# The Effect of COVID-19 Pandemic on Nursing Students' Anxiety Levels

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**Abstract**

**Aim:** This study aimed to determine the effect of the COVID-19 epidemic on the anxiety levels of nursing students.

**Method:** This research was conducted in a descriptive, correlational and cross-sectional design, and it was completed between April-May 2020. In the study, the data were collected with "Socio-demographic and COVID-19 Pandemic Knowledge and Attitudes of Nursing Students Information Form" and "State and Trait Anxiety Inventory". The research data were arranged on the internet in the form of a Google survey form and sent to e-mail addresses. Written consent was obtained from the Ministry of Health Scientific Research Board and the Ethics Committee in order to carry out the study.

**Results:** The students' mean age was 22.61±1.70. It was found that as the level of knowledge about COVID-19 increased, their trait anxiety levels also increased (p=0,004), and as they found the effective hand washing level to be sufficient to prevent coronavirus transmission, their trait anxiety levels decreased (p=0,040). It was observed that both state and trait anxiety scores increased as their anxiety levels about coronavirus transmission increased (p<0,05), and the level

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of state anxiety rose as the worries about the transmission to family members increased (p=0,005).

**Conclusion:** It was determined that the COVID-19 pandemic increased the anxiety level of nursing students. The study concluded that it would be a good method to provide training to help nursing students, who will become health professionals, in developing their attitudes and knowledge of COVID-19-related anxiety and coping methods used to deal with anxiety. Therefore, it was considered that COVID-19-related training should be provided in courses or scientific activities such as independent seminars and conferences; students should be encouraged to talk about their feelings and thoughts, consultancy services should be provided and this issue should be further investigated using case studies.

**Keywords:** COVID-19, anxiety, nursing students, pandemic.

### COVID-19 Pandemisinin Hemşirelik Öğrencilerinin Kaygı Düzeylerine Etkisi

**Öz**

**Amaç:** Bu çalışmada COVID-19 pandemisinin hemşirelik öğrencilerinin kaygı düzeyleri üzerine etkisini incelemek amaçlanmıştır.

**Yöntem:** Araştırma, tanımlayıcı, korelasyonel ve kesitsel araştırma tasarımda yürütülmüş ve Nisan-Mayıs 2020 tarihleri arasında tamamlanmıştır. Araştırmada veriler "Sosyodemografik ve COVID-19 Pandemi Bilgi ve Tutum Formu" ve "Durumluk ve Sürekli Kaygı Envanteri" ile toplandı. Araştırma verileri internet ortamında Google anket formu şeklinde düzenlenerek mail adreslerine gönderildi. Öğrenciler anket formunu doldurduktan sonra araştırmacıların mail adreslerine tekrar geri gönderdi. Çalışmanın yürütülebilmesi için Sağlık Bakanlığı Bilimsel Araştırmalar Kurulu'ndan ve Etik Kurul'dan izin alındı.

**Bulgular:** Öğrencilerin yaş ortalaması 22,61±1,70 yıl idi. Koronavirüs hakkındaki bilgi düzeyleri arttıkça, sürekli kaygı düzeylerinin de arttığı (p=0,004), koronavirüs bulaşmasını önlemek için etkili el yıkama düzeyini yeterli buldukça sürekli kaygı düzeylerinin azaldığı saptandı (p=0,040). Koronavirüsün bulaşması hakkındaki endişe düzeyleri arttıkça, hem durumluluk hem de sürekli kaygı puanlarının arttığı (p<0,05), aile bireylerine bulaşması hakkındaki endişeleri arttıkça, durumluluk kaygı düzeylerinin arttığı görüldü (p=0,005).

