of the scale was calculated to be 16.5, and the Cronbach α was 0.87 in the study by Nikopoulou et al. (2020) (37).

Perceived of COVID-19 Risk Scale (PCRS)

Yıldırım and Güler produced the Perceived of COVID-19 Risk Scale in 2020 by modifying the "SARS Risk Perception Scale" developed by Brug et al. in 2004 to COVID-19 (3, 34). The scale consists of two sub-dimensions, cognitive and emotional, and eight items. The cognitive sub-dimension of the scale consists of 1st, 2nd, 3rd, and 4th items. The emotional sub-dimension consists of 5th, 6th, 7th, and 8th items. The five-point Likert scale is rated between "1 = very unlikely" and "5 = very likely". The scale is scored on both the total scores of the sub-dimensions and the total scores of the scale. The total score of the scale varies between 8 and 40. High scores on the scale indicate that the risk perception of COVID-19 is also high.

Compliance with Standard Precautions Scale (CSPS)

A scale is a measurement tool that health professionals use to self-assess whether they exhibit protective and safe behaviors in infection control and prevention (22). Simon Ching Lam developed the scale in 2011, and it is based on the CDC's international protective measures (9, 30). Samur et al. conducted the Turkish validity and reliability study of the scale in 2020. The one-dimensional and four-point Likert-style scale is ranked as follows: "1=never", "2=rarely", "3=sometimes", "4=always". When evaluating the scale, answer "always" is coded as "1 point" for positively scored items (1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19) and the other answers as "0 points". The answer "never" to the negatively scored items (2nd, 4th, 6th, and 15th items) of the scale is coded "1 point," and the other answers are coded "0 points". The total score that can be obtained from the scale varies between 0 and 20. The higher the score on the scale, the more compliance with standard measures is assumed to increase (9, 30). The mean of the scale was reported to be 12.8 by Pereira et al. (2021) (133).

Implementation of the Study

Institutional approvals were obtained for the conduct of this study from a non-interventional research ethics committee of a training and research hospital, "Ethics Approval," from the chief medical officer of the training and research hospital where the study was conducted, and from the Ankara Provincial Health Directorate, Medical Specialization Education Congress (MSEC, Conference No; 0109/11.11.2020). Due to the COVID-19 contact precautions, the nurses who met the criteria for inclusion in the study were prepared with Google Forms, and data collection forms were applied online after obtaining the specified permissions. At the beginning of the data collection form, participants were told the purpose of the study and

were asked to tick the box for participation and consent to participate in the first question. Participants were informed that their personal information would be protected and that their answers would never be disclosed by name, and they were asked to tick the appropriate options. Five people conducted the preliminary review of the data collection form, and it took an average of 20 minutes to complete the form.

Evaluation of Data

Data from the study are reported as mean±SD, median, and minimum maximum for variables determined by counting and percentage and variables determined by measurement. Whether the sample has a normal distribution in comparative statistics was analyzed using the Kolmogorov Smirnov Test. When comparing continuous data with independent variables from two groups, the Mann-Whitney U test was used. When comparing continuous data with more than two groups, the Kruskal Wallis Analysis of Variance was used. The group or groups that caused the difference were examined using the Kruskal Wallis Analysis Multiple Comparison Test. The SPSS program for Windows Version 20.0 was used for statistical analysis of the data. Spearman's correlation coefficient was used to examine the correlations between the scale scores and the continuous data. $p < 0.05$ was accepted as the statistical significance limit.

RESULTS

The mean age of participants was 29.01±6.73 (min.:21-max.:53). 46.0% (n=89) of the participants are in the "25-29 age group". 80.4% (n=156) of the participants in the study were female and 40.2% (n=78) were married. 64.9% (n=126) of participants reported a university degree, 26.8% (n=52) reported working in pandemic clinics for 10-12 months, 8.2% (n=16) reported having at least one chronic illness, and 41.8% (n=81) reported having relatives over 65 live and are in contact. When the COVID-19 histories of the participants were examined, it was found that 42.8% (n=83) of them were diagnosed with COVID-19, 73.5% (n=61) of them spent the treatment and quarantine process at home, and 18.6% (n=36) lost at least one relative due to COVID-19 (Table 1.).

