

The Effect of Nurses Coronavirus Fear on Health Promoting and Protective Behaviors

Hemşirelerin Koronavirüs (Covid-19) Korkusunun Sağlığı Geliştirici ve Koruyucu Davranışlara Etkisi

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Background: It Fear that individuals experience is effective on health promoting behaviors. Thus, it is believed that the fear of Covid-19 experienced by nurses who are primarily responsible for patient care in the pandemic process, affects health promoting and protective health behaviors. The study was conducted to determine the impact of nurses' fear of the coronavirus on health promoting and protective health behaviors.

Materials and Methods: The descriptive study was carried out with nurses working in a university hospital. The sample comprised 301 nurses. In collection of the data the introductory information form, fear of the coronavirus scale and health promoting and protective health behaviors scale were used. In the analysis of the data, descriptive statistics (number, percentage, mean), independent groups t test, analysis of variance, Mann-Whitney U test, Kruskal Wallis analysis and correlation analysis were performed.

Results: The nurses obtained 25.20±5.49 points from the fear of the coronavirus scale and 85.29±8.63 points from the health promoting and protective health behaviors scale on average. A moderately significant correlation existed between the score averages of the fear of the coronavirus scale and health promoting and protective health behaviors scale in a positive direction.

Conclusions: As a consequence, it was seen that the nurses' score averages of the fear of the coronavirus scale and health promoting and protective health behaviors scale were not up to the mark. In addition, considering that a moderate correlation exists between the fear of the coronavirus and health promoting and protective health behaviors; it can be recommended to conduct interventions to reduce the fear of the coronavirus.

Key Words: Fear of the coronavirus, Health promoting and protective health behaviors, Nurse

Öz.

Amaç: Bireylerin yaşadıkları korku, sağlığı geliştirici davranışlar üzerinde etkilidir. Bu nedenle pandemi sürecinde hasta bakımından birinci derecede sorumlu olan hemşirelerin yaşadığı Covid-19 korkusunun sağlığı geliştirici ve koruyucu sağlık davranışlarını etkilediği düşünülmektedir. Çalışma, hemşirelerin koronavirüs korkusunun sağlığı geliştirici ve koruyucu davranışlara etkisini belirlemek amacıyla yapılmıştır.

Materyal ve Metod: Tanımlayıcı tipte bir çalışma bir üniversite hastanesinde gerçekleştirilmiştir. Örneklemi 301 hemşire oluşturmuştur. Verilerin toplanmasında Tanıtıcı Bilgi Formu, Koronavirüs Korkusu Ölçeği ve Sağlığı Koruyucu ve Geliştirici Davranışlar Ölçeği kullanılmıştır. Verilerin analizinde tanımlayıcı istatistikler (sayı, yüzde, ortalama), bağımsız gruplarda t testi, Varyans analizi, Mann-Whitney U testi, Kruskal Wallis analizi ve Korelasyon analizi yapılmıştır.

Bulgular: Hemşirelerin koronavirüs (Covid-19) korkusu ölçeği puan ortalaması 25.20 ± 5.49, sağlığı geliştirici ve koruyucu davranışlar ölçeği puan ortalaması ise 85.29 ± 8.63 olarak saptanmıştır. Hemşirelerin koronavirüs (Covid-19) korkusu ölçeği puan ortalaması ve sağlığı geliştirici ve koruyucu davranışlar ölçeği puan ortalaması arasında orta düzeyde, pozitif yönde, anlamlı bir ilişki saptanmıştır.

Sonuç: Sonuç olarak hemşirelerin koronavirüs korkusu ölçeği ile sağlığı geliştirici ve koruyucu sağlık davranışları ölçeği puan ortalamalarının yeterli düzeyde olmadığı görüldü. Ayrıca koronavirüs korkusu ile sağlığı geliştirici ve koruyucu sağlık davranışları arasında orta düzeyde bir ilişki olduğu düşünüldüğünde; koronavirüs korkusunu azaltmak için müdahalelerde bulunulması önerilebilir.