**Sonuç:** COVID-19 pandemisinin hemşirelik öğrencilerinin kaygısını artırdığı belirlendi. Sağlık profesyoneli olacak hemşirelik öğrencilerine, COVID-19 ilişkili kaygılarına yönelik bilgi, tutumlarını ve başa çıkmada kullandıkları baş etme yöntemlerini geliştirmeye yardımcı olmak için eğitim verilmesinin iyi bir yöntem olacağı düşünülmektedir. Bu nedenle, derslerde veya bağımsız seminer, konferans gibi bilimsel etkinliklerde COVID-19 ilişkili eğitimlerin sunulması,

öğrencilerin duyguları ve düşünceleri hakkında konuşmaya cesaretlendirilmesi, danışmanlık hizmetlerinin verilmesi ve konunun olgu tartışmaları ile somutlaştırılması gerektiği düşünülmektedir.

**Anahtar kelimeler:** COVID-19, kaygı, hemşirelik öğrencileri, pandemi.

## Introduction

In the control, prevention and management of COVID-19 infection, which has become a major public health problem all over the world, all healthcare professionals and nurses at the national level have continued their duties by making the necessary preparations both in public health centers, emergency clinics of hospitals, COVID-19 clinics and intensive care units. However, some healthcare professionals and nurses all over the world have become infected while treating infected patients and providing care. In such viral epidemic situations, healthcare professionals and nurses who are together with patients experience not only physical but also emotional difficulties[1-3].

When previous studies were examined, it was reported that stress, anxiety and post-traumatic stress disorder were experienced after acute infectious diseases such as SARS[4,5]. In addition, it was stated that these effects on the mental health of health professionals and nurses are not only short-term but long-term effects were also observed[6]. While it was reported that being isolated, working in high-risk positions and making close contact with infected people led to these consequences observed in healthcare professionals and nurses[3,7], in similar studies about COVID-19, it was stated that having high morbidity and being related to potential mortality intensify the personal perception of danger[8]. The predicted shortage of protective equipment and health supplies, uncertainty about the process and the escalating suspected/confirmed COVID-19 cases further increase the anxiety of healthcare professionals[9,10]. However, it is important for healthcare professionals and nurses to recognize their own emotions and to know and use the methods to cope with these emotions in order to provide a better quality service to patients and their families. Therefore, it was reported that providing psychological support for healthcare professionals and nurses is important in such epidemic situations[11,12]. Nowadays, however, when studies on COVID-19 pandemic were examined, it was seen that most of them focus on epidemiological research, prevention

and control, diagnosis and treatment, while fewer studies emphasize mental health problems of healthcare professionals[11,13,14]. However, both society and healthcare professionals and nurses experience intense anxiety in epidemic situations that can be easily transmitted from person to person and have high mortality. It is predicted that nursing students will experience anxiety due to identifying with working nurses in addition to the possible risks regarding the practice of nursing courses which were planned to be completed after the pandemic. Anxiety can not only arise in any situation where self-integrity is threatened, but it can also be the subjective or objective reflection of individuals' experiences. While the stable anxiety stemming from the temporary situation created by dangerous conditions is defined as "state anxiety"; the innate anxiety that gives the individual the feeling that her/his self-values are threatened and causes the individual to interpret situations she/he is in as if stressed is defined as "trait anxiety"[15,16]. By being able to recognize and control their own emotions before graduating from nursing education programs, managing their own anxiety in such processes is possible for nurses. In a study, it was determined that it was a must for nursing students as future healthcare professionals to adopt all healthy behaviour methods, including stress management skills and that these behaviours are the only way to serve as a role model for patients[17]. However, in this period, a study examining how students, nurses of the future, are affected by this epidemic, how they cope with this situation, their anxiety, stress and anxiety states could not be followed. It should also be noted that epidemics create significant psychological problems that can have negative effects on learning and students' overall psychological health. Therefore, this study aimed to determine the effect of the COVID-19 epidemic on the anxiety levels of nursing students.

**In this study, the answers to the following questions were sought:**

1. What are the state-trait anxiety levels of nursing students during the COVID-19 pandemic period?

2. What are the distributions of mild, moderate and severe State and Trait Anxiety levels of nursing students?

3. What is the relationship between nursing students' attitudes towards COVID-19 and their anxiety levels?

**Material Methods**

**Study Design**

This research was conducted in a descriptive, correlational and cross-sectional design, and it was completed between April and May 2020.