Table 1. Distribution of Participants According to Socio-Demographical Characteristics (n=194)

		n	%
Age	20-24 age	45	23.1
	25-29 age	89	46.0
	30-34 age	26	13.4
	35-39 age	12	6.2
	40+	22	11.3
Gender	Female	156	80.4
	Male	38	19.6
Marital status	Single	106	54.6
	Married	78	40.2
	Other	10	5.2
Education status	High school (H.S.)	25	12.9
	Associate degree (A.D)	29	14.9
	University	126	64.9
	Graduate education (G.E.)	14	7.3
Total career years	0-1 year	32	16.5
	2-5 years	54	27.8
	6-10 years	65	33.5
	11+	43	22.2
Career years in pandemic clinics (months)	7 days- 3 months	51	26.3
	4-6 months	27	13.9
	7-9 months	64	33.0
	10-12 months	52	26.8
Chronic disease	Yes	16	8.2
	No	178	91.8
Living with a person over 65	Yes	81	41.8
	No	113	58.2
Showing symptoms of COVID-19	Yes	100	51.5
	No	94	48.5
Diagnosed with COVID-19	Yes	83	42.8
	No	111	57.2
Do you have a relative who died due to COVID-19?	Yes	36	18.6
	No	158	81.4
Have you received any treatment for COVID-19 during the pandemic? (n=83)	I stayed in isolation at home and did not receive treatment.	14	16.9
	I was hospitalized and received my treatment.	8	9.6
	I received the treatment at my home.	61	73.5

It was found that the mean score of the participants on the Fear of COVID-19 Scale was 19.83±6.36. It was found that participants in the study had a Cognitive COVID-19 Perceived Risk Scale mean score of 13.55±2.94, an Emotional COVID-19 Perceived Risk Scale mean score of 16.34±3.15, and a COVID-19 Perceived Risk Scale total mean score of 29.89±5.26. In this study, the mean Compliance with Standard Precautions Scale score was 14.05±2.81 (Table 2.).

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Table 2. Participants' The Fear of COVID-19 Scale, Perceived COVID-19 Risk Scale Mean Scores, and Cronbach α Values

	Items	Mean ±SD	Median (Min.-Max.)	Standard Min.-Max.	Cronbach α
FC-19S	7	19.83±6.36	20 (7-35)	7-35	0.89
Cognitive PCRS	4	13.55±2.94	14 (4-20)	4-20	0.64
Emotional PCRS	4	16.34±3.15	17 (4-20)	4-20	0.77
Total of PCRS	8	29.89±5.26	30 (10-40)	8-40	0.78
CSPS	20	14.05±2.81	14 (0-19)	0-20	0.68

As a result of comparing some characteristics of the participants with the mean scores of The Fear of COVID-19 Scale, it was found that there was a statistically significant difference between the mean scores of the Fear of COVID-19 Scale with a duration of signs of COVID-19, living with a person over 65 years of age, and working in pandemic clinics (p< 0.05). According to the Kruskal Wallis analysis of variance, it was found that the difference between the duration of work in the pandemic clinic and the mean of the Fear of COVID-19 Scale was between the mean of those who worked 10-12 months and those who worked 7-9 months (H=28.233; p=0.042). There was no statistical difference between the groups when it came to gender, education level, marital status, length of employment, department in which they worked, chronic disease status, diagnosis COVID-19 and loss of a relative due to COVID-19, treatment type of COVID-19, and mean the Fear of COVID-19 Scale (p< 0.05) (Table 3.).

It was found that there was a statistical difference between participants' level of education, presence of chronic disease, living with someone over 65 years of age, presence of signs of COVID-19, and mean total score of COVID-19 Perceived Risk Scale (p< 0.05). The Kruskal Wallis Analysis of Variance revealed a statistically significant difference between graduate-educated participants' COVID-19 Perceived Risk Scale averages and those with associate degree education (H=49.309; p=0.041). There was no statistical difference between the groups when gender, education level, marital status, length of employment, department, hours worked at the pandemic clinic, diagnosis COVID-19, loss of a relative due to COVID-19, type of COVID-19 treatment, and the Emotional COVID-19 Perceived Risk Scale mean score were compared (p< 0.05) (Table 3.).

When comparing gender, education level, marital status, presence of chronic disease, hours worked at work, department, hours worked at the pandemic clinic, living with someone older than 65 years, presence of signs of COVID-19, diagnosis of COVID-19, loss of a loved one due to COVID-19, method of treatment COVID-19, and mean Compliance with Standard Precautions Scale, no statistically significant difference was found between groups (p< 0.05) (Table 3).