Anahtar kelimeler: Koronavirüs korkusu, Sağlığı geliştirici ve koruyucu davranışlar, Hemşireler

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Introduction

The deadly effects of pandemic outbreaks, such as SARS (severe acute respiratory failure syndrome), MERS-CoV infection (Middle East Respiratory Syndrome-Coronavirus Infection), influenza, which we have experienced consecutively over the past 20 years, have gradually increased the awareness of health authorities, policy makers, and the society (1). Covid-19 is an important public health problem (2) that is negatively affecting the mental health of the society (3,4). The healthcare professionals who provide health services to the society are at the highest risk of exposure to the infection and the factors causing the pandemic. Healthcare workers are risking their lives while combating this pandemic (1). Healthcare workers are most affected, most vulnerable (5), and at highest risk during the deadly outbreaks in the past, such as SARS (6), Ebola (7), MERS – CoV (8,9) and currently the Covid-19 pandemic (10). The concern is not only the direct interaction of healthcare workers with patients but also the increasing number of healthcare professionals who are contracting serious infections (5). In particular, nurses have direct exposure and contact with patients due to their nursing roles. Studies examining the psychosocial effects of SARS on hospital staff reported that nurses were the most affected occupational group (11,12).

In an epidemic, the psychology of nurses can be negatively affected. Studies have reported that the Covid-19 pandemic negatively affects the psychological health of nurses (3,4,13). In a study by Pappa et al., nurses experienced more anxiety and depression compared to other healthcare workers (14). In a study of Labrague and De los Santos, Covid-19 fear levels of nurses were demonstrated to be above moderate level (2). The fear experienced by the nurses affects their health-promoting behaviors, well-being, and performance at work (15). Health promotion strengthens awareness of individuals, affects their attitudes, and determines their alternatives. Thus, it enables individuals to make conscious choices in order to improve their physical and social environment, to change their behavior in this process, and to reach an optimal level of physical and mental health (16). Therefore, the present study was conducted to determine the effect of nurses' fear of Covid-19, which constitutes an important group among health professionals, on health promoting and protective behaviors.

Materials and Methods

Study design

This descriptive study was conducted with nurses working in a university hospital. The study participants comprised 417 nurses and no sampling method was used. The sample comprised 301 nurses who voluntarily agreed to participate in the study. The study was conducted between 15 November 2020 and 14 December 2020 in a university hospital.

Instruments

Introductory Information Form, Coronavirus (Covid 19) Fear Scale, and Promotive and Protective Health Behaviors Scale

were used for data collection.

The Introductory Information Form:

The Introductory Information Form consisted of 19 questions on the socio-demographic characteristics of the nurses (age, gender, marital status, education status, professional experience (year), income status, health perception) and their characteristics about coronavirus (safety glasses, N95 mask, surgical mask, medical gown, medical gloves, safety face shields, when I come home from work, I take off my clothes immediately, when I come home from work, I wash my hand and face with soap and water, I disinfect the tools/equipment I use when I come home from work).

Coronavirus (Covid-19) Fear Scale:

Coronavirus (Covid-19) Fear Scale was developed by Ahorsu et al. (2020) (15) and its validity and reliability study in Turkey were made by Bakioğlu et al. (2020) (17). CFS is a 5-point Likert type scale consisting of 7 questions. There are no reverse items in the scale. The total score obtained from all items of the scale reflects the level of coronavirus fear (Covid-19) experienced by an individual. The scores that can be obtained from the scale range between 7 and 35. High scores indicate high levels of coronavirus fear. The Cronbach's alpha coefficient of the scale is 0.82 (17). In the present study, the Cronbach's alpha coefficient of the scale was 0.90.

Promotive and Protective Health Behaviors Scale:

Developing Promotive and Protective Health Behaviors Scale was developed by Bostan et al. (2016) and comprises 24 items grouped under three factors. This 5-point Likert type scale is graded as "Never 1," "Rarely 2," "Sometimes 3," "Mostly 4," and "Always 5." Items 1, 3, 4, 5, 12, 13, 14, 23 are negative statements and hence they are calculated in reverse. It should be considered that a person with a low score on the scale does not exhibit health-promoting behaviors (i.e., regular exercise, meeting physiological needs such as eating and drinking, making time for self and environment) and protective behaviors. The minimum score that can be obtained from the scale is 24 and the maximum score is 120. The Cronbach alpha coefficient of the scale is 0.83 (16). In the present study, the Cronbach alpha coefficient of the scale was 0.70.

Data Analysis

Data were collected face to face. SPSS 22.00 package program was used to evaluate the data. Descriptive statistics (number, percentage, mean), independent groups' t-test, Variance analysis, Mann-Whitney U test, Kruskal Wallis analysis and correlation analysis were used for data analysis.

