SAĞLIK ve HEMŞİRELİK YÖNETİMİ DERGİSİ
JOURNAL of HEALTH and NURSING MANAGEMENT
Özgün Araştırma
Original Article

Nursing Students' Protective Behaviors towards COVID-19, their Perception of Information, and the Psychological Effects in the Early Stages of the Pandemic

Pandeminin Erken Döneminde Hemşirelik Öğrencilerinin COVID-19'dan Korunma Davranışları, Bilgi Algıları ve Psikolojik Etkileri

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SHYD 2022;9(2):261-271
doi:10.54304/SHYD.2022.66934

Cite as: Gürkan KP, Cengiz B. Nursing students' protective behaviors towards COVID-19, their perception of information, and the psychological effects in the early stages of the pandemic. Journal of Health and Nursing Management. 2022;9(2):261-271.

Abstract

Aim: The pandemic has psychological effects on all people and the risk of death due to COVID-19. Future nurses are expected to be as prepared as possible for public health emergencies such as the pandemic. This study was conducted to determine nursing students' protective behaviors from COVID-19 and the psychological effects of the pandemic.
Method: A descriptive and cross-sectional design was used in this study. The sample of the study consisted of 685 nursing students in Turkey.
Results: The students followed the news about COVID-19 on social media and TV, and their perception of information was moderate. The anxiety levels of female students were higher, and those with a family history of chronic diseases were more psychologically affected by the pandemic than those who did not. As the number of individuals with chronic diseases in the family increased, anxiety levels also increased. It was determined that students showed protective behaviors such as social distance and mask use in the early stages of the pandemic.
Conclusion: Nurses of the future will be involved in protecting and promoting health and treating illness as an important professional group in the health care system. Identifying mental health and psychological needs during the pandemic will be an important contribution to the management of the pandemic.

Keywords: Nursing student, pandemic, COVID-19, protective behaviors, psychological effects.

Recieved / Geliş: 29.11.2021
Accepted / Kabul: 15.07.2022
Published Online / Online Yayın: 25.08.2022

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Öz

Amaç: COVID-19 küresel salgını nedeniyle ölüm riskinin yanında tüm insanlar üzerinde psikolojik etkileri de olmuştur. Bu çalışmada, hemşirelik öğrencilerinin COVID-19'dan korunma davranışları ve salgının psikolojik etkilerinin belirlenmesi amaçlanmıştır.
Yöntem: Bu çalışmada kesitsel ve tanımlayıcı bir tasarım kullanılmıştır. Araştırmanın örneklemini Türkiye'deki 685 hemşirelik öğrencisi oluşturmuştur.
Bulgular: Öğrencilerin COVID-19'a ilişkin haberleri sosyal medya ve TV üzerinden takip ettikleri ve bilgi algılarının orta düzeyde olduğu bulunmuştur. Kız öğrencilerin kaygı düzeyleri yüksek bulunmuştur ve ailesinde kronik hastalığı olanların olmayanlara göre salgından psikolojik olarak daha fazla etkilendiği görülmüştür. Ailedeki kronik hastalığı olan birey sayısı arttıkça kaygıda artma olduğu, öğrencilerin salgının erken dönemindeki sosyal mesafe ve maske kullanımı gibi koruma davranışlarını gösterdikleri saptanmıştır.
Sonuç: Geleceğin hemşireleri sağlığı sisteminde önemli bir meslek grubu olarak sağlığın korunması, geliştirilmesinde ve hastalıkların tedavisinde yer alacaktır. Salgın sırasında ruh sağlığı ve psikolojik gereksinimlerin belirlenmesi, salgın yönetim sürecine büyük katkı sağlayacaktır.

Anahtar Sözcükler: Hemşirelik öğrencileri, salgın, COVID-19, korunma davranışları, psikolojik etkileri.

Introduction

There were cases of pneumonia in Wuhan, China, which developed for no apparent reason in December 2019 and did not respond to any means of treatment. It was understood that a new corona virus was caused by the disease called SARS-CoV-2, and the disease ended up with an epidemic. The World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic due to its alarming spread across the world. According to the WHO daily disease report, as of May 29, 2020, the disease infected 5,704,736 people worldwide and caused the death of 357,736 individuals (WHO, 2020). After the detection of the first cases in Turkey, on March 11, 2020 until May 29, 2020 the number of cases rose to 160 979, with 4461 people losing their lives (Worldometers, 2020). There is considerable uncertainty regarding how long this pandemic, which can result in death, will last and to what extent it will spread (WHO, 2020).