Table 3. Comparison of Some Characteristics of the Participants and the Average Scores of the Fear of COVID-19 Scale. the Perceived COVID-19 Risk Scale and the Standardized Precautions Compliance Scale

	FC-19S			Cognitive PCRS			Emotional PCRS			PCRS Total			CSPS		
	Mean ±SD	Statistics	*p*	Mean ±SD	Statistics	*p*	Mean ±SD	Statistics	*p*	Mean ±SD	Statistics	*p*	Mean ±SD	Statistics	*p*
Education status															
H.S.	18.96±7.47			13.36±2.88			15.92±3.64			29.28±5.45			14.20±2.55		
A.D.	21.31±5.35	4.881[a]	0.181	14.62±3.06	9.085[a]	0.028*	16.76±2.57	4.284[a]	0.232	31.38±4.78	7.890[a]	0.048*	13.21±4.19	0.507[a]	0.917
University	20.04±6.15			13.57±2.77			16.52±3.07			30.09±5.03			14.21±2.42		
G.E.	16.43±7.24			11.50±3.46			14.64±3.67			26.14±6.50			14.07±3.02		
Chronic disease															
Yes	23.19±6.23	1030.0[b]	0.066	15.06±3.55	980.5[b]	0.038*	17.87±1.86	1008.0[b]	0.051	32.94±4.82	914.0[b]	0.018*	14.69±2.96	1122.5[b]	0.157
No	19.53±6.30			13.42±2.85			16.20±3.20			29.62±5.22			13.99±2.80		
Living with a person over 65															
Yes	21.47±6.06	3494.0[b]	0.005*	14.20±2.68	3605.5[b]	0.011*	17.09±2.71	3531.0[b]	0.006*	31.28±4.57	3432.5[b]	0.003*	14.25±3.06	406.0[b]	0.177
No	18.65±6.33			13.09±3.05			15.81±3.33			28.89±5.50			13.90±2.62		
Career years in pandemic clinics															
7 day 3 mo	19.98±7.27			13.45±3.16			16.39±3.56			29.84±5.76			14.02±2.60		
4-6 mo	18.63±5.93	9.499[a]	0.023*	12.52±2.78	5.573[a]	0.134	15.78±3.94	3.922[a]	0.270	28.30±5.99	5.762[a]	0.124	13.70±3.12	0.209[a]	0.976
7-9 mo	21.47±5.00			14.12±2.24			16.97±2.32			31.09±3.81			14.27±2.62		
10-12 mo	18.29±6.76			13.48±3.44			15.81±3.09			29.29±5.69			13.98±3.11		
Showing symptoms of COVID-19															
Yes	20.90±6.45	2.333[b]	0.02*	14.04±2.67	2.345[b]	0.019*	16.92±2.84	2.577[b]	0.01*	30.96±4.62	2.682[b]	0.007*	13.93±3.14	0.026[b]	0.979
No	18.69±6.08			13.03±3.14			15.72±3.35			28.75±5.67			14.17±2.42		
Do you have a relative who died due to COVID-19?															
Yes	20.33±7.29	2654.5[b]	0.532	14.88±2.86	2002.0[b]	0.005*	16.36±3.01	2822.5[b]	0.943	31.25±5.04	2441.5[b]	0.185	14.00±2.88	2837.0[b]	0.981
No	19.71±6.15			13.25±2.88			16.33±3.18			29.58±5.27			14.06±2.80		

FC-19S: The Fear of COVID-19 Scale
PCRS: Perceived of COVID-19 Risk Scale
CSPS: Compliance with Standard Precautions Scale
a: Kruskal Wallis analyze
b: Mann Whitney U analyze
*: *p*<0.05
mo: Month

In the analyzes conducted, no statistically significant correlation was found between participants' mean scores for Compliance with Standard Precautions Scale and overall score averages of The Fear of COVID-19 Scale, Cognitive COVID-19 Perceived Risk Scale, Emotional COVID-19 Perceived Risk Scale, and COVID-19 Perceived Risk Scale (p>0.05) (Table 4).

