

Fear of COVID-19 Among Nursing Students and Evaluation of Their Attitudes Towards Vaccination: A Descriptive Cross-Sectional Research

Hemşirelik Öğrencilerinin COVID-19 Korkusu ve Aşıya Yönelik Tutumlarının Değerlendirilmesi: Tanımlayıcı Bir Kesitsel Araştırma

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ABSTRACT Objective: This study was conducted to evaluate the fear of coronavirus disease-2019 (COVID-19) among nursing students and their attitudes towards vaccination during COVID-19 pandemic. **Material and Methods:** This study was designed as a descriptive and cross-sectional study and it was carried out between February 10 and February 20, 2021 with the voluntary participation of nursing students. The participants were reached via an electronic questionnaire form (i.e. Google Forms). The study data were collected with the “Personal Information Form”, “The Fear of COVID-19 Scale” and “Attitudes Towards the COVID-19 Vaccine Scale” designed by the researchers. The study data were analyzed with frequency test, mean test, Mann-Whitney U test and Spearman correlation analysis. **Results:** It was noted that 80.9% of the students were female and their average age is 22.07±1.21 years. The total mean score of the Fear of COVID-19 Scale was 23.14±3.30. It was further found that mean scores of the subscales of the Attitudes Towards COVID-19 Vaccine Scale were 3.09±1.21 in the positive attitude subdimension and 3.31±0.75 in the negative attitude subdimension. It was finally concluded that no statistically significant difference was found between the subdimensions of the Fear of COVID-19 Scale and the Attitudes Towards COVID-19 Vaccine Scale (p>0.05). **Conclusion:** It was suggested that nursing students had high levels of COVID-19 fear and their attitude towards the COVID-19 vaccine was moderate (uncertain).

ÖZET Amaç: Bu çalışma, koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] salgını sürecinde hemşirelik öğrencilerinin COVID-19 korkusu ve aşıya yönelik tutumlarının değerlendirilmesi amacıyla yapıldı. **Gereç ve Yöntemler:** Tanımlayıcı ve kesitsel tipteki çalışma, hemşirelik eğitimi alan üniversite öğrencilerinin gönüllü katılımıyla 01-28 Şubat 2021 tarihleri arasında gerçekleştirildi. Katılımcılara elektronik tabanlı anket yöntemiyle (Google Formlar aracılığıyla) ulaşıldı. Çalışma verileri araştırmacılar tarafından oluşturulan “Kişisel Bilgi Formu”, “COVID-19 Korku Ölçeği” ve “COVID-19 Aşısına Yönelik Tutum Ölçeği” ile toplandı. Verilerin değerlendirilmesinde frekans, ortalama, Mann-Whitney U testi, Spearman korelasyon analizi kullanıldı. **Bulgular:** Öğrencilerin %80,9’u kız olup yaş ortalamaları 22,07±1,21 yıldır. COVID-19 Korku Ölçeği toplam puan ortalaması 23,14±3,30; COVID-19 Aşısına Yönelik Tutum Ölçeği alt boyutları puan ortalamaları ise olumlu tutumda 3,09±1,21 iken olumsuz tutumda 3,31±0,75 olarak saptandı. Öğrencilerin, COVID-19 Korku Ölçeği ile COVID-19 Aşısına Yönelik Tutum Ölçeği alt boyutları arasında istatistiksel olarak anlamlı bir fark bulunmadı (p>0,05). **Sonuç:** Hemşirelik öğrencilerinin COVID-19 korku düzeylerinin yüksek olduğu, COVID-19 aşısına yönelik tutumlarının orta düzeyde (kararsız) olduğu belirlendi.

Keywords: COVID-19; fear; vaccine; nursing; student

Anahtar Kelimeler: COVID-19; korku; aşı; hemşirelik; öğrenci

The severe acute respiratory syndrome-coronavirus-2, or as it is abbreviated as coronavirus disease-2019 (COVID-19) by the World Health Organization (WHO), has spread at an uncontrollable rate and continues to affect the whole world.^{1,2} According to the WHO data, more than 111 million people have been

infected with the virus worldwide and the number of patients who lost their lives exceeds 2.4 million as of February 2021.³ At the same time, the effects of COVID-19 may range from mild symptoms to fatal consequences and it can lead to serious harm to human health not only physically but also psychologically.⁴