Pandemic has not only brought the risk of death due to COVID-19, it has also caused insufferable psychological affects on all people in the world (Duan & Zhu, 2020; Xiao, 2020). Changes in daily life, virus fluctuation, increased mortality, rapid spread of the disease and increasing restrictive measures have developed rapidly and unprecedentedly. Because of this situation which makes adaptation difficult, individuals tend to experience fear and anxiety (Xiang et al., 2020). University students are also expected to be affected in terms of their mental health from this situation (Cao et al., 2020). Although great attention has been paid to identifying individuals with COVID-19 infection, identifying the mental health needs of people affected by pandemics has been relatively neglected (Lei, Wang, Yang, Lei & Yang, 2020). Studies have also reported that emergency situations such as pandemics are less involved in nursing education (Elrggal et al., 2018). Researchers have begun to address nursing students' educational needs, concerns, and fears regarding pandemics and disaster response (Kawano & Kakehashi, 2015; De Luca et al., 2015). The roles that nursing students can play in pandemics, the education and preparation that they may need to fulfill these roles, and the support measures that must be implemented so that they can work effectively and safely as frontline health workers still remain to be explored (Vitale, Moretti, Notarnicola & Covelli, 2020).

The COVID-19 pandemic has forced healthcare workers all over the world to work under difficult conditions. While people are quarantining at home to protect themselves, healthcare workers have had to fight against the virus at the forefront. Thousands of healthcare workers have been infected and have died worldwide due to the virus (Greenberg, Docherty, Gnanapragasam & Wessely, 2020). Healthcare workers who had to work during the COVID-19 pandemic had to struggle with an incurable disease unexpectedly. Health workers, who witnessed many people getting sick and dying, have experienced physical and psychological problems. In many countries of the world, senior nursing students have had to work on the front lines due to the lack of nurses during the pandemic. But, this situation has not happened in Turkey. However, students who have chosen the nursing profession and who have seen this difficult process experienced by the health personnel who are actively working in the front lines during the pandemic may have been affected differently by the pandemic compared to their peers (Çalışkan, Kargın & Ersöğütçü, 2021).

In the literature, there are studies on the mental distress of nursing students during the COVID-19 pandemic, the problems caused by distance education, and the problems of adaptation to the clinic after the pandemic process (Aslan & Pekince, 2021; Kürtüncü & Kurt, 2020; Lampasona, Pantaleo, Terranova, D'Anna & Firenze, 2021; Vitale et al., 2020)

Nursing students are directly or indirectly associated with such pandemics. Therefore, they should have a higher level of knowledge and a better attitude towards such diseases (Ikhlaq, Hunniya, Riaz & Ijaz, 2020). It has become an urgent matter that nursing students, who are the future nurses, organize their emotions effectively and appropriately in public health emergencies and guide the prevention of losses arising from crisis-causing events. It is thought that this study will contribute to the literature in terms of revealing the behaviors of nursing students to protect against COVID-19 and the psychological effects it has brought at the beginning of the pandemic when we have less knowledge about the disease and the virus.

Method

Aim of the Study: It was determined the anxiety states of nursing students during the early stages of pandemic in parallel with the following purposes: (1) Determination of COVID-19 protective behaviors of nursing students and (2) determination of psychological effects of the pandemic on nursing students.

Type of the Study: This research is descriptive, cross-sectional and relational model.

Population and Sample: The population of the study was composed of nursing students studying at nursing departments of Turkish universities who are at the same time members of the Student Nurses Association in Turkey (n = 2000). In order to determine the number of samples, accepting Type 1 error 0.05 and Type 2 error 0.05 (95% power) as medium effect size in G-Power program and the required sample size was determined to be 323 (Faul, Erdfelder, Lang & Buchner, 2007). The study was complied with 685 nursing students volunteering and studying at a nursing department between April - June 2020 without resorting to a sample selection method.

Data Collection Tools: The data of the study were collected using "Introductory Information Form".
Introductory Information Form: This form consists of three parts. It consists of 26 questions, including 6 questions about socio-demographic data, 2 questions about perception of information and information sources, 8 questions about protective behaviors, and 10 questions about the psychological effects of the pandemic (All questions are given in the tables). The questionnaire questions were examined by 3 nurses and academicians (Internal Medicine Nursing - Public Health Nursing) experts in the field and corrections were made in line with their suggestions.