Table 4. The Correlation between the Fear of COVID-19 Scale, the Perceived COVID-19 Risk Scale, and the Scale of Compliance with Standard Precautions Scale

	CSPS	
	r	p
FC-19S	0.090	0.213
Cognitive PCRS	0.019	0.796
Emotional PCRS	0.069	0.336
Total of PCRS	0.052	0.473

FC-19S: The Fear of COVID-19 Scale
PCRS: Perceived of COVID-19 Risk Scale
CSPS: Compliance with Standard Precautions Scale
r = Spearman's Correlation

DISCUSSION

The Relationship Between Participants' The Fear of COVID-19 Scale, COVID-19 Perceived Risk Scale, Compliance with Standard Precautions Scale Scores, and Some Characteristics

Nurses are among the occupational groups at the highest risk of COVID-19 transmission compared with the general population. While the literature reports that studies identifying COVID-19 nurses' fear levels are limited, it does indicate that nurses' COVID-19 fear levels are higher than those identified in the general population (10, 24, 38). In a study by Doshi et al. (2020), it was reported that the level of COVID-19 fear is above average and high among healthcare workers (39). In a study of nurses conducted by Leodoro et al. (2020), the mean the Fear of COVID-19 Scale is found to be higher than the median. Similar to the literature, the average score of participants in this study was the Fear of COVID-19 Scale above the mean level (40). Although more than a year has passed since the outbreak of the COVID-19 pandemic, COVID-19 fear is still considered to be above the mean among nurses. This is due to factors such as the fact that immunization to fight the infection is not yet widespread, and the virus mutates, increasing the potential for transmission (40, 41).

Fever, cough, myalgia, malaise, loss of taste and smell, and headache are common symptoms of COVID-19 infection (42-44). Experts say any of these symptoms may indicate COVID-19. Individuals who notice these symptoms in themselves may be concerned about suspecting COVID-19. Experienced anxiety can cause the development of COVID-19 fear (7, 14, 39, 40, 45). the Fear of COVID-19 Scale level of the participants who had COVID-19 symptoms was above the medium level and higher than the other participants, according to the data obtained in the study to support this information. No studies were found in the literature examining the relationship between the state of showing symptoms of COVID-19 in nurses and the Fear of COVID-19 Scale.

It is reported that the highest morbidity rate of COVID-19 infection is in the 65+ age group (44, 46, 47). Nurses restricted physical contact with their relatives because they feared transmitting the pathogen COVID-19 to their loved ones in the hospital environment (45, 48). The literature reports that nurses who work in pandemic clinics and live with or frequent contact with persons over 65 years of age change their residence (49). In this study, participants who had contact with relatives over 65 had the Fear of COVID-19 Scale level above the medium level and higher than the other participants (45, 50). The results suggest that due to the high morbidity rate COVID-19 in older age groups, participants who have relatives over 65 experience higher anxiety levels because they fear losing their relatives. Similar to this study, Maunder et al. (2021) reported who have relatives over 65 experience higher anxiety levels because they fear losing their relatives among health workers (50){Maunder, 2021 #351}.

Nurses are one of the occupational groups whose working conditions have changed the most in the wake of the COVID-19 pandemic (48). It is reported that during the pandemic, nurses' workload increased, and their working hours were extended. During this process, infected nurses were quarantined, and the number of nurses working in the departments was reduced from time to time. Approximately half of the participants (42.8%) in this study had COVID-19. Although there was a significant difference between the length of time participants worked in the pandemic clinic and their COVID-19 fear level, it was found that the difference was between those who worked 7-9 months in the COVID-19 units and those who worked 10-12 months. This result reflects that COVID-19 fear level is highest among those who work in the pandemic clinic for 7-9 months and decreases among those who work for almost a year. As for

employee COVID-19 fear, it is envisaged that working hours in pandemic clinics may pose a risk.

The literature finds that cognitive and emotional risk perception of COVID-19 is positively associated with the prevention behaviors of COVID-19. However, excessively perceived risk is also reported to be related to many psychological health problems such as fear, anxiety, anxiety, stress, death, decreased life satisfaction, sleep disturbances, suicidality, and ineffective coping(51). Studies have shown that health professionals have a higher than average perception of risk COVID-19 (52, 53). Similar to the literature, the perceived cognitive, emotional, and total COVID-19 risk perception of the participants in this study was above average. According to recent data, 10.9% of infected patients in our country are healthcare workers, and 216 died due to COVID-19 (23). Factors such as exposure to COVID-19 during prolonged shifts, pandemic conditions, and loss of colleagues to COVID-19 are thought to contribute to the high perceived COVID-19 risk among participants. (48, 49)