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Strong found that new and deadly pandemics may be followed by psychosocial pandemics, particularly inciting fear.⁵ The fear of pandemics mostly stems from the threat of infection for themselves or their families. Although fear is often perceived as a negative concept, it might have certain positive consequences such as motivating individuals to take measures to prevent the disease. It has been shown that perceived fear increases protective attitudes in individuals to control the COVID-19 pandemic.^{6,7}

Governments may also implement measures like social distancing, isolation, voluntary or compulsory quarantine to control the pandemic.⁸ However, the truth is that social isolation measures only reduce the spread of the virus yet, unfortunately, they do not eliminate the pandemic. In this regard, the whole world has been closely following the positive developments in vaccine studies since the beginning of the pandemic.⁹ Nevertheless, that people who have had the disease can be re-infected has also raised questions about vaccination and long-term immunity.¹⁰ WHO has further confirmed the lack of data about the long-term immunity of vaccines.⁹ However, mass skepticism towards vaccines grows while vaccines are being widely administered.¹¹ It is considered very elemental that the fear response during the pandemic may profoundly influence the attitudes of people towards vaccination. Given that nursing students also undertake substantial roles as consultants, educators and role models for other people, it would be of utmost significance to address the students' fears of COVID-19 and to evaluate their attitudes towards vaccination.

This study was designed and conducted to evaluate the fear of COVID-19 among nursing students and their attitudes towards vaccination during the global pandemic.

MATERIAL AND METHODS

SAMPLE AND SETTING

The research was designed and implemented as a descriptive and cross-sectional study. The study universe included nursing students in Süleyman Demirel University in the 2020-2021 academic year. The study sample was determined using the sample calculation formula (a confidence interval of 95% and a margin of

error of 5%) with a known universe. The participants included 136 4th year nursing students aged 18 years old or older who contacted the researchers and agreed to participate in the study voluntarily.

INSTRUMENTS

The research data were collected using the Personal Information Form to assess the individual characteristics of the students besides the Fear of COVID-19 Scale (FCS-19S) and the Attitudes Towards the COVID-19 Vaccine Scale (ATV-COVID-19). Having been granted the permissions to conduct the study, the questionnaire form was sent to the students online and each student was allowed to fill out the form only once. Moreover, a written consent was obtained from the voluntary students in the introduction part of the questionnaire, stating that participation in the study was completely on a voluntary basis and that refusing to participate would not bring any material or moral obligation.

THE PERSONAL INFORMATION FORM

The form included 6 questions involving the individual characteristics of the students and two extra questions "If you consider having vaccination, are you afraid whether or not it will take too long to have your vaccination?" and "Please specify your fears you have experienced during the pandemic". The form was particularly designed by the researchers after a thorough review of recent literature in the field.^{12,13}

THE FEAR OF COVID-19 SCALE

The scale was designed by Ahorsu et al. and adapted into Turkish by Bakioğlu et al.^{12,14} The scale consists of one dimension and 7 items. The scale questions are scored between "Strongly disagree (1 point)" and "Strongly agree (5 points)". The total score to be obtained from the scale varies between 7 and 35. Higher total score indicates higher levels of fear of COVID-19 experienced by individuals.

ATTITUDES TOWARDS COVID-19 VACCINE SCALE

The scale was designed by Geniş et al. with two sub-dimensions (positive and negative attitudes) and 9 items.¹⁵ The items in the scale are scored as "Strongly disagree (1 point)" and "Strongly agree (5 points)". In the positive attitude sub-dimension, the scores items

1, 2, 3 and 4 are added and then divided by the number of items in the sub-dimension to find the total score. Higher scores indicate a positive attitude towards the vaccine. In the negative attitude sub-dimension, on the other hand, the scores of items 5, 6, 7, 8, and 9 are summed up after reverse coding and divided by the number of items in the sub-dimension to have the sub-dimension total score. Reverse items are coded as 1 → 5; 2 → 4; 3 → 3; 4 → 2; 5 → 1. The higher the score obtained, the less negative attitude towards the vaccine.

ETHICAL CONSIDERATIONS

After obtaining permissions in writing from the institution (E-19573338-605.01-2246) and The Ministry of Health (12-28T14_34_02) the researchers also sought approval from Süleyman Demirel University Faculty of Medicine Clinical Research Board of Ethics (Date: 08.01.2021 Number: 72867572-050.01.04-). Additionally, the researchers obtained a permission in writing from the researchers who designed the scales and a written consent from the participant students. This study was conducted according to the principles of the Declaration of Helsinki.