Data Collection: Introductory information form and participants' consent forms, created through Google Forms, were electronically sent to students.

Data Analysis: The study data were analyzed on the IBM SPSS 22 statistical software package. While such descriptive statistics as standard deviation, mean arithmetic, frequency and percentage values were used in the analysis of the data, Mann Whitney U Test was employed for the data not complying with the normal distribution.

Ethical Considerations: Written permission was obtained from an university Non-Interventional Research Ethics Committee (Date: 22 June, 2022, Decision no: 2020/14-18) and the Student Nurses Association for access to the students' e-mail address information. In addition, parents were informed about the research, and their written consent was obtained.

Limitation of the Study: The most important limitation in this study is the absence of a anxiety Coronovirus scale in Turkısh. Another limitation is the online collection of the study's data.

Results

Table 1. Distribution of students' socio-demographic features (N:685)

Descriptive Features		
Age	**21.10±1.76 (min:18- max:40)**	
Number of household members	**5.26±2.08 (min:1-max:16)**	
	n	**%**
Gender		
Female	516	75.3
Male	169	24.7
Year of Study		
1st year	147	21.5
2nd year	210	30.7
3rd year	138	20.2
4th year	189	27.6
Do you have any chronic diseases?		
Yes (allergic asthma, epilepsy, hypothyroidism, asthma, median anemia, hypertension, type 1 DM..etc)	44	6.4
No	641	93.6
Number of individuals with chronic diseases in your family		
0	290	42.3
1	223	32.6
2	130	19.0
3 and more	42	6.1

The mean age of the students included in the study was 21.10 ± 1.76, while 75.3% of them were female, 30.7% of them were in 2nd year and 93.6% of them did not have any chronic diseases. In addition, 42.3% of the students, whose mean number of household members was found to be 5.26 ± 2.08, had no family members with a chronic disease (Table 1).

Table 2. Nursing students' perceptions of information, sources of information, and protective behaviors regarding COVID-19 in the early stages of the pandemic

		Mean± SD	
Nursing students' perceptions of information		3.85±.74 (1-never; 5- much)	
		n	**%**
Where do you follow the news about COVID-19 from?	Social media	315	46.1
	Television	301	43.9
	All (WhatsApp, guides, publications, …)	70	10.0
Protective behaviors against COVID-19			
Use of masks in public places	Yes	654	95.5
	No	31	4.5
Which face mask do you use?	Surgical mask	429	62.6
	Paper / cloth mask	186	27.2
	Washable fabric mass	50	7.3
	N95 mask	20	2.9
Frequency of using the mask	I never use it repeatedly	272	39.7
	Rarely (1-2 times)	270	39.4
	Sometimes (3-4 times	94	13.7
	Often (5-6 times)	25	3.6
	Always (7 times or more)	24	3.5

Table 2. Continued

		Mean± SD	
Nursing students' perceptions of information		3.85±.74 (1-never; 5- much)	
		n	**%**
Method of disinfecting the mask	I never use it repeatedly.	310	45.3
	I use it without disinfecting	78	11.4
	Sunlight exposure (ventilation on the balcony)	148	21.6
	Alcohol	16	2.3
	Washing (with detergent)	133	19.4
Compliance with the social distance rule	Yes	656	95.8
	No	29	4.2
The status of compliance with social distance rules of the people around you	Yes	343	50.1
	No	342	49.9
The status of wearing mask of the People around you	Yes	5	76.6
	No	160	23.4
Do you warn people who don't comply with the rules?	Yes I do	34	50.9
	No I do not warn	98	14.3
	I want to warn, but I am afraid of their reaction	238	34.7

Students stated that their knowledge of COVID-19 is at a medium level. It was determined that 46.1% of the participants followed the news on COVID-19 from social media.

It was found that 95.5% of nursing students were wearing masks, 62.6% used surgical masks, 95.8% followed social distance rules, and 50.9% warned those not complying with the rules (Table 2).