Postgraduate education seeks to transfer acquired theoretical knowledge into practice using the scientific method by teaching nurses the skills of critical thinking, critical decision making, analysis, and evaluation of nursing outcomes (54, 55). Sperling et al. (2020) reported that perceived risk increases with increasing education level (48). When this study examined perceptions of COVID-19 cognitive risk and total risk as a function of educational level, it was found that, in contrast to the literature, the risk scores of associate degree graduates were significantly higher than those of university degree participants. Based on the constant updating of what is known about COVID-19, postgraduates are thought to be a better-off group than associate degree graduates in terms of access to scholarly resources, mastery of the literature on the subject, the pursuit of current practices, and awareness of the unknown. At the same time, postgraduate participants are found to perceive lower COVID-19 risk than associate degree participants, given their advanced knowledge and skills in crisis management, problem-solving, and risk management (56, 57).

In the CDC's "serious disease" classification, it is reported that persons over 65 years of age and persons with chronic diseases are at high risk for COVID-19 (58). The literature reports that nurses with chronic illnesses have a higher perception of risk COVID-19 (48, 59). A study conducted by Yıldırım et al. (2020) found that healthcare professionals with chronic diseases perceive a high level of cognitive and emotional risk (3, 36). Similar to the literature, this study found that risk perception of COVID-19 was higher in participants with chronic diseases than in participants without chronic diseases. Working in close contact with COVID-19 is a factor that facilitates the contagion of the disease. The fact that participants working in close contact with the active agent also have one of the chronic diseases defined as a risky condition may increase the likelihood of infection COVID-19. In this context, participants with chronic diseases are expected to be at high COVID-19 risk. In a study by Sperling et al. (2020),

individuals aged 65 years and older are considered to be an age group at high risk for COVID-19 disease (48). Similarly, individuals in the at-risk group over the age of 65 have been reported in the literature to have a higher perception of risk COVID-19 (48, 53, 60). It is predicted that due to the fear and anxiety of participants who are at risk of transmission due to close contact with the COVID-19 agent, the fear and anxiety of transmitting the pathogen to their relatives who are in the high-risk category for the disease, the COVID-19 infection will be perceived as much more dangerous. Therefore, the perceived risk of disease will also be high.

Fever, cough, myalgia, malaise, loss of taste and smell, and headache are common symptoms of COVID-19 infection (42-44). The literature reports that nurses working in pandemic clinics often monitor themselves for COVID-19 symptoms to avoid infecting their families and colleagues (49). The literature reports that when nurses notice at least one of the symptoms of COVID-19, they become concerned and begin to diagnose the disease (61, 62). Dryhurst et al. (2020) found in their study that symptomatic individuals perceive a higher COVID-19 risk than individuals who do not have symptoms (52). In this study, half of the participants showed symptoms of COVID-19 (51.5%), almost half of them were diagnosed (48.2%), about one in five participants (18.6%) lost at least one relative due to infection, and given the high level of COVID-19 fear, it is hypothesized that participants who reported symptoms were concerned about becoming infected, and therefore the perceived COVID-19 risk was high. Similarly, it is interpreted that those who have lost at least one of the participants' relatives through COVID-19 may be afraid of experiencing the same loss again. Therefore, the perceived level of risk is higher than among participants who have not experienced a loss. No study comparing the loss of a relative due to COVID-19 and the perception of COVID-19 risk among nurses was found in the literature.

No other study was found in the literature that addressed the relationship between marital status, change of residence, living with a person over 65 years of age, unit, and duration of work in the pandemic unit, the onset of symptoms of COVID-19, diagnosis of COVID-19, diagnosis of COVID-19 in cohabitants, loss of a relative due to COVID-19, treatment of COVID-19, and compliance with standard precautions. In the analysis conducted in this study, it was found that there was no relationship between the variables listed above and the participants' standard compliance scores.

The most basic measures in the fight against COVID-19 are considered personal hygiene, social distance, and isolation. In the literature, the measures to be taken at the social level for COVID-19 are limited to these three headings, and it has been reported that precautions for nurses caring for patients infected with COVID-19 in hospitals and belonging to high-risk occupational groups should be studied in more detail (20, 129, 133). A study by Hailey et al. (2020) reported that nurses were the occupational group most adapted to protective behaviors in the COVID-19 pandemic (128). Standard precautions for healthcare workers for

COVID-19 include using PPE to prevent the transmission of microorganisms from body fluids such as blood, urine, stool, and environmental waste (27). A study conducted in Brazil by Pereira et al. (2021) reported that the average compliance of nurses with standard precautions during the pandemic COVID-19 was 12.8 (133). This study found that participants' compliance with standard pandemic precautions COVID-19 was better than the literature and average.

