ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

Impact of COVID-19 Pandemic on Coronaphobia of Nurses: An Analytical Cross-Sectional Study

COVID-19 Pandemisinin Hemşirelerin Koronafobisi Üzerine Etkisi: Analitik Kesitsel Bir Çalışma

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ABSTRACT Objective: This study aimed to determine the effect of individual and professional characteristics of nurses on the prevalence of coronaphobia during the coronavirus disease-2019 (COVID-19) pandemic. **Material and Methods:** This research was designed as an analytical cross-sectional study and the "Strengthening the Reporting of Observational Studies in Epidemiology" checklist was used. As of 2020, all of the nurses (198,465) in Türkiye constituted the population of the study, and of 605 nurses (511 females, 94 males) that could be reached by the snowball method the sample. Data were collected online through the submission of a Personal Information Form and the COVID-19 Phobia Scale. The data were analyzed through SPSS software packages using Pearson's correlation and variance analyses. **Results:** Fear of COVID-19 was found to be higher in married nurses than were single nurses. In addition, it is indicated that nurses with children and women nurses have a high level of fear of COVID-19. The highest total scores were recorded in nurses with one child, those living in the Black Sea region, those working in intensive care units, and those with 6 to 10 years of work experience. Coronaphobia was higher in nurses who had tested positive or had at least one family member or friend test positive for COVID-19. **Conclusion:** Sex and having child stand out as important factors in coronaphobia. Nurses with more professional experience and those working in intensive care units also demonstrated higher levels of coronaphobia.

Keywords: COVID-19; phobia; nursing; Türkiye

ÖZET Amaç: Çalışmanın amacı; koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] salgın sürecinde hemşirelerin bireysel ve çalışma özelliklerinin koronavirüs fobisi üzerine etkisinin belirlenmesidir. **Gereç ve Yöntemler:** Bu çalışma, analitik kesitsel çalışma olarak tasarlandı ve "Epidemiyolojide Gözlemsel Çalışmaların Raporlanmasının Güçlendirilmesi Beyanı" kontrol listesi kullanıldı. 2020 yılı itibari ile Türkiye'deki hemşirelerin tamamı (198.465) araştırmanın evrenini, örneklemini ise kartopu yöntemi ile ulaşılabilen 605 hemşire (511 kadın, 94 erkek) oluşturmaktadır. Veriler "Kişisel Bilgi Formu" ve "Koronavirüs-19 Fobisi Ölçeği" kullanılarak çevrim içi olarak toplandı. Veriler, Pearson korelasyon ve varyans analizleri kullanılarak SPSS yazılım paketleri aracılığıyla analiz edildi. **Bulgular:** COVID-19 korkusu evli hemşirelerde bekâr hemşirelere göre daha yüksek bulunmuştur. Ayrıca çocuklu hemşirelerin ve kadın hemşirelerin COVID-19 korkusunun yüksek düzeyde olduğu görülmüştür. En yüksek toplam puan tek çocuklu hemşirelerde, Karadeniz bölgesinde yaşayanlarda, yoğun bakımda çalışanlarda ve 6-10 yıl arası iş tecrübesi olanlarda kaydedildi. Koronafobi, COVID-19 testi pozitif çıkan veya en az bir aile üyesi veya arkadaşının COVID-19 testi pozitif olan hemşirelerde daha yüksekti. **Sonuç:** Cinsiyet ve çocuk sahibi olma durumu koronafobide önemli etkenler olarak öne çıkmaktadır. Ayrıca daha uzun süre mesleki deneyimi olan ve yoğun bakımda çalışanlarda koronafobi düzeyi daha yüksek bulundu.