**Participants and Procedures**

The research universe is a total of 198 nursing students who were enrolled at a foundation university in the spring semester of 2019-2020 academic year. After the explanation of the purpose, 105 nursing students who agreed to participate in the study on a voluntary basis and responded validly constituted the sample of this study. Those who did not want to participate in the study and handed in the forms without filling them were excluded from the sample. In this study, the sample size was determined as 92 participants according to the regression analysis performed in the G- power statistical software with a significance level of 0,05, 95% power (G*Power Version 3.1.9.2 statistical software).

**Ethical Considerations**

Ethics committee approval was obtained from the Ethics Committee of a foundation university in Istanbul to conduct the research (87624400-204.01.07 numbered research). Also, permission was obtained from the Ministry of Health within the scope of Scientific Research Studies on COVID-19. In addition, consent of the participants was also received after they were informed about the research.

**Data Collection Tools**

In the study, the data were collected with "Socio-demographic and COVID-19 Pandemic Knowledge and Attitudes of Nursing Students' Information Form" and "State and Trait Anxiety Inventory". The research data were arranged on the internet in the form of a Google survey and sent to e-mail addresses. After the students filled in the questionnaire, they sent it back to the e-mail addresses of the researchers. The whole procedure took about 10 minutes.

The "Socio-demographic and COVID-19 Pandemic Knowledge and Attitudes of Nursing Students' Information Form" prepared by the researchers contains a total of 19 questions including the socio-demographic characteristics of the student nurses and their

knowledge and attitudes regarding the COVID-19 pandemic. In questions about COVID-19 pandemic, it was stated as "1, I feel inadequate" "10, I am good enough" on a horizontal line of 10 cm that is written as 1 on one end and 10 on the other. The students were asked to mark each question on the horizontal line by scoring them from 1 to 10.

**State and Trait Anxiety Inventory:** It was developed by Spielberger et al., and the validity and reliability of the Turkish version was conducted by Öner and Le Compte (1985). In the scale, there are 40 statements that individuals can use to express their own feelings. The first twenty items measure the level of anxiety related to the state, and four options are given for each statement. These are: "Not at all" (1), "Somewhat" (2), "Moderately so" (3), "Very much so" (4). In this section, statements are divided as present and absent (reverse). The reverse statements are items number 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20. State anxiety scores are obtained by subtracting the total score of the reversed statements from the total weighted score, and then by adding the number of 50, which is the constant value of the state anxiety scale, into this figure. Items number 21 to 40 measure the trait anxiety level of the individual. Again, it is scored by placing four options for each statement. These are: "Almost never" (1), "Sometimes" (2), "Often" (3), "Almost always" (4). In this section, there are seven reverse statements which are items number 21, 26, 27, 33, 36 and 39. By subtracting the total score of reverse statements from the total number of present, and by adding 35, which is the constant value of the trait anxiety scale, to this figure, the trait anxiety level of the individual is obtained. Spielberger et al. stated that scores obtained from the scale between 0-19 points meant no anxiety, between 20-39 points meant mild, between 40-59 meant medium, 60-79 meant severe anxiety, and individuals who scored 60 or more needed professional help[18].

**Evaluation of the Data**

Statistical Package for the Social Sciences (SPSS) 25.0 package program was used to evaluate the data. Descriptive data are given as a number, percentage, mean and standard deviation. Shapiro-Wilk test was used for the normality analysis of data. Pearson correlation coefficient was used to determine the relationship between COVID-19 Pandemic Attitudes and State-Trait Anxiety Inventory scores. All results were considered statistically significant at $p<0.05$ and a confidence interval of 95%.

## Results

When the socio-demographic characteristics of the students were examined, it was seen that the mean age was 22,61 ± 1,70 most of them were female (n=87, 82,9%) and single (n=67, 66,3%). It was determined that most of the students lived with their family (n=96, 91.4%), their income was equal to their expenses (n=74, 70,5%) and did not work (n=98, 93,4%) (Table 1).