Regardless of the age, gender, work experience, etc., of nurses worldwide, it is necessary to follow standard precautions to prevent all types of infections and transmissions when performing nursing services (27). During the COVID-19 pandemic, in-service training, follow-up, and inspections to control infection and prevent transmission were carried out very carefully, while the nursing service in general, especially in the high-risk clinics in the major cities of our country. To avoid the spread of COVID-19 infection in our country, efforts were made to raise individual awareness, particularly regarding PPE knowledge, attitude, and behavior, and run an effective struggle process as a healthcare team (63-66). The prevalence of COVID-19 infection, high mortality, a lack of data on long-term morbidity, and the classification of nursing as a high-risk profession in terms of infection are thought to be the most important factors affecting compliance with standard precautions.

Correlations Between Respondents' COVID-19 Fear and the Degree of Perceived COVID-19 Risk and Their Compliance with Standard Precautions

The fact that the COVID-19 process is taking longer than expected and the mortality rate is still high affects the COVID-19 fear and perceived risk levels of healthcare professionals (48). A study by Harper et al. (2020) reported a positive and moderate correlation between COVID-19 fear and perceived risk (24). Other studies in the literature report a positive correlation between COVID-19 fear and perceived risk (10, 67, 68). In this study, similar to the literature, it was found that there was a moderate positive relationship between COVID-19 fear and perceived COVID-19 risk.

Although fear is defined as a negative emotion from a psychological perspective, it is an essential element that drives the individual to engage in protective behaviors in various situations. Low levels of fear at pathological levels have been reported to increase risk-taking and even prevent protective behaviors in public during the pandemic COVID-19 (24, 69). In their study, Oh et al. (2020) reported that current risk fear and protective behaviors are related (70). Parallel to this information, studies in the literature report that a person who experiences fear develops an adaptation to health-protective behaviors (24, 36, 41, 71-74). However, in this study, no correlation was found between COVID-19 fear level and standard compliance. In reviewing the literature, it was found that studies that determined the correlation between the level of COVID-19 fear and compliance with protective measures were generally either community-based or conducted with health workers and students studying in the health field, and data were collected using a variety of

measurement instruments. The participants in this study are nurses who are at the forefront of the fight against COVID-19. Data collected in the study were based on a scale established by the CDC that includes standard infection control practices nurses should use when caring for patients in hospitals. The data obtained in this study show that participants' compliance with the standard measures is above average.

Risk is the danger of being harmed by an existing threat, according to TLA (Turkish Language Association) (2020). On the other hand, perceived risk encompasses the individual's ability to assess the magnitude of the threat and their reactions to it (75). It is reported that the behavior of individuals who have a perception of risk in a matter is influenced toward the threat at the time of potential danger, depending on the exposure time of the danger (34). In the COVID-19 pandemic, Harper et al. (2020) found a positive, moderate correlation between perceived COVID-19 risk and society's ability to adapt to infection control measures (handwashing, quarantine, etc.) (24). Individuals with a high perceived COVID-19 risk showed positive compliance with protective behaviors, according to a study conducted by Yıldırım et al. (2020 (36). Studies in the literature also find a positive correlation between perceived risk and compliance with protective behaviors, similar to this information (34, 41, 76). However, this study found no difference between the perceived COVID-19 risk and compliance with standard precautions. In reviewing the literature, it was noted that the studies that determined the correlation between perceived COVID-19 risk and compliance with preventive measures were generally population-based, and the data were collected using different measurement tools. The participants in this study are nurses. The data obtained in the study were obtained using a different measurement tool that includes standard infection control measures that nurses should pay attention to in-hospital care. According to the data obtained in this study, participants are more likely than average to compliance to standard precautions.

In conclusion: Based on the study results, it was found that participants' COVID-19 fear, perceived COVID-19 risk, and compliance with standard precautions was above average. To fight COVID-19 more effectively at the pandemic level, it is recommended that training, counseling, surveillance, and inspection activities to improve adherence to standard precautions be strengthened, especially among nurses working in pandemic clinics. Given the limited number of studies in the literature addressing COVID-19 fear, perceived COVID-19 risk, and compliance with standard precautions, there is a need for similar studies replicated in different cultures, as well as studies demonstrating the effects of intervention studies and interventions on fear, perceived risk, and standard compliance levels.

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