Table 3. Psychological effects of the pandemic on nursing students

Item	n	%
I can't help watching COVID-19 related programs/ news on TV / social media all the time.		
Yes	315	46.0
No	370	46.0
I follow the number of new cases every day.		
Yes	519	80.1
No	142	19.9
Questions	**Mean±SD**	
How afraid are you of getting infected?	2.96±1.13 (1-never; 5- much)	
How afraid are you of your family members / relatives getting infected?	4.39±.90 (1-never; 5- much)	
Score your anxiety level out of 5 before the COVID-19 process.	2.56±1.20 (1-never; 5- much)	
Score the anxiety level out of 5 during COVID-19	3.56±1.08 (1-never; 5- much)	
Are you having trouble sleeping?	2.48±1.38 (1-never; 5- much)	
Does crowded environments make you nervous?	3.94±1.07 (1-never; 5- much)	
Status of feeling uneasy and unhappy	3.27±1.19 (1-never; 5- much)	
Status of feeling helpless	2.82±1.25 (1-never; 5- much)	
Status of difficulty in focusing attention and concentrating on lessons	3.85±1.24 (1-never; 5- much)	
Status of feeling sluggish and dull	3.23±1.31 (1- never ; 5- much)	
Status of feeling angry	3.07±1.30 (1- never ; 5- much)	

Anxiety of the students were found to be at a medium level in the COVID-19 outbreak period (83.56 ± 1.08). The students stated what they feared most was that their family members could be infected (4.39 ± .90) and they also stated that difficulty sleeping was the least fear-causing condition (2.48 ± 1.38) (Table 3).

Table 4. Distribution of the psychological effects of the pandemic by gender

		Gender		Having a chronic disease	
		M (n=516)	F (n=169)	Yes (n=44)	No (n=641)
Fear of getting infected	Median	362.32	284.02	375.34	340.78
	U	33635.00		15525.00	
	p	.000***		.243	
Fear of their family members being infected	Median	354.84	306.84	395.17	339.42
	U	37490.50		16397.00	
	p	.002**		.037*	
Pre-COVID-19 anxiety	Median	353.47	311.04	356.30	342.09
	U	38200.50		14687.00	
	p	.012		.634	
During COVID-19 anxiety	Median	363.37	280.79	414.45	338.10
	U	33089.00		17246.00	
	p	.000***		.016*	
Difficulty sleeping	Median	354.55	307.75	411.77	338.28
	U	37644.00		17128.00	
	p	.006**		.014*	
Being nervous in crowded environments	Median	357.34	299.22	382.25	340.31
	U	306204.00		15829.00	
	p	.000***		.153	
Feeling uneasy and unhappy	Median	353.53	310.84	335.12	343.54
	U	38167.50		13755.50	
	p	.012*		.779	
Feeling helpless	Median	353.49	310.97	386.41	340.02
	U	38189.50		16012.00	
	p	.013*		.123	
Feeling sluggish and dull	Median	361.45	286.66	385.28	30.10
	U	34081.00		15962.50	
	p	.000***		.134	
Feeling angry	Median	355.58	304.58	366.55	341.38
	U	37109.50		15138.00	
	p	.003**		.403	

U: Mann Whitney U Test

*p< .05, **p< .01, ***p< .001

In Table 4, students' distribution of anxiety levels related to COVID-19 by gender is given. Female students' fear of getting infected, fear of one of the family members getting infected and also pre-and during COVID-19 pandemic anxiety levels were found to be higher than male students, which was statistically significant (p<.05). In addition, such items as difficulty in sleeping, feeling nervous in crowded environments, feeling uneasy and unhappy, feeling helpless, feeling sluggish and dull, and feeling angry were found to be higher among female students, which was also statistically significant (p <.05) (Table 4).

A significant relationship was found between the presence of chronic diseases in students' families and the psychological effect of the pandemic on them (p<.05). Items, such as fear of their family members being infected, during-COVID-19 anxiety, and difficulty sleeping, were found to be higher in students with a family history of chronic diseases. (p <.05) (Table 4).

Table 5. Distribution of the psychological effects of the pandemic by some features of the students

		F	p	Scheffe* (post-hoc)
Number of individuals with chronic diseases in the family	**Fear of getting infected**	2.422	0.25	High number of chronic patients in the family > Low number of chronic patients in the family
	Fear of their family members being infected	.758	.604	
	Pre-COVID-19 anxiety	1.172	.319	
	During COVID-19 anxiety	1.604	.143	
	Difficulty sleeping	1.028	.405	
	Being nervous in crowded environments	2.395	.027	
	Feeling uneasy and unhappy	.832	.545	
	Feeling helpless	1.570	.153	
	Feeling sluggish and dull	.896	.497	
	Feeling angry	.739	.619	

F: Tek Yönlü Varyans Analizi

*As a result of the analysis of variance, the data from which the significance originated was found with the Scheffe Test.