Results

56.8% of the nurses were in the 26–35 age group, 74.8% were females, 50.2% were married, 65.1% were associate degree graduates, 76.8% had been in this profession for 1–10 years, 51.8% perceived their income as 'good', and 49.5% expressed their perception of health as 'moderate' (Table 1).

Table 1. Socio-demographic characteristics of nurses.

Variables	Number (n)	Percent (%)
Age		
18-25	81	26.9
26-35	171	56.8
36-45	45	15.0
46-55	4	1.3
Gender		
Female	225	74.8
Male	76	25.2
Marital Status		
Married	151	50.2
Single	150	49.8
Education Status		
High School	86	28.6
Associate Degree/Undergraduate	196	65.1
Master/Doctorate	19	6.3
Professional experience		
1-10	231	76.8
11-20	63	20.9
21-30	7	2.3
Income Status		
Good	156	51.8
Medium	138	45.8
Bad	7	2.3
Health Perception		
Good	118	39.2
Medium	149	49.5
Bad	34	11.3
Total	301	100.0

All nurses stated that they used protective equipment in working environments, 33.9% stated that they worked with

Covid-19 patients, 31.9% used protective glasses, 34.9% used N95 masks, 95% used surgical masks, 33.9% used medical gowns, 83.1% used gloves, and 35.2% stated that they used a face shield, 76.7% stated that they thought they contracted Covid-19, 55.1% got themselves tested, 12% of them had positive test results, and 19.9% were quarantined. Of those who did not wish to spread the virus to their home/family, 2.7% stated that they took off their clothes immediately, 7.3% washed their hands and face with soap, and 20.6% disinfected their tools/equipment.

The mean CFS score was 25.20 ± 5.49, and the mean Promotive and Protective Health Behaviors Scale score was 85.29 ± 8.63 (Table 2).

Table 2. Nurses' coronavirus fear (covid-19) scale and health promoting and protective behaviors scale mean scores

Scales	X ± SD	Min - Max Scores
Coronavirus (Covid-19) Fear Scale	25.20±5.49	07.00 - 35.00
Health Promoting and Protective Behaviors Scale	85.29±8.63	51.00-117.00

A significant difference was found between the mean Coronavirus (Covid 19) Fear Scale scores with respect to the nurses' gender (t = 5.912, p = 0.000), income (K-W = 8.607, p = 0.014), and perception of health (F = 4.615, p = 0.011). In addition, a significant difference was found between mean HPPBS scores with respect to marital status (t = -2.008, p = 0.046) and income status (K-W = 8.653, p = 0.013) (Table 3).

Table 3. Comparison of mean coronavirus (covid-19) fear scale and health promoting and protective behaviors scale scores according the socio-demographic characteristics of the nurses

Features	n	Scales			
		Coronavirus (Covid-19) Fear Scale	Health Promoting and Protective Behaviors Scale	Statistical Value	Statistical Value
Age					
18-25	81	25.46±5.64	86.66±9.91	K-W=4.465	K-W=3.480
26-35	171	25.54±5.21	85.11±7.82	p=.215	p=.323
36-45	45	23.71±6.14	83.66±8.64		
46-55	4	22.75±4.99	83.75±13.28		
Gender					
Female	225	26.24±5.03	85.22±9.08	t=5.912	t= -.254
Male	76	22.16±5.69	85.51±7.18	p=.000	p=.800
Marital Status					
Married	151	25.06±5.45	84.30±8.18	t= -.474	t= -2.008
Single	150	25.36±5.54	86.30±8.98	p=.636	p=.046
Education Status					
High School	86	24.41±5.51	84.90±9.09	K-W=5.553	K-W=5.393
Associate Degree/Undergraduate	196	25.74±5.35	85.90±8.09	p=.062	p=.067
Master/Doctorate	19	23.26±6.17	80.73±10.77		
Professional experience (year)					
1-10	231	25.56±5.28	85.61±8.69	K-W=3.857	K-W=4.717
11-20	63	24.41±6.12	84.50±8.30	p=.145	p=.095
21-30	7	20.86±4.14	81.86±9.71		
Income Status					
Good	156	25.84±4.98	86.11±7.80	K-W=8.607	K-W=8.653
Medium	138	24.81±5.75	84.84±9.29	p=.014	p=.013
Bad	7	18.86±7.15	75.86±7.71		
Health Perception					
Good	118	24.73±5.90	85.10±9.25	F= 4.615	F= .646
				p= .011	p= .525