**Table 1: Socio-demographic characteristics of nursing students (n=105)**

| Socio-demographic characteristics | | |
|---|---|---|
| Age | Mean ± Sd | |
| | 22.61 ± 1.70 | |
| Gender | n | % |
| Female | 87 | 82,9 |
| Male | 18 | 17,1 |
| Marital Status | | |
| Married | 33 | 32,7 |
| Single | 67 | 66,3 |
| School Grade Level | | |
| 1st Year | 32 | 30,5 |
| 2nd Year | 36 | 34,3 |
| 3rd Year | 20 | 19,0 |
| 4th Year | 17 | 16,2 |
| Place You Stay | | |
| With family | 96 | 91,4 |
| In dormitory | 3 | 2,9 |
| At home alone | 1 | 1,0 |
| At home with my friend/relative | 5 | 4,8 |

| Economic Status | | |
|---|---|---|
| Income is equal to the expense | 74 | 70,5 |
| Income higher than the expense | 25 | 23,8 |
| Income lower than the expense | 6 | 5,7 |
| **Employment Status** | | |
| Working | 7 | 6,6 |
| Not working | 98 | 93,4 |
| **Profession** | | |
| Medical laboratory technician | 1 | 1,0 |
| Nurse | 4 | 3,8 |
| Sale consultant | 1 | 1,0 |
| Hospital admitting clerk | 1 | 1,0 |

When the knowledge and attitudes of nursing students towards the COVID-19 pandemic were examined, it was spotted that they obtained the information about coronavirus from TV mostly (n=93, 89,3%). When asked to score how much the coronavirus affected the economic status of their family between 1 and 10 points (1; not affected, 10; highly affected), it was observed that they got 5,12±2,66 points (Table 2). In the same evaluations, it was observed that they assigned 7,49± 1,22 points to their knowledge level about coronavirus and 9,06±1,08 points to their effective hand washing state to prevent coronavirus transmission. It was found that they were concerned about infecting coronavirus to their family members (8,37±2,04).

They reported that they had high beliefs that if they caught coronavirus, they would recover and the measures would protect them; that they knew where to apply when they got sick, and that they had sufficient knowledge of the symptoms of the disease (Table 2).

**Table 2: Nursing Students' Knowledge and Attitudes towards COVID-19 pandemic (n=105)**

| The information sources about coronavirus that you follow | n | % |
|---|---|---|
| TV | 93 | 89,4 |
| Healthcare professional acquaintances | 30 | 28,8 |
| Scientific publications (WHO, Ministry of Health) | 80 | 76,9 |
| Twitter | 60 | 57,7 |
| Posts from Whatsapp | 34 | 32,7 |
| YouTube | 17 | 16,3 |
| Facebook/Instagram | 51 | 49,0 |
| | **Mean±Sd** | **Min-Max**\*\* |
| My family's level of economic status the coronavirus has affected | 5,12±2,66 | 1-10 |
| My level of knowledge about coronavirus | 7,49±1,22 | 5-10 |
| My effective hand washing level to prevent coronavirus transmission | 9,06±1,08 | 4-10 |
| My level of concern about the transmission of coronavirus | 6,70±1,99 | 1-10 |
| My level of concern about the transmission of coronavirus to family members | 8,37±2,04 | 1-10 |
| My level of attention to events other than coronavirus | 6,70±2,41 | 1-10 |
| My level of comforting myself | 6,47±2,21 | 1-10 |
| My level of seeing myself at risk about coronavirus | 5,49±2,38 | 1-10 |
| My belief that I will recover if I catch coronavirus | 7,01±2,19 | 1-10 |
| My belief that the suggested measures will protect me against the disease | 7,53±1,92 | 1-10 |
| My level of knowledge about where to get admitted if I get sick | 8,51±1,83 | 1-10 |
| My level of knowledge about the symptoms of the disease | 8,95±1,08 | 5-10 |

\* Multiple selected; \*\*1: None, 10: Very Much

When the state anxiety levels of nursing students were examined, it was found that 41,90% (n=44) of them had mild anxiety, 45,71% (n=48) of them had moderate anxiety and 12,38% (n=139) of them had severe anxiety. When their trait anxiety levels were analysed, it was determined that 14,28% (n=15) of them had mild anxiety, 80,95% (n=85) of them had moderate anxiety, 4,76% (n=5) of them had severe anxiety, and there were no students who did not experience anxiety. It was observed that the mean scores of the State and Trait Anxiety Inventory of nursing students were 43,26±9,39 and 45,66±9,97, respectively (Table 3).