Anahtar Kelimeler: COVID-19; fobi; hemşirelik; Türkiye

The new coronavirus disease known as coronavirus disease-2019 (COVID-19) is an acute respiratory infection caused by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), which poses a serious threat to public health worldwide.[1] The World Health Organization (WHO) classified the COVID-19 outbreak as an "international public health emergency" on January 30, 2020.[2]

Since being declared a pandemic by the WHO, the COVID-19 pandemic has affected all aspects of life.[2] Continuing to working during a pandemic is itself a challenge.[3] Nurses, in particular, are confronted with this challenge, as they are at the forefront of the provision of health services, both in the fight against the pandemic and in the care of other diseases. They provide direct care to patients and maintain close

physical contact, leading to direct exposure to infectious pathogens and a high risk of contracting the virus.[4]

Pandemics endanger both the physical and psychosocial health of health care professionals who are directly involved in the diagnosis, treatment, and care of infected patients. The COVID-19 pandemic has been no less serious in this regard.[5] Seeing one's physical and spiritual existence put into danger can lead to uneasiness, fear, and anxiety. Fear is defined as a reactive mood that is triggered by a real or perceived threat and accompanied by autonomic arousal, urgent thoughts of danger, and escape behaviors.[6] A pathological fear is called a phobia.[7] A phobia is a special anxiety disorder that is frequently seen in society and is defined by a constant and extreme fear of an object or a situation.[7,8]

Coronaphobia, a term coined to define the fear of contracting SARS-CoV-2, has been shown to be more prevalent than fear of seasonal influenza, even though the influenza virus has killed significantly more people, and has become one of the important determinants of post-traumatic stress in individuals during the current pandemic.[9] In addition, coronaphobia is defined as a disproportionate state of anxiety or uncontrollable fear due to the COVID-19 pandemic that causes disruptions in behavior and psychological well-being that hinder daily life.[10]

Among all health care professionals, nurses have the closest contact with COVID-19 patients who require hospitalization, interacting directly with the patient for a relatively long time while providing care for them. This close contact causes concern among nurses.[11] Other sources of concern for nurses include inadequate supply of personal protective equipment, lack of access to COVID-19 testing, uncertainty that their institution will adequately support them if they become infected, lack of access to up-to-date information on COVID-19, fear of transmitting the virus to family members or other health care team members, and fear of being assigned to another unit.[12]

During the COVID-19 pandemic, nurses who come into direct contact with a potentially deadly virus are faced with the stress of balancing high concern for personal or family health and the ethical obli-

gations of continuing to provide patient care.[13] In their study evaluating the psychological well-being of health professionals, Cao et al. reported that health care workers had to stay in the hospital continuously for two to three weeks, work long hours, and remain isolated in various facilities for two weeks before being allowed to go home in order to reduce the risk of infecting others.[14]

In a study conducted on 402 nurses, the prevalence of coronaphobia was found to be 54.76%.[10] Another study carried out following the outbreak of COVID-19 reported that 36.9% of nurses had mental health below the normal threshold, with 34.4% having mild mental health challenges and 22.4% having moderate mental health challenges.[15] A study involving approximately 53,000 participants in China found that more than one-third (29%-35%) of nurses experienced mild to moderate psychological distress and 5% experienced severe psychological distress. Coronaphobia was one of the causes of psychological distress in this study.[16] Furthermore, nurses were found to perceive the personal risks of their profession as very high, leading some to leave their jobs.[4] So far, there has been limited research investigating the extent and degree of coronaphobia among nurses.

Therefore, our study aimed to determine the impact of individual and professional characteristics of nurses on coronaphobia during the COVID-19 pandemic. This study sought answers to the following research questions designed to reveal the extent of coronaphobia among nurses caused by the current pandemic.

■ What is the prevalence of coronaphobia among nurses?

■ Do the individual and professional characteristics of nurses play a role in coronaphobia?

MATERIAL AND METHODS

STUDY DESIGN

This was an analytical and cross-sectional study. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist was used (Appendix 1).

APPENDIX 1: STROBE Statement-Checklist of items that should be included in reports of cross-sectional studies.