STATISTICAL ANALYSIS

The study data were coded in a computer file before being evaluated with the IBM SPSS 21.0 (IBM Statistical Package for the Social Sciences Corp.; Armonk, NY, USA). Besides descriptive statistical methods (mean, standard deviation, frequency), Mann-Whitney U test was also used to evaluate correlate two groups. Spearman correlation analysis was further used to evaluate the correlation between scale scores. The level of significance was taken as $p < 0.05$.

RESULTS

INDIVIDUAL CHARACTERISTICS OF NURSING STUDENTS

It was stated that 93.4% of the participants did not have a chronic disease, 22.8% of them were smoking, 20.6% were occasionally drinking alcoholic drinks. It was also noted that 27.2% of the students in the study were afraid that it would take too long to get vaccinated even though they certainly considered having vaccines (Table 1).

TABLE 1: Descriptive characteristics of students (n=136).

Variables	n	%
Age (Mean±SD)	22.07±1.21	
Gender		
Female	110	80.9
Male	26	19.1
Chronic disease		
Yes	9	6.6
No	127	93.4
Smoking		
Yes	31	22.8
No	105	77.2
Alcohol use		
Yes	28	20.6
No	108	79.4
Fearing that it would take too long to have vaccination		
Yes	37	27.2
No	99	72.8

SD: Standard deviation.

When the students were asked to express their fears they experienced during the COVID-19 pandemic, it was noted that 33% of them were afraid of infecting their families with the virus, 19% of the participants stated that they feared losing their kins, and 18% of the students were anxious about the uncertainties concerning COVID-19 and the vaccination process (Figure 1).

The Fear of COVID-19 and Attitudes Towards the COVID-19 Vaccine with Regard to the Individual Characteristics of the Students

As a result of the statistical analysis, it was found that the mean FCS-19S total score of female students was significantly higher than that of male students, and the mean score of the positive attitude sub-dimension of ATV-COVID-19 was reported to be higher for male students than the mean scores of female students ($p < 0.05$). The results also suggested no statistically significant difference between the negative attitude subdimension of ATV-COVID-19 and the gender of the students ($p > 0.05$) (Table 2). It was additionally reported that the students with a chronic disease had a significantly higher mean score of the ATV-COVID-19 positive attitude subdimension in comparison to the students without a chronic disease ($p < 0.05$). No significant difference was found be-

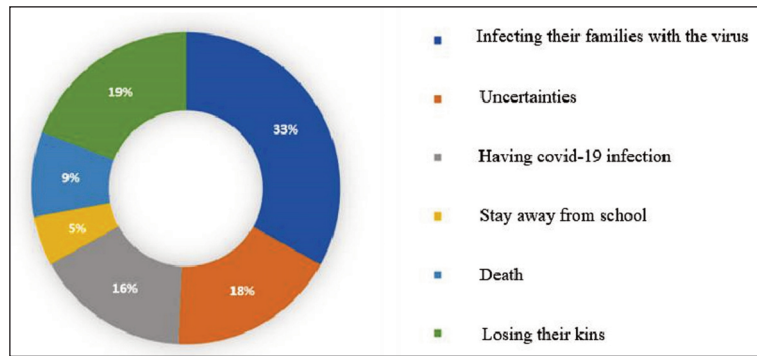


FIGURE 1: Fears of nursing students during the coronavirus disease-2019 pandemic.

TABLE 2: Scale scores and their correlation based on the descriptive characteristics of students.

Variables	ATV-COVID-19 subdimensions		FCS-19S total score
	Positive attitude	Negative attitude	
Gender			
Female	3.0 (1-5)	3.20 (1-5)	23 (15-33)
Male	4.0 (1.75-5)	3.20 (2.20-4.60)	20.50 (17-35)
Test statistics	*1.945	*1.544	*946.500
p value	0.004	0.525	0.007
Chronic disease			
Yes	4.25 (2.50-4.75)	3.20 (2.20-4.60)	23 (21-31)
No	3.0 (1-5)	3.20 (1-5)	23 (15-35)
Test statistics	*350.50	*568.50	*486.50
p value	0.050	0.979	0.454
Smoking			
Yes	3.0 (1-5)	3.0 (1-4.20)	23 (17-33)
No	3.0 (1-5)	3.40 (2-5)	23 (15-35)
Test statistics	*1.797	*2.127	*1.519
p value	0.378	0.009	0.572
Alcohol use			
Yes	2.87 (1-5)	2.90 (2.20-4.60)	23 (19-29)
No	3.0 (1-5)	3.40 (1-5)	23 (15-35)
Test statistics	*1.573	*1.848	*1.495
p value	0.742	0.069	0.927
Fearing that it would take too long to have vaccination			
Yes	3.0 (1-5)	3.20 (1.80-4.80)	23 (15-33)
No	3.0 (1-5)	3.20 (1-5)	23 (18-35)
Test statistics	*1.680	*1.988	*1.822
p value	0.459	0.442	0.965