In Table 5, the relationship between the psychological effects of the pandemic and the number of nursing students' family members with chronic diseases and the grade level was examined. The dependent variables in the analysis are the psychological effects variable, and the independent variables are class and family members with chronic diseases. No significant relationship was found between grade level and the psychological effects of the pandemic. No post-hoc analysis was performed on the data without significant results. However, a significant relationship was found between fear of getting infected and being nervous in crowded environments and the number of family members with chronic diseases and post hoc analysis (Scheffe test) was performed for these variables (Table 5).

Discussion

In this study, nursing students' protective behaviors against COVID-19 and the psychological effects of the pandemic were examined in the early stages of the pandemic. In the early stages of the pandemic, when information resources were inadequate and uncertainties were experienced, nursing students expressed their knowledge level as medium. A study with nurses in Iran showed that nurses' level of knowledge was at a good level (Cao et al., 2020). It was found that midwifery students in Turkey (97.4%) and Pakistan (97.4%) and medical students in India (92.7%) had a good level of knowledge about COVID-19 in the Early Stages of the Pandemic (Ikhlaq et al., 2020; Sögüt, Dolu & Cangöl, 2020; Khasawneh Humeidan & Alsulaiman, 2020). In a study in which nurses and nursing students were compared, COVID-19 knowledge levels were found to be similar in both groups (Savitsky, Findling, Ereli, & Hendel, 2020). The comparison of the results of this study with the literature indicated that the knowledge level of the students was lower. In this study, nursing students' perceptions of their status of knowledge were lower than those of the literature.

Similar to our findings, it was found in other studies that the participants learned the news related to COVID-19 generally from social media and TV (Cao et al., 2020; Sögüt et al., 2020; Ikhlaq et al., 2020). The fact that students do not prefer WHO's guides and academic publications and prefer social media and television over them is an important finding in terms of enabling us to see their inability to use scientific knowledge. Social media is widely used, especially among young people. However, the news shared on social media is sometimes true and sometimes false, incomplete, or distorted. Therefore, this finding shows the importance of increasing students' media health literacy levels.

It was determined that the majority of the students gave correct answers to the questions about protective behaviors against COVID-19, such as social distance and mask use (Table 2). It is determined that some students still did not wear masks and did not pay attention to social distance rules, though in low numbers. The Facebook posts of the US Centers for Disease Control and Prevention (CDC) have mainly focused on the measures to be taken against the COVID-19 virus and general public health issues. The Ministry of Health has published warnings on the importance of protective measures, especially mask use, on its official website, social media accounts, and public spots since the early stages of the pandemic. The fact that students do not warn those not wearing masks or hesitate to warn them suggests us that they have not yet adopted the role of nursing as an agent of change and cannot be put it into practice. These data show that such issues as public health emergencies, epidemics and ways of prevention in nursing education should be covered more in the curriculum and students should be encouraged to become an agent of change.

In this study, it was determined that nursing students were psychologically affected by the pandemic (Table 3). According to a study conducted in the Mental Health Association in our country, 50% of the society feared being infected with COVID-19 and 42% had concerns about their health (Mental Health Association, 2020). During the COVID-19 outbreak in China, the prevalence of anxiety disorders among young people was found to be higher than in the elderly. In a study conducted with female midwifery students, only 5% were found to have medium or high levels of anxiety (Sögüt et al., 2020). According to a study, nursing students were found to perceive moderate levels of stress in the early stages of pandemic (Aslan & Pekince, 2021). In a study conducted with students studying in the health sciences in China, it was found that 24.9% of these students were experiencing a stressful. The findings of our study comply with those in the literature. Savitsky, Findling, Ereli, & Hendel (2020) found in their study comparing emotional coping strategies of nurses and nursing students with COVID-19 that nursing students had lower anxiety levels than nurses. In addition to COVID-19 outbreak itself, it is also thought that the students' increased anxiety levels may also be caused by the lack of interpersonal communication arising from strict quarantine rules. Similar to our findings, anxiety levels were found to be higher in those with a family with chronic disease (Sögüt et al., 2020). In a study conducted with healthcare professionals in China, this rate was found as 63.9%, and in a study conducted with medical students in Pakistan, it was found as 56% (Ikhlaq et al., 2020; Vizheh, et al., 2020). It was found that the students were more afraid of their family members being infected than their own being infected with the disease. During the COVID-19 outbreak, students were found to give the least score to the question "Are you having difficulty sleeping?" Huang, Lei, Xu, Liu & Yu (2020) found in their study that sleep disorders are lower in Chinese society, whereas it is higher in healthcare workers. In a study conducted with medical faculty students, it was reported that the students experienced deterioration in sleep and appetite during the pandemic (Torun & Torun, 2020). It can be said that their daily routines did not undergo a change pattern due to their sleep patterns remaining unchanged due to such reasons as the being at home because of quarantine, not actively working in the hospital during the pandemic, and continuing education over distance education in our country.