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1-2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-5
Objectives	3	State specific objectives, including any prespecified hypotheses	5
Methods			
Study design	4	Present key elements of study design early in the paper	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers.	NA
		Give diagnostic criteria, if applicable	
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement).	6-7
		Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	5
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses.	6-7
		If applicable, describe which groupings were chosen and why	
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	7
		(c) Explain how missing data were addressed	NA
		(d) If applicable, describe analytical methods taking account of sampling strategy	7
		(e) Describe any sensitivity analyses	NA
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study-eg numbers potentially eligible,	NA
		examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on	8
		exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of interest	NA
Outcome data	15*	Report numbers of outcome events or summary measures	9-11
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision	NA
		(eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
		(b) Report category boundaries when continuous variables were categorized	11-12
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	12-15
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision.	16
		Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses,	16-17
		results from similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	16-17
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable,	17
		for the original study on which the present article is based	

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

PLACE AND TIME OF STUDY

Employing a cross-sectional design, this study was carried out between September 1, 2020, and September 19, 2020, with nurses working at health institutions in Türkiye. As of 2020, all of the nurses (198,465) in Türkiye constituted the population of the study, and all the nurses that could be reached by the snowball method constituted the sample.[17] According to the formula [n: (N.t2 .p.q)/(d2 .(N-1)+(t2 .p.q)] used to determine the sample number, the number to be reached is 426 nurses. The aim of the study was to work with the maximum number of nurses that could be reached. The sample of the study consisted of 605 nurses (511 females, 94 males) who were reached online and agreed to participate in the study.

DATA COLLECTION

Research data were collected through an online questionnaire survey to avoid bias. Data were collected after ethics committee approval and institutional permission was obtained. Data collection tools were prepared via Google Forms. The first contact with the participants was made via the mobile communication network by sending the questionnaire form link. Self-report responses were collected via an online questionnaire shared on social media networks. Before beginning the online questionnaire, the participants were informed of the study and confirmed their agreement to participate through the online system.

DATA COLLECTION TOOLS

The data in the study were collected over the internet through submission of the Personal Information Form and a web survey method called the COVID-19 Phobia Scale (C19P-S).

Personal Information Form: For the purpose of the study, a 15-question form was designed to determine the sociodemographic and professional characteristics of the nurse participants. The form was developed by the researchers based on previous work in the literature.[18,19]

C19P-S: The C19P-S was developed to measure participants' level of phobia related to COVID-19. Arpaci et al. carried out the validity and reliability study of this 20-item scale, calculating a Cronbach's alpha coefficient of 0.926. It is a five-point Likert-type scale that evaluates coronaphobia level through self-report.[18] The scale items are rated on a 1-to-5 Disagree-Agree response scale, with a rating of 1 representing "Strongly Disagree" and a rating of 5 representing "Strongly Agree." The total C19P-S score ranges from 20 to 100. Higher scores indicate higher levels of coronaphobia.[18] In this study, the Cronbach's alpha coefficient of the scale was found to be 0.931.

DATA ANALYSIS

Data were analyzed by IBM SPSS 22.0 (IBM Statistical Packages for the Social Sciences Corp.; Armonk, NY, USA) in a computer environment. Percentage and mean±standard deviation were used for descriptive statistics of numerical data. Independent sample t-test, one-way analysis of variance test, and Kruskal-Wallis test were used to determine differences between groups. Post hoc analyses (Turkey, Dunnet-C) were performed to determine where the significance of between-group differences (descriptive characteristics and total scores of variables) originated. Eta-squared evaluation was carried out to determine the level of difference between groups. Eta-squared values were interpreted as 0.01-0.05 for a small effect size, 0.06-0.13 for a medium effect size, and 0.14 and above for a large effect size.[20] Results were evaluated at a 95% confidence interval and a significance level of $p<0.05$. The Cronbach's alpha coefficient of the C19P-S was calculated.[21]

ETHICAL CONSIDERATIONS

Written approval and permission for the implementation of this study were obtained from the Republic of Türkiye Ministry of Health (approval number: T14_29_37, date: August 11, 2020) and Akdeniz University Clinical Research Ethics Committee (date: August 26, 2020, no: KAEK-671). The opening section of the questionnaire sent to the participants online explained the purpose and scope of the study and stated that participation in the study was based on the principle of voluntary participation, and written informed consent was obtained from each participant. Identity information was not recorded in the questionnaire. Permission for the use of the C19P-S was obtained from İbrahim Arpaci via email. This study adhered to the Declaration of Helsinki guidelines.[22]

RESULTS

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF PARTICIPANTS

The mean age of the participants was 32.32±8.37 and 84.5% were female, 55.7% were married, 50.7% had children, 70.9% were university graduates, and 40.2% had been working as a nurse for more than 10 years. Of the participants, 17.2% currently worked in a pandemic clinic, 21.3% had a chronic disease, 69.8% had a family member with a chronic disease, and 67.3% had tested positive or had at least one family member or friend test positive for COVID-19. Approximately 69.3% reported that they were in quarantine or had at least one family member or friend in quarantine due to COVID-19.