*Mann-Whitney U test statistics; ATV-COVID-19: Attitudes towards coronavirus disease-2019 vaccine scale; FCS-19S: Fear of coronavirus disease scale.

tween the negative attitude subscale of ATV-COVID-19, the mean FCS-19S total scores, and chronic disease ($p>0.05$) (Table 2). While the mean score of ATV-COVID-19 negative attitude subdi-

mension were found higher in non-smoker students compared to smoker students ($p<0.05$), no statistically significant difference between the smoker and non-smoker students with regard to ATV-COVID-19

TABLE 3: The correlation between ATV-COVID-19 subdimension scores and FCS-19S total scores.

ATV-COVID-19 Subdimension scores	FCS-19S total score [23,14±3,30]		
	Mean±SD	r value	p value
Positive attitude	3.09±1.21	0.102	0.237
Negative attitude	3.31±0.75	0.039	0.649

ATV-COVID-19: Attitudes towards coronavirus disease-2019 vaccine scale; FCS-19S: Fear of coronavirus disease scale; r: Spearman correlation.

positive attitude and FCS-19S total score ($p>0.05$) (Table 2). The descriptive characteristics of the students and the scale scores were comparatively analyzed and no significant difference was found between alcohol consumption and the fear of not getting the vaccination in near future ($p>0.05$) (Table 2).

THE CORRELATION BETWEEN STUDENTS' FEAR OF COVID-19 AND THEIR ATTITUDES TOWARDS COVID-19 VACCINE

The FCS-19S total score of the nursing students ranged from 7 to 35, and the mean scale was reported as 23.14 ± 3.30 . The highest scores of students in FCS-19S were recorded in these statements; "Thinking about that coronavirus bothers me (3.5 ± 1.2).", "I am very afraid of the coronavirus (COVID-19) (3.4 ± 0.8).", "When I see stories and news about the coronavirus on social media, I get nervous or worried (3.2 ± 1.1).", "The positive attitude subdimension of ATV-COVID-19 ranged from 1 to 5, and the subdimension mean score was 3.09 ± 1.21 . In this subdimension, the highest score was found in the statement below: "I would like my family to have the vaccine to be developed/developed for this disease (3.5 ± 1.2)". The negative attitude subdimension of ATV-COVID-19 varied between 1 to 5, and the mean score was found to be 3.31 ± 0.75 . In this subdimension, the highest scores were recorded in such statements; "The vaccine to be developed/developed is dangerous (3.7 ± 0.9)", "I think I can survive the pandemic without the vaccine (3.6 ± 1.0)" and "The vaccine to be developed/developed may cause transmission of the disease. (3.5 ± 1.0)". The FCS-19S total score didn't have a statistically significant correlation with the negative attitude and the positive attitude subdimensions of ATV-COVID-19 ($p>0.05$) (Table 3).

DISCUSSION

This study aimed to assess the correlation between the nursing students' attitudes towards vaccination and their fear of COVID-19 in Turkey. It was concluded that the participant students had high total score averages in the FCS-19S. The results of our study were already confirmed by relevant studies that the level of COVID-19 fear was commonly high.^{13,16} Meanwhile, it has been similarly reported that the FCS-19S was found at moderate levels in several other studies.^{17,18} The high levels of COVID-19 in our study were considered to result from the increasing number of confirmed cases and high death rates, uncertainties regarding the pandemic, and compulsory regulations like social distancing and quarantine to reduce the risk of transmission.^{3,8,19}

It was further reported that students feared most about infecting their families (33%), losing their kins (19%), and uncertainties about COVID-19 and the vaccination process (18%), which complied with the results of similar studies that the study participants were largely anxious about their relatives catching COVID-19.^{20,21} The results of recent studies have already shown that the perceived fear increases the feeling of uncertainty in individuals.^{17,20}

The results of our study also indicated that the highest scores on the fear scale were recorded in such statements "Thinking about that coronavirus bothers me", "I am very afraid of the COVID-19" and "When I see stories and news about the coronavirus on social media, I get nervous or worried". Asmundson & Taylor found that the field similarly suggested that the media coverage can trigger COVID-19 fear in society.¹⁹ It is therefore suggested that the healthcare experts share up-to-date and accurate information.