In the study, a significant difference was found when mean Coronavirus (Covid 19) Fear Scale scores were compared with respect to 'thinking of having Covid-19' ($t = 4.695$, $p = 0.000$), 'getting tested for Covid-19' ($t = 3.536$, $p = 0.000$), 'receiving a positive test result' ($t = -3.591$, $p = 0.000$), and 'being quarantined' ($t = 4.196$, $p = 0.000$). In addition, Coronavirus (Covid 19) Fear Scale scores of the nurses who were supported by their family (25.53 ± 5.00) and working with Covid-19 patients (25.57 ± 5.80) during the pandemic were higher compared to others. No significant difference was found in Developing Promotive and Protective Health Behaviors Scale scores with respect to working with Covid-19

patients ($t = 0.082$, $p = 0.935$), thinking of having Covid-19 ($t = 1.611$, $p = 0.108$), getting tested for Covid-19 ($t = 1.642$, $p = 0.102$), and being quarantined ($t = 0.505$, $p = 0.614$).

A significant difference was found in mean Coronavirus (Covid 19) Fear Scale scores with respect to using a surgical mask ($Z = -2.479$, $p = 0.013$), using gloves ($t = 2.647$, $p = 0.009$), and washing hands and face with soap after coming home ($Z = -2.806$, $p = 0.005$) (Table 4).

A moderate, positive, and significant correlation was found between mean Coronavirus (Covid 19) Fear Scale scores and mean Developing Promotive and Protective Health Behaviors Scale scores ($r = .398$, $p = 0.000$) (Table 5).

Table 4. Comparison of certain behaviors of nurses and mean coronavirus fear scale scores

Behaviors	Mean Coronavirus (Covid-19) Fear Scale Scores		
	n	X ± SD	Statistical Value
Protective Glasses			
Yes	96	25.66±6.01	t= .989
No	205	24.99±5.23	p= .324
N95 Mask			
Yes	105	25.49±5.89	t= .639
No	196	25.06±5.27	p= .524
Surgical Mask			
Yes	286	25.41±5.35	Z= -2.479
No	15	21.26±6.84	
Medical Gown			
Yes	102	25.56±5.94	t= .790
No	199	25.03±5.25	p= .430
Medical Gloves			
Yes	250	25.58±5.41	t= 2.647
No	51	23.37±5.56	p= .009
Face Shields			
Yes	106	25.31±6.18	t= .237
No	195	25.15±5.09	p= .813
When I come home from work, I take off my clothes immediately			
Yes	8	27.75 ± 2.82	Z= -1.465
No	293	25.13 ± 5.53	p=.143
When I come home from work, I wash my hand and face with soap and water			
Yes	22	21.95 ± 5.51	Z= -2.806
No	279	25.46 ± 5.42	p=.005
I disinfect the tools/equipment I use when I come home from work.			
Yes	62	26.04 ± 5.37	t= 1.352
No	239	25.00 ± 5.51	p= .177

Table 5. Relationship between coronavirus fear (Covid-19) scale and health promoting and protective behaviors scale scores of nurses

	Total Score Average of Health Promoting and Protective Behaviors Scale	
	r	p
Total Score Average of the Coronavirus (Covid-19) Fear Scale	.398	.000

Discussion

This study was conducted to determine the effect of nurses' coronavirus fear (Covid-19) on health promoting and protective behaviors. In our study, the mean Covid 19) Fear Scale score of nurses was high (25.20 ± 5.49). There are limited studies on nurses' coronavirus fear in the literature (2). In a study conducted by Labrague, the coronavirus fear levels of nurses were found to be 19.92 (SD = 6.15) above the moderate level (2). In another study, fear was stated as the most frequently expressed emotion by healthcare professionals (18). On examining the studies in which the level of fear was investigated in the general population, mean coronavirus fear was 22.2 (SD = 5.9) in the study of Gritsenko et al. (2020), 17.2 (SD = 4.7) in the study of Reznic et al. (2020),

and 19.44 (SD = 6.07) in the study of Bakioğlu et al. (2020) (17,19,20). The high coronavirus fear levels of nurses obtained in the present study

was as expected. This is because nurses are directly involved in patient care and their risk of contracting infection is higher than the general population.