COMPARISON OF DEMOGRAPHIC CHARACTERISTICS AND MEAN SCORES FOR C19P-S OF THE NURSES

The mean total score for C19P-S among nurses was 56.03±13.9. The total scores differed significantly depending on marital status [$t(596)=3.892$, $p=0.000$, $\eta^2=0.02$], gender [$t(603)=3.115$, $p=0.002$, $\eta^2=0.01$]. While married nurses (57.95±14.7) had higher coronaphobia scores than unmarried nurses (53.53±12.5), women (56.79±13.9) experienced more coronaphobia than did men (51.93±13.3). The effect sizes of these differences were small (Table 1).

TABLE 1: T-test results for the comparison of demographic characteristics of the nurses and C19P-S total mean scores (n=605).

Variable	n	C19P-S total scale $\overline{X}$±SD
Marital status		
Single	262	53.53±12.5
Married	343	57.95±14.7
Test value		3.892[a]
p value		**0.000***
η2		0.02
Gender		
Female	511	56.79±13.9
Male	94	51.93±13.3
Test value		3.115[a]
p value		**0.002***
η2		0.01

[a]Independent sample t-test; *p<0.05; C19P-S: COVID-19 Phobia Scale; SD: Standard deviation.

The mean scores and mean ranks for C19P-S showed significant variations depending on number of children [$H(3)=13.171$, $p=0.042$], geographical region $H(6)=13.753$, $p=0.012$], work department [$H(8)=16.058$, $p=0.004$], and work experience [$F(3.601)=4.605$, $p=0.003$]. The highest C19P-S scores were found in nurses with one child (59.36), those living in the Aegean region (59.72), those working in intensive care units (58.13), and those with work experience between 6 and 10 years (57.97). However, it was found that the C19P-S total scores did not significantly differ according to participant place of residence and education level (Table 2).

COMPARISON OF COVID-19 POSITIVE AND QUARANTINE STATUS AND MEAN SCORES FOR C19P-S

The mean total scores for C19P-S showed significant differences according to COVID-19 positive status [$t(603)=1.953$, $p=0.05$, $\eta^2=0.01$]. Participants who tested positive for COVID-19 or had a positive family member or friend had higher total scores (56.81) compared to those who did not (54.44). However, the mean total scores for C19P-S did not differ significantly according to quarantine status (Table 3).

The relationship between the economic subscale and the social subscale was found to be positive, significant, and moderate (r=0.61, p=0.000), whereas a positive, significant, and high correlation was detected between the social subscale and the economic subscale (r=0.70, p=0.000). The scatter diagram illustrating the correlation between the C19P-S subscales is presented in Figure 1.

RELATIONSHIP BETWEEN C19P-S SUBSCALE SCORES

The correlation between C19P-S subscales is presented in Table 4. There was a positive, significant, moderate correlation between the psychological subscale and the psychosomatic (r=0.63, p=0.000) and economic (r=0.50, p=0.000) subscales and a positive, significant, high correlation between the psychological subscale and the social subscale (r=0.77, p=0.000). In addition, there was a positive, significant, moderate correlation between the psychoso-

TABLE 2: The results of analysis of variance to compare the demographic and clinical characteristics of the participants and the COVID-19 Phobia Scale total mean scores (n=605).