The results of our study also pointed out that the mean scores of the students' positive attitude and negative attitude towards the vaccine were at "moderate" level, that is, they were still uncertain. The ATV-COVID-19 have already been widely discussed and found that 42% of the participants were skeptical about the vaccine in the United States and 55% of the participants in Saudi Arabia still had doubts about having the vaccine, it was further found that the 7% of the participants rejected vaccination and 14% of

them were still uncertain in the United Kingdom while only 9% of the respondents declined vaccination and 36% of the participants were skeptical about having vaccination in Turkey.^{11,22,23}

It is widely recognized that the vaccine recommendations of healthcare professionals are extremely important in ensuring the vaccine acceptance.²⁴ However, the results of recent studies also complied with the results of our study result that not all healthcare professionals feel certain about vaccination.²⁵ The students' attitudes towards vaccinations were also analyzed and it was found that the highest scale score was recorded in the following statements: "The vaccine to be developed/developed is dangerous", "I think I can survive the pandemic without the vaccine" and "The vaccine to be developed/developed may cause the disease to be transmitted". Considering that the vaccine is considered to be unsafe due to its novelty and rapid production, it would be reasonable to think that it may also increase the uncertainties about vaccination among students. It has been indicated in a study conducted in China that 91% of the participants agreed to have the COVID-19 vaccine and 48% of these participants believed that they could delay the vaccination until the safety of the vaccine is confirmed.²⁶

It was further reported that individual characteristics of the students also affected their FCS-19S and their attitudes towards vaccination. It was additionally noted that female students had higher mean scores for fear of COVID-19 in comparison to male students. It has also been shown that women are more afraid of COVID-19 than men.^{13,18} In our study, it was stated that male students had higher positive attitude scores towards COVID-19 vaccine than female students. The results of similar studies have affirmed the correlation between male gender and COVID-19 vaccine acceptance which can be explained by the fact that men had high mortality and morbidity rates and that women are more easily influenced by false media coverage about the COVID-19 pandemic than men.^{22,25,27,28} The positive attitudes of students with chronic diseases towards the COVID-19 vaccine were found to be higher than those without chronic diseases. Sethi et al. reported that individuals with chronic diseases had higher levels of vaccine acceptance.²³ Given that COVID-19 may have a more severe

course in patients with chronic diseases, it would be expected that patients with chronic diseases had higher levels of positive attitude towards vaccination. It was also suggested that the non-smokers had more positive ATV-COVID-19 than smokers. Similarly, Sethi et al. found higher levels of vaccine acceptance in non-smokers.²³

Fear is basically a psychological response that enables individuals to act out self-protective behaviors.²⁹ The perceived threat eventually facilitates the development of precautionary behaviors in the COVID-19 process.⁷ In this sense, it would be legitimate to anticipate that high levels of COVID-19 fear will affect students' attitudes towards vaccination. Nevertheless, no significant correlation was found between students' FCS-19S and their attitudes towards vaccination, which was considered to be caused by several other factors such as growingly popular anti-vaccine rhetoric and uncertainties about COVID-19 pandemic and vaccination process.

CONCLUSION

High levels of COVID-19 fear in our study indicated that fear is a psychological response that should be taken into serious consideration. It is profoundly significant to provide accurate scientific and up-to-date information in order to prevent the escalation of fear in public during the pandemic. Besides, it is commonly acknowledged that the vaccination recommendations made by healthcare professionals are effective in promoting the vaccine acceptance. In this study, it was found that nursing students had high levels of COVID-19 fear, that they still felt uncertain about vaccination, that their attitudes towards vaccinations were not affected by the high levels of fear, and that their COVID-19 fear and their attitudes towards vaccinations were certainly influenced by certain individual characteristics. Therefore, it is recommended to tackle the attitudes towards vaccinations of nursing students with a realistic approach and to produce educational programs that eliminate uncertainties about vaccination.

LIMITATIONS

The research findings are limited to fourth year nursing students attending a university in the 2020-2021

academic year. Therefore, the results of the study can not be generalized to all nursing students.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

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

All authors contributed equally while this study preparing.

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