This risk may contribute to fears of infecting others, including family members or friends, or of being unknowingly infected. In addition, increasing number of patients and patient burden, provision of coronavirus-related measures, (2,21) social distancing, imposed restrictions, and associated concerns may increase fears among nurses.

In the present study, higher levels of coronavirus fear were found in women, single participants, those with an associate degree or bachelor's degree, those with 1–10 years of professional experience, and those with a good income. Labrague et al. (2020) found that nurses' coronavirus fear levels were higher in married women and those with master's and doctorate degrees (2). In another study conducted with university students, it was stated that the coronavirus fear was higher in women. In the present study, the results showed nurses with 1–10 years of professional experience had high coronavirus fear levels is as expected.

This is because the Covid-19 pandemic is an unprecedented event in 10 years. In addition, the low coronavirus fear level of nurses with master's and doctorate degrees in this study suggests that their awareness level about the Covid-19 pandemic is high.

In the present study, nurses who used protective glasses, N95 masks, surgical masks, medical gowns, gloves, face protective visors to protect against coronavirus, who took off their clothes immediately after returning home from work, washed their hands with water and soap, and disinfected the tools and equipment they used had higher fear levels. There are no studies in the literature comparing nurses' coronavirus fear and protective behaviors. It is important that nurses, who constitute the largest mass of healthcare professionals and who have the closest contact with sick individuals, take protective measures in order to protect and keep themselves, patients, relatives, and families safe (22).

The results obtained in the present study show that nurses' coronavirus fear causes them to perform protective behaviors. In addition, the correlation between the Covid 19) Fear Scale and the Promotive and Protective Health Behaviors Scale supports this result.

A moderate, positive, and significant correlation was found between the Covid 19) Fear Scale and the Promotive and Protective Health Behaviors Scale mean scores of nurses. We could not find any studies in the literature on this subject. This result obtained in the present study shows that as the level of coronavirus fear increases, the level of health-promoting and -protective behaviors of nurses also increases. This shows that fear leads the nurses toward positive health behaviors. In addition, the fact that the mean Promotive and Protective Health Behaviors Scale scores of

nurses are above moderate levels supports this result.

Social support is very important in reducing the fear level of individuals. In the present study, the fear levels of the nurses who received support from their families were higher than those who received support from the institution and their friends. In another study, it was stated that increased social support decreased the fear level of nurses (23). In the present study, the high level of fear of the nurses with family support suggests that they have serious concerns of transmitting the disease to their families.

Conclusion

In conclusion, the coronavirus fear levels of nurses were found to be high. In addition, it was observed that the fear levels of nurses who engaged in protective behaviors were high. It is seen that there is a moderate, positive, and significant correlation between the coronavirus (covid-19) fear scale and the promotive and protective health behaviors scale scores.

Covid-19 pandemic has affected the mental health of the society. Accordingly, practices aimed at supporting the mental health of society, especially the nurses who are at highest risk, are important for community mental health. The constant fear and stress associated with the pandemic may cause other mental problems in nurses, such as burn-out, depression, anxiety, post-traumatic stress, and sleep problems. For this reason, it is necessary to evaluate the mental health of nurses to control the fear experienced and to increase the measures in place by performing interventional studies on this issue.

Accessing the most accurate and up-to-date information regularly about coronavirus reduces fear, negative emotions, and negative behaviors of nurses. National and organizational level measures, especially by hospital administrations, are needed to reduce the fear levels of nurses. It is important to establish an appropriate communication chain between hospital management and healthcare professionals during this difficult pandemic situation. One recommendation can be to ensure the continuity of training programs on the management of the Covid-19 pandemic. It would be beneficial to include topics on coping strategies and problem-solving skills in the training programs. In addition, online platforms can be created for the implementation of these training programs during the pandemic. Nurses needing therapeutic interventions during this period can be informed about the psychosocial support lines created during the Covid-19 pandemic.

Ethical Approval: Permission was obtained from the X University Clinical Research Ethics Committee (Date: 17 August 2020, Number: HRU/20.14.17), the relevant institution, and the participants to conduct the study.

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Design : F.E., G.K.D., R.K.

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Analysis and interpretation: F.E., G.K.D., R.K.

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