**Table 3:  State and Trait Anxiety Inventory Scores of Student Nurses**

| Level of State and Trait Anxiety | | n | % | Min* | Max** | Mean±Sd |
|---|---|---|---|---|---|---|
| **State** | Those who score 0-19, *no experience of anxiety* | - | - | - | - | |
| | Those who score 20-39 *Mild anxiety* | 44 | 41,90 | 31 | 39 | |
| | Those who score 40-59 *Moderate anxiety* | 48 | 45,71 | 40 | 55 | |
| | Those who score 60-79 *Severe anxiety* | 13 | 12,38 | 60 | 68 | |
| **Total** | | 105 | 100 | 31 | 68 | **43,26±9,39** |
| **Trait** | Those who score 0-19, *no experience of anxiety* | - | - | - | - | |
| | Those who score 20-39 *Mild anxiety* | 15 | 14,28 | 20 | 39 | |
| | Those who score 40-59 *Moderate anxiety* | 85 | 80,95 | 40 | 57 | |
| | Those who score 60-79 *Severe anxiety* | 5 | 4,76 | 63 | 68 | |
| **Total** | | 105 | 100 | 20 | 68 | **45,66±9,97** |

When the relationship between nursing students' knowledge and attitudes regarding COVID-19 pandemic and the state-trait anxiety scale scores was analysed, it was found

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that as the level of knowledge about coronavirus increased, their trait anxiety levels also increased (p=0,004), and as they found the effective hand washing level to be sufficient to prevent coronavirus transmission, their trait anxiety levels decreased (p=,040). It was observed that both state and trait anxiety scores increased as their anxiety levels about coronavirus transmission increased (p<0,05), and the level of state anxiety rose as the worries about the transmission to family members increased (p=0,005). It was determined that the students' state anxiety levels decreased as their levels of paying attention to events other than coronavirus, levels of comforting themselves and their beliefs that they would recover if they caught coronavirus increased (p<0,05). Moreover, it was spotted that as the beliefs of the students that the recommended measures would protect them against the disease increased, their trait anxiety decreased (p<0,05), and as their level of knowledge about where to apply if they got sick increased, their trait anxiety levels also increased (p<0,050) (Table 4).

**Table 4: The relationship between student nurses' knowledge and attitudes regarding COVID-19 pandemic and the state-trait anxiety scale scores**

| | State Anxiety Scale Score | | Trait Anxiety Scale Score | |
|---|---|---|---|---|
| | r | p | r | p |
| The coronavirus has affected my family's economic status | ,091 | ,354 | -,184 | ,060 |
| My level of knowledge about coronavirus | ,028 | ,777 | ,277 | **,004** |
| My effective hand washing level to prevent coronavirus transmission | -,071 | ,474 | -,202 | **,040** |
| My level of concern about the transmission of coronavirus | ,173 | **,027** | ,178 | **,043** |
| My level of concern about the transmission of coronavirus to family members | ,226 | **,005** | -,030 | ,759 |
| My level of attention to events other than coronavirus | -,128 | **,019** | ,140 | ,155 |
| My level of comforting myself | -,164 | **,009** | ,105 | ,290 |
| My level of seeing myself at risk about coronavirus | ,010 | ,922 | ,062 | ,532 |

| My belief that I will recover if I catch coronavirus | -,186 | **,032** | ,067 | ,501 |
|---|---|---|---|---|
| My belief that the suggested measures will protect against the disease | ,023 | ,821 | -,295 | **,003** |
| My level of knowledge about where to admit if I get sick | ,010 | ,919 | ,304 | **,002** |
| My level of knowledge about the symptoms of the disease | -,049 | ,622 | ,177 | ,072 |
| Correlation analysis (r) was performed. | | | | |