Variable	n	Total scale X̄±SE	Test value	p value
Area of residence				
Province	508	55.99±0.61	0.003[b]	0.985
District	90	56.11±1.50		
Town/Village	7	58.42±6.30		
Education				
Vocational high school of health	40	58.30±2.30	1.265[b]	0.867
Associate degree	62	56.22±1.80		
Undergraduate	429	56.20±0.68		
Master	65	53.63±1.46		
Doctor of philosophy	9	54.00±4.30		
Number of children				
No children	298	54.20±0.74	13.171[b]	**0.004***
1 child	138	59.36±1.28		
2 children	136	57.52±1.27		
3 or more children	33	52.57±1.98		
Geographical region				
Mediterranean	341	56.33±0.77	13.753[b]	**0.012***
Aegean	47	59.72±2.10		
Marmara	73	51.45±1.37		
Central anatolia	76	57.03±1.53		
Eastern anatolia-black sea	38	54.31±4.13		
Southeastern anatolia	30	57.60±2.74		
Department				
COVID-19 clinic	104	57.23±1.42	16.058[b]	**0.042***
Emergency service COVID-19 unit	29	48.58±2.23		
Emergency department	66	53.34±1.47		
COVID-19 intensive care units	53	57.84±1.73		
Intensive care units	92	58.13±1.50		
Internal medicine clinics	74	55.37±1.73		
Surgery clinics	90	55.97±1.56		
Operating room	55	55.38±1.71		
Family health centers	42	57.76±2.21		
		Total scale X̄±SD		
Work experience				
Under 12 months	107	52.60±10.2	4.605[a]	**0.003***
12 months-5 years	129	54.77±13.8		
6-10 years	126	57.97±14.6		
Over 10 years	243	56.69±14.6		

[a]One-way ANOVA; [b]Kruskal-Wallis test; *p<0.05; SE: Standard error; SD: Standard deviation.

matic subscale and the economic subscale (r=0.65, p=0.000).

DISCUSSION

The COVID-19 pandemic has had an immense global impact in a very short time and all countries have had to put into effect unprecedented restrictions, precautions, and measures. Türkiye temporarily closed universities and schools in an attempt to halt the spread of contagion and prevent the collapse of health systems. New measures were introduced, including work-from-home options, multi-tier shift schedules, non-essential service and restaurant restrictions, and weekend and overnight lockdowns.[23]

In addition to all these precautions and measures, health care professionals have had to take in-

TABLE 3: Comparison of COVID-19 positive quarantine cases and COVID-19 Phobia Scale total score averages (n=605).

Variable	n	Total scale X̄±SD
COVID-19 positive		
Yes	407	56.81±14.2
No	198	54.44±13.3
Test value		1.953[a]
p value		**0.050***
η2		0.01
In quarantine		
Yes	419	56.22±14.4
No	186	55.61±12.9
Test value		0.493[a]
p value		0.622

[a]Independent sample t-test; *p<0.05; SD: Standard deviation.
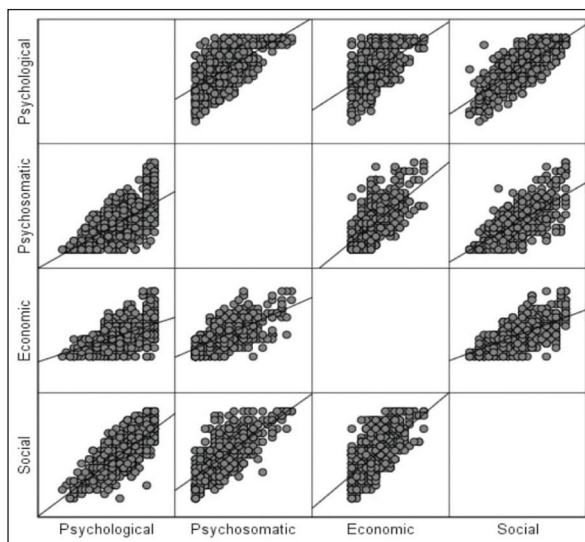
FIGURE 1: COVID-19 Phobia Scale subscales scatter diagram (Correlation Chart).

creasingly stringent measures to protect themselves and their families, friends, and patients, including the use of personal protective equipment for long hours, compliance with strict isolation rules, and acceptance

of residing in hotels and hostels instead of going home after work to avoid putting their children and families at risk of virus transmission. Further restrictions have also been imposed on health care professionals, which include barring health workers from taking leave, revoking their already confirmed leave, delaying their retirement, and transferring them to different departments.[24] Similar to most countries, COVID-19 has not been classified as an occupational disease in Türkiye, which can further contribute to anxiety and fear.[25]