In this study, a significant relationship was found between the gender and anxiety levels of nursing students (Table 4). Like our findings, a significant relationship was found between the gender and level of COVID-19 anxiety in the society (Aslan & Pekince, 2021; Özdin & Özdin, 2020; Torun & Torun, 2020). Unlike our findings, Cao et al. (2020) did not find a significant relationship between anxiety and gender. However, when the literature is analyzed, it has been shown that anxiety and depressive disorders are more common in women (Alexander, Dennerstein, Kotz & Richardson, 2007; Moreno et al., 2019). During the COVID-19 outbreak, anxiety disorder was found to be three times higher in women than in men (Wang, Di, Ye & Wei, 2020), which shows similarity with our findings. In the light of our current knowledge, a higher anxiety level in women is an expected finding of this study.

It was found that students with a chronic diseases were psychologically affected by the pandemic more (Table 4). It was determined that these students felt anxious during COVID-19, feared that their family members would be infected, and had difficulty sleeping. Similar to our findings, students with chronic diseases were more affected of psychological effects of the pandemic (Gao, Wang, Guo & Hu, 2021; Rahman, 2021). This finding is consistent with the literature.

In this study, no significant relationship was found between the grade level of the students and the presence of psychological effects of the pandemic (Table 5). In a study conducted with midwifery students, no significant relationship was found between students' grade levels and anxiety levels, similar to our findings (Sögüt et al., 2020). It was thought that because nursing students experienced a public health emergency such as a pandemic for the first time, there was no significant relationship between grade level and psychological effect. Anxiety levels were found to be higher in university students whose families or relatives were infected with COVID-19 (Cao et al., 2020; Wang, Di, Ye & Wei, 2020; Yohannes, 2021). The anxiety levels of female midwifery students who presented to the hospital during the pandemic period and had a parent or relative with a chronic disease were found to be high (Sögüt et al., 2020). It was found that as the number of people with chronic diseases in the family of students increased, they were affected by the pandemic psychologically more. No similar finding could be found in the literature. It is thought that the statements made about the severe course of COVID-19 in chronic patients may have triggered this situation.

Conclusion

In conclusion, it was found that the nursing students' perceptions of information about COVID-19 in the early stages of the pandemic were moderate and that they paid attention to the mask use as well as social distance rules. However, it was also determined that the students did not warn the individuals around them to follow the rules and that they followed the news related to the disease from social media and television. It was seen that nursing students were highly worried compared to pre-COVID-19 period and that female students worried about COVID-19 more than male students. Nursing students

who had a chronic diseases were psychologically affected by the pandemic more than those who did not. As the number of individuals with chronic diseases in the family increased, anxiety levels increased, as well. This study was carried out in the early stages of the COVID-19 pandemic when the number of cases was relatively less. The anxiety levels are thought to be lower because students feel safe as they attend distance education. In order to make comparisons, similar studies are recommended conducted in the late stages of the pandemic. In addition, the use of the coronavirus anxiety scale, recently adapted to Turkish, may provide an easier and more understandable discussion points in terms of the findings in later studies. Training should be given to provide psychological resilience in nursing education.

Acknowledgement: The authors appreciate nursing students who participated in the study.

Ethics Committee Approval: Dokuz Eylul University Non-Interventional Research Ethics Committee approval was obtained (Date: 08.06.2020 - Number: 2020/14-28).
Conflict of Interest: Not declared.
Funding: None.
Informed Consent: Written informed consent of the participants was obtained.

Etik Kurul Onayı: Dokuz Eylül Üniversitesi Girişimsel Olmayan Araştırmalar Etik Kurulu tarafından onaylanmıştır (Tarih: 08.06.2020 - Karar No: 2020/14-28).
Çıkar Çatışması: Bildirilmemiştir.
Finansal Destek: Yoktur.
Katılımcı Onamı: Katılımcıların yazılı bilgilendirilmiş onamları alınmıştır.

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