## Discussion

In this study, the effect of COVID-19 infection on the anxiety levels of nursing and the identification of factors affecting this anxiety was investigated. The results of this study showed us that students received the information about coronavirus from TV and scientific publications mostly, their levels of knowledge about coronavirus and levels of effective hand washing to prevent coronavirus transmission were high, which, demonstrates that the attitudes of nursing students towards COVID-19 pandemic were at a high level. This can be interpreted as the effectiveness of informing the public about protection from COVID-19 infection on TV and in official institutions of all countries and on-going warnings about emphasizing the importance of handwashing. In a study conducted with the participation of 84 nurses which evaluated the anxiety of nurses in the current COVID-19 outbreak in Iran, it was shown that the knowledge levels of nurses were high, and that the nurses obtained information from various sources such as reliable websites, WhatsApp and TV[14]. Our study results are similar with the outcomes of this study.

In the literature, it was emphasized that the stress reactions that surfaced after any trauma are not limited to direct exposure; witnessing, listening to the traumatic incident or hearing about the incident may create various levels of anxiety[19]. It was reported that a surging number of patients and suspected cases worldwide, as well as the rising number of provinces and countries that are affected by the epidemic, increased anxiety and concerns in populations globally[20]. It was also suggested that public health emergencies such as the COVID-19 pandemic might have many psychological effects on students which could be expressed as anxiety, fear and worry[21]. In this study, it was also observed

that nursing students had high levels of anxiety about the transmission of coronavirus to themselves and concerns about transmission to family members, and this was compatible with the data of the society and literature.

Another result that is obtained from the study is that State and Trait Anxiety Inventory mean scores were (State; 43,26±9., 9, Trait; 45,66±9,97) When the studies in the literature were examined, it was seen that the anxiety levels of nurses were high[14], and even in a study conducted in China, the level of anxiety of healthcare workers was higher than other occupational groups[22]. In research, similar to our study, conducted with 200 medical students in Saudi Arabia to determine MERS-related stresses during Middle East Respiratory Syndrome-Coronavirus (MERS-CoV) outbreak, it was determined that most of the students (77%) experienced minimal anxiety[23]. While the anxiety levels of healthcare professionals and nurses who were in close contact with patients were higher, it was considered that nursing students experienced moderate anxiety due to not being in clinical practice during the epidemic and not working in close contact with infected patients. The fact that students are at home and continuing their education at a distance showed that their anxiety level was not too high, but having anxiety at a medium level still indicates that they were afraid to be infected.

When the relationship between nursing students' knowledge and attitudes regarding COVID-19 pandemic and the state anxiety scale scores was analyzed, it was found that as the level of knowledge about coronavirus increased, their trait anxiety levels also increased, and as they found the effective hand washing level to be sufficient to prevent coronavirus transmission, their trait anxiety levels decreased. People often experience anxiety when they are confronted with a new situation. The uncertainty of future worries even more[24]. It can be said that the measures are taken for the COVID-19 infection in this process, the lockdowns announcing mortality rate continuously and the uncertainties in the treatment of individuals with COVID 19 increased the anxiety levels. It should not be forgotten that since we are going through an extraordinary process, society might be exposed to a lot of misinformation about the coronavirus and its consequences. Sometimes, this information pollution can also be the cause of anxiety and stress levels in individuals. It can be suggested that the decrease in the level of anxiety as long as the handwashing level is sufficient is due to knowing that a simple, easy and cheap method is effective in preventing infection. In addition, in their study, Kutluoğlu and Karayel

(2020) state that giving importance to personal hygiene and conducting studies providing this without exaggeration will increase our power against the virus, on the one hand, and will give us psychological relief on the other[25].