Working in high-risk environments during the pandemic in the face of numerous changes and measures has naturally increased both the physical and psychological burden on health care workers. Pandemics are known to jeopardize the physical and bio-psychosocial health of professionals undertaking duties directly related to the pandemic.[11] As they work in high-risk positions where they are frequently in close contact with infected patients.[15] This study attempted to determine the prevalence of coronaphobia among nurses during the COVID-19 pandemic and explore risk factors for elevated levels of coronaphobia according to individual and professional characteristics.

The mean of the total score shows that nurses have above average coronaphobia and agreement with current literature.[19,26] It has been established that anxiety and fear were felt more intensely at the beginning of the pandemic, due to the sudden outbreak of COVID-19, its rapid spread, and the fact that health care workers at the forefront of the fight against the pandemic were in close contact with infected patients.[6] In a study conducted during the SARS pandemic in previous years, the stress level of health workers was found to be below average.[27] The psychological effects including stress, fear, and pho-

TABLE 4: Correlation between COVID-19 Phobia Scale subscale scores of study population (n=605).

Variables	Mean	SD	1.	2.	3.	4.
1. Psychological	20.95	5.05	1.000			
2. Psycho-somatic	11.21	3.93	**0.635****	1.000		
3. Economic	8.89	2.87	**0.504****	**0.657****	1.000	
4. Social	14.98	4.32	**0.773****	**0.705****	**0.617****	1.000

**Correlation is significant at the p<0.01 level (2-tailed); SD: Standard deviation.

bia in health workers during the present COVID-19 pandemic are more serious and prevalent than those experienced during the SARS epidemic.

We also obtained those nurses with children had higher coronaphobia levels than those without children. There are a number of studies in the literature reporting findings in agreement with our results.[28,29] For instance, a study conducted in China showed that more than half of health workers with children were concerned about their family members becoming infected.[30] This may be explained by the fact that health care professionals are acutely aware of the high risk of infection they bring to themselves and their children through the nature of their work.[29]

When we analyzed the total C19P-S scores related to the number of children nurses had, we found that the highest scores were recorded in nurses with one child, and the lowest scores were recorded in nurses with three or more children. Previous research has reported that the number of children nurses have did not correlate with their psychological state during the pandemic.[4] It is an unsurprising result that having children increases fear of transmission. However, additional research is warranted to evaluate the reason for lower levels of coronaphobia in nurses with three or more children.

Levels of coronaphobia were found to be higher in married nurses than in unmarried nurses. As married people usually live in their homes with their spouses and families, married nurses likely have a greater fear of transmitting the disease to their spouses, children, and other vulnerable family members. However, contrary to our findings, there have been studies reporting that anxiety levels of married individuals were lower compared to those of unmarried individuals.[10]

Coronaphobia was higher among female participants than among male participants. Higher prevalence of coronaphobia in women is in agreement with the current literatureand is possible connected to the role of mothers, and the concerns for spouse, children, family, and the balance of family and work that come with this role.[14]

In our study, the level of coronaphobia was the highest in intensive care nurses and the lowest among nurses working in emergency service COVID-19 unit. Monitoring and treatment of COVID-19-positive patients in intensive care units who may require invasive medical procedures such as mechanical ventilation during their treatment, and the high duration of close contact with these patients, may contribute to the high coronaphobia levels seen among intensive care nurses.

While it was determined that nurses with 6 to 10 years of professional experience suffered from the highest level of coronaphobia, the lowest levels were observed among those who were in the first year of professional life. This might be associated with a higher sense of responsibility within the team observed in those with more professional experience. The lack of coronaphobia among nurses in their first year of professional life could be attributed to the fact that young people can adapt much more easily to new conditions. In addition, it is thought that the situational awareness of nurses in the first years of their profession may be low, therefore their fear of COVID-19 may be low.

Fear of pandemics can stem from more than falling ill or dying due to viral infection and may also be attributed to fear of infecting others.[31] Similar to previous studies showing that nurses with relatives and friends positive for COVID-19 had greater symptoms of anxiety and stress, higher impact on mental health, and consequently impaired perceptions of physical health, we also found that nurses testing positive for COVID-19 or having COVID-19-positive family members or friends reported higher levels of coronaphobia.[15,32] This may be related to the fact that nurses observe the disease process from both patient and caregiver perspectives and witness all the challenges experienced by patients and their relatives, leading to increased worry that the same could happen to their family members. Being a woman and a wife in Turkish culture requires great responsibility. When the role of the mother is added to this situation, this responsibility gradually increases. In this process, it is a great dilemma for female nurses to be able to organize their social lives and fulfill their mother and wife roles without infecting their children, spouses and other family members with COVID-19.

Our study revealed a moderate correlation between economic status and psychological and psychosomatic disorders including inner restlessness, nervous tension, anger, despair, depression, and sleep disorders. This correlation may be attributed to economic hardships occurring as a result of job and income losses during the pandemic restrictions and lockdowns.[33]

LIMITATIONS

The first limitation of this study is that phobia levels could not be analyzed continuously as it was a cross-sectional study. In addition, the scale used in the study provides only a preliminary screening regarding the coronaphobia experienced by nurses. Face-to-face interviews with the participants were not possible due to the current pandemic-related restrictions. Thus, all of our data were based on the self-report of the participants and limited to nurses who could be reached via WhatsApp (WhatsApp LLC, Delaware Corp.; Calofornia, USA) and agreed to participate in the study. For these reasons, our results cannot be generalized to a wider nurse population. Finally, our relatively short data collection period of one month can also be considered a limitation of this study, as the effects of the COVID-19 pandemic on humans can change in short periods of time.

CONCLUSION

Overall, more than half of the nurses who participated in this study reported experiencing coronaphobia during the COVID-19 pandemic that spread unexpectedly throughout the world. Levels of coronaphobia were higher in married female nurses with children, nurses working in intensive care units, nurses with 6 to 10 years of work experience, and nurses who have contracted or have had a family member or friend contract COVID-19. Based on these findings, it is of vital importance that we protect and improve physical and mental health of nurses responsible for the care of patients during the pandemic. In order to reduce anxiety, fear, and coronaphobia, special attention should be paid to female nurses with children. The maternal instinct is very strong in our culture. Mothers may want to be constantly informed about the condition and safety of their children while caring for their patients in the hospital. Information support should be provided to nurses and their families regarding the current situation. Improved coping strategies can be developed through social media, online group meetings, and psychological resilience training to enhance coping strategies and provide moral support. Future studies and clinical observations are warranted to determine the prevalence of generalized phobia among nurses during the COVID-19 pandemic.

Nurses should be given the opportunity to express the challenges and feelings they have experienced during the pandemic. Guidelines that can be followed by nurses should be designed to support their mental well-being. Furthermore, promotions and financial incentives can be used to encourage nurses and all health care professionals working in close contact with infected patients under difficult conditions.

Nurses struggling with coronavirus infection are significantly affected by the psychological, emotional and mental consequences of the pandemic.[34] It is stated that pandemics endanger the physical and bio-psychosocial health of all healthcare workers, especially nurses, who are working in the epidemic.[11] The knowledge and awareness of nurses experiencing coronaphobia about dealing with this fear should be increased. In addition, training classes should be established to understand the psychological effects of the pandemic in nurses experiencing coronophobia, and training courses must be given by psychiatric nurses through tele-nursing to address their psychological problems. A comprehensive psychological management program should be developed by developing a professional mental health network.[35]

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

*Idea/Concept: Ebru Karazeybek, Fatma Zehra Aker; **Design:** Ebru Karazeybek; **Control/Supervision:** Ebru Karazeybek, Cafer Özdemir; **Data Collection and/or Processing:** Ebru Karazeybek,* *Cafer Özdemir, Fatma Zehra Aker; **Analysis and/or Interpretation:** Cafer Özdemir; **Literature Review:** Cafer Özdemir, Fatma Zehra Aker; **Writing the Article:** Cafer Özdemir, Ebru Karazeybek; **Critical Review:** Cafer Özdemir.*

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