It was determined that as the level of anxiety of the nursing students about the transmission of coronavirus increased, both the state and trait anxiety scores increased, and the state anxiety levels increased as the anxiety about transmission to the family members increased. Considering the character of the coronavirus, the possibility of being infected especially due to the fact that some infected people show little or no symptoms but infect others and are directly transmitted by droplet and indirect contact creates anxiety. Moreover, when some new studies published in Lancet were examined, similar information about the clinical symptoms of patients infected with COVID-19 and the spread of COVID-19 was included[26-28]. It was considered that one of the information sources of the students is the scientific publications, and when it was taken into account the rapid spread of the disease in the world, an increase in anxiety levels could be considered as a natural result. In the literature, it was stated that nurses had an intense concern about virus transmission to themselves and their families[14,29]. This finding in our study is in line with the literature. In addition, it is also believed that the fact that nursing students consider the possibility of encountering pandemic infectious diseases such as COVID-19 when they start their professional life, being in direct and close contact with patients, as well as the possibility of getting infected and transmitting to their relatives cause their anxiety levels to increase.

In this difficult period, avoiding following the news regularly as much as possible, talking or corresponding about the disease in our social relations and being frequently exposed to this stimulus; limiting media usage, attempts that particularly distract attention, such as playing games and painting, are recommended for the prevention of anxiety and worry. It was also stated that instead of this negative and sad news, getting more enjoyable and entertaining information would help relax[25,30]. It was determined that the anxiety levels of students decreased as their levels of paying attention to events other than coronavirus, their level of self-comfort, and their belief that they would recover if they caught coronavirus increased. Furthermore, it was found that as the beliefs of the students that the suggested measures would protect against the disease increased, their anxiety decreased. It was stated that substantiated information relieves people and

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reduces anxiety while developing tolerance to uncertainty towards the future plays a significant role in reducing anxiety[25].

The fact that students' state anxiety increases as their level of knowledge about where to apply if they get sick increases were considered to have stemmed from students' witnessing the congestion at hospitals on social media and listening to what recovering patients tell which causes fear and increase their anxiety. Intense and constant anxiety can damage the psychological and physical integrity of the person, and it can cause other ailments. Therefore, it is crucial to explain the incident after traumatic events and to know and apply the methods that will overcome the disease in a healthy way. It is known that especially during the epidemic period, nurses working one-to-one with patients experience intense anxiety due to the possibility of infecting both themselves and their families. With this study, it was determined that students who would become nurses in the future experienced moderate anxiety. Therefore, it is recommended that nurse students be supported not only socially but also in terms of their mental health which should be included in the curriculum. However, this study has its limitations. Firstly, all of the students could not be reached due to the conditions we were in, and the number of samples remained small. Nonetheless, the level of anxiety in students and the cases where anxiety increased were demonstrated together with similar findings in the literature. However, it is recommended that studies be conducted with larger samples in which objective indicators of stress such as measurement of serum cortisol level are examined.

**Conclusion**

Research findings showed that most of the nursing students obtained information about COVID-19 pandemics from TV and scientific publications. It was determined that the state-trait anxiety levels of nursing students were moderate. Moreover, it was also observed that students' level of knowledge was sufficient, and they were influenced by their levels of knowledge about the coronavirus, being sufficient in hand washing, anxiety about the transmission of COVID-19 attention to events outside of COVID-19 comforting themselves, and their belief that they will recover if they catch the virus.

In line with these findings, it was considered that it would be a good method to provide training to help nursing students, who will become health professionals, in developing

their attitudes of COVID-19-related anxiety and coping methods used to deal with anxiety. Therefore, it was considered that COVID-19-related training should be provided in courses or scientific activities such as independent seminars, and conferences; students should be encouraged to talk about their feelings and thoughts, consultancy services should be provided and this issue should be further investigated using case studies.

**Limitations of the Study**

Since the research was carried out with the Nursing Department students in a single-center, the results obtained from the research can only be generalized for these students. In addition, examining the anxiety levels of students without classifying them according to their school grade levels is the limitation of the study.

**REFERENCES**

1. Republic of Turkey Ministry of Health Department of Public Health. Covid-19 Sars-Cov-2 Infection Guide Study of Science Board. Republic of Turkey Ministry of Health. https://www.who.int/emergencies/diseases/novel-coronavirus-2019 Accessed date 22 May 2020.

2. Chong MY, Wang WC, Hsieh WC, et al. Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. *The British Journal of Psychiatry*. 2004;185:127-133.

3. Wu P, Fang Y, Guan Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *The Canadian Journal of Psychiatry*. 2009;54(5):302-311.

4. Wu KK, Chan SK, Ma TM. Posttraumatic stress, anxiety, and depression in survivors of severe acute respiratory syndrome (SARS). *Journal of Traumatic Stress*. 2005;18(1):39-42.

5. Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of Quarantine, Toronto, Canada. *Emerg Infect Dis*. 2004;10:1206-1212.

6.  Maunder RG, Lancee WJ, Balderson KE, et al. Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerging infectious diseases*. 2006;12(12):1924-1932.

7.  Maunder R, Hunter J, Vincent L, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Can. Med. Assoc*. 2003;168(10):1245-1251.

8.  Wang W, Tang J, Wei F. Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. *J Med Virol*. 2020;92:441-447.

9.  Lai J, Ma S, Wang Y, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease. *JAMA Network Open*. 2020;3:e203976.

10. Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. *JAMA*. 2020;323(15):1439-1440.

11. Kang L, Ma S, Chen M, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: a cross-sectional study. *Brain, Behavior, and Immunity*. 2020;87:11-17.

12. Oflaz F. COVID-19 and Mental Health of Healthcare Professionals. 2020. https://korona.hasuder.org.tr/covid-19-ve-saglik-calisanlarinin-ruh-sagligi/ Accessed date 30 April 2020.

13. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. *International Journal of Antimicrobial Agents*. 2020;55(3):105924.

14. Nemati M, Ebrahimi B, Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. *Archives of Clinical Infectious Diseases*. 2020:e102848.

15. Kocabaşoğlu N. An overview of anxiety disorders. i.u. faculty of medicine continuing medical education activities. *Symposium series 175 common psychiatric disorders in Turkey*. 2008;62(1):175-184.

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16. Karamustafalıoğlu O, Yumrukçal H. Depression and anxiety disorders. *Şişli Etfal Hospital Medical Bulletin.* 2011;45(2):65-74.

17. Mc Sharry P, Timmens F. An evaluation of the effectiveness of a dedicated health and wellbeing course on nursing students health. *Nurse Educ. Today.* 2016;44(1):26-32.

18. Öner N, Le Compte A. *State-Trait Anxiety Inventory Handbook.* 2nd Edition. Istanbul: Boğaziçi University Publications; 1985.

19. Eriksson C, Vande Kemp H, Gorsuch R, Hoke S, Foy DW. Trauma exposure and PTSD symptoms in international relief and development personnel. *Journal of Traumatic Stress.* 2001;14(1):205-211.

20. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: address mental health care to empower society. *The Lancet.* 2020;395(10224):e37-e38.

21. Mei SL, Yu JX, He BW, Li JY. Psychological investigation of university students in a university in Jilin province. *Med Soc (Berkeley).* 2011;24(05):84-86.

22. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: a web-based cross-sectional survey. *Psychiatry Research.* 2020;288:112954-112960.

23. Al-Rabiaah A, Temsah MH, Al-Eyadhy AA, et al. Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *J Infect Public Health.* 2020;13(5):687-691.

24. Kierkegaard S. *Concept of Anxiety.* Ankara: Hece Publications; 2004.

25. Kutluoğlu Karayel AH. Coping Methods with Corona Virus from a Psychological Perspective. IHH Humanitarian and Social Research Center. https://insamer.com/rsm/icerik/dosya/dosya_2797.pdf Accessed date 6 May 2020.

26. Brooks SK, Webster RK, Smith L, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet.* 2020;395(14):912-920.

27. Chan, JF, Yuan S, Kok KH, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020;395(10223):514-523.

28. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395(10223):497-506.

29. Wu D, Jiang C, He C, Li C, Yang L, Yue, Y. Stressors of nurses in psychiatric hospitals during the COVID-19 outbreak. *Psychiatry Research*. 2020;288:112956-112958.

30. Zhang Y, Ma ZF. Impact of the COVID-19 pandemic on mental health and quality of life among local residents in Liaoning Province, China: a cross-sectional study. *International Journal of Environmental Research and Public Health*. 2020;17(7):2381-2393.