

## CLINICAL STRESS LEVELS OF NURSING STUDENTS EXPERIENCED DURING CLINICAL PRACTICE IN THE COVID-19 PERIOD: A SECTIONAL STUDY

HEMŞİRELİK BÖLÜMÜ ÖĞRENCİLERİNİN COVID-19 DÖNEMİNDE KLİNİK UYGULAMA SIRASINDA YAŞADIKLARI KLİNİK STRES DÜZEYİ: KESİTSEL ÇALIŞMA

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### ABSTRACT

**Purpose:** The study was conducted in a descriptive cross-sectional fashion to determine the clinical stress levels experienced by nursing department students during clinical practice in the COVID-19 pandemic period.

**Method:** The population of the study consisted of nursing department students (n: 272) educated in a health school. The sampling consisted of second, third, and fourth-grade students (n: 193) who had clinical practice courses in the fall semester. The study was completed with those who were willing to participate in the study (161 students who owned smartphones or tablets). The study data were collected digitally with a questionnaire form, the Clinical Stress Questionnaire (QSA), the subjective expression chart that was prepared by the researchers to evaluate the fear of being infected with the COVID-19 virus and other infectious agents, and the google form.

**Results:** It was found that 71.4% of the students who participated in the study were female, 28.0% had COVID-19 infection, and 34.8% had individuals with a family history of COVID-19 infection. The mean total score of the clinical stress levels of the students was 51.73 ±3.44. It was found that the students who did not feel ready for clinical practice in the COVID-19 pandemic process had higher clinical stress levels and the mean score of fear of being infected with COVID-19 and other infection factors (p<0.05).

**Conclusion and Recommendations:** It was found that nursing students had high clinical stress levels in the COVID-19 pandemic, which was associated with the presence of COVID-19 infection and the presence of people diagnosed with COVID-19 among their relatives. In this respect, it can be recommended to provide scientific data about the COVID-19 virus to the students and to provide the necessary support by evaluating the stress levels of the students in clinical practices.

**Keywords:** Clinical Stress, COVID-19, Nursing, Student

### ÖZET

**Amaç:** Araştırma COVID-19 pandemi döneminde hemşirelik bölümü öğrencilerinin klinik uygulama sırasında yaşadıkları klinik stres düzeyini belirlemek amacıyla tanımlayıcı kesitsel nitelikte yapıldı.

**Yöntem:** Araştırmanın evrenini sağlık yüksekokulunda eğitim alan hemşirelik bölümü öğrencileri (n: 272) oluşturdu. Örneklemini ise güz döneminde klinik uygulama dersi bulunan ikinci, üçüncü ve dördüncü sınıf öğrencileri (n:193) oluşturdu. Çalışma araştırmaya katılmaya istekli olan ile tamamlandı. Çalışma akıllı telefonu veya tablete sahip olan ve araştırmaya katılmaya gönüllü olan 161 öğrenci ile tamamlandı. Araştırma verileri soru formu, Klinik Stres Anketi (KSA), araştırmacılar tarafından hazırlanan COVID-19 virüsü ve diğer enfeksiyon etkenleri ile enfekte olma korkusunun değerlendirildiği subjektif ifade çizelgesi ile google form üzerinden dijital olarak toplandı.

**Bulgular:** Araştırmaya katılan öğrencilerin %71.4'ünün kadın, %28.0'nının COVID-19 enfeksiyonu geçirdiği, %34.8'inin ailesinde COVID-19 enfeksiyonu geçirmiş bireylerin olduğu belirlendi. Öğrencilerin klinik stres düzeyi toplam puan ortalaması 51.73 ±3.44 olarak tespit edildi. COVID-19 pandemi sürecinde klinik uygulamaya hazır hissetmeyen öğrencilerin hem klinik stres düzeyi hem de COVID-19 ve diğer enfeksiyon etkenlerine yakalanma korkusu puan ortalamasının daha yüksek olduğu belirlendi (p<0.05)

**Sonuç ve Öneriler:** Hemşirelik bölümü öğrencilerinin COVID-19 pandemisi döneminde klinik stres düzeyinin yüksek olduğu; bu durumun, COVID-19 enfeksiyonu geçirme, yakınlarında COVID-19 tanısı alanların bulunması ilişkili olduğu belirlenmiştir. Bu doğrultuda öğrencilere COVID-19 virüsüne ilişkin bilimsel bilginin verilmesi ve klinik uygulamalarda öğrencilerin stres düzeylerinin değerlendirilerek gereken desteğin sağlanması önerilebilir.

**Anahtar Kelimeler:** COVID-19, Klinik Stres, Hemşirelik, Öğrenci

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## INTRODUCTION

The Coronavirus Disease-2019 (COVID-19) spread rapidly all over the world since the last month of 2019, causing a pandemic (İlaslan&Demiray,2021). In line with the recommendations of the World Health Organization, measures such as restrictions on daily life in general, maintaining physical distance, and curfew were implemented in different ways in almost all countries and continue to be implemented (Seven&Abban,2020). These measures required changes in many fields, especially in education during the pandemic process. As in the education of all disciplines, nursing education also faced a series of problems in this process (Ercan&Künç,2020;Yılmaz,2021). As it is already known, nursing education targets to provide students with basic knowledge, skills, and attitudes in cognitive, affective, and psychomotor dimensions (Atasoy&Sütütemiz,2014). In this respect, nursing education consists of two complementary areas, which are; clinical practice and theoretical knowledge. Clinical practice enables students to transform the theoretical knowledge they acquire at school into skills, gain new knowledge, skills, and communication experiences, determine their future professional roles, and use their critical thinking skills in problem-solving (Atasoy&Sütütemiz,2014; Özden et al.,2013; Karadağ et al.,2013). Also, the students of the nursing department entered into a new social environment they were not accustomed to with clinical practice training, and they faced a series of problems as well as their inexperience in communicating with patients, physicians, nurses, and other healthcare staff in the hospital. In particular, students experienced situations such as making mistakes, harming the patient, and encountering negative reactions during clinical practice (Özden et al.,2013; Karaca et al.,2017), and for this reason, clinical practice is considered as one of the most anxiety-inducing components of nursing education by nurse students and causes stress for them (Karadağ et al.,2013; Karaca et al.,2017). However, many educational institutions providing nursing education/training all around the world during the COVID-19 pandemic process decided to continue the face-to-face formal education process with distance education considering the results of scientific studies to break the chain of transmission of the virus (Özden et al.,2013). In the distance education process, theoretical and practical courses were transferred to the students with digital education materials (Seven& Abban,2021; Yılmaz,2021). This removed the students from the clinical field, threatened the competencies they should acquire in the theoretical and clinical education/training processes, and caused serious stress (Seven& Abban,2021; Özden et al.,2013; Barton el al.,2020). Clinical practices in nursing education in some educational institutions in our country continued to be done online, and in some of them face-to-face in this period. However, nursing department students who performed clinical practice training face to face during the COVID-19 pandemic period experienced the stress of transferring the theoretical knowledge learned through distance education to the field, making mistakes and encountering negative reactions, being infected with the COVID-19 virus, and infecting others. In this regard, the present study was conducted to examine the clinical stress levels experienced by the nursing department students during the first face-to-face clinical practice during the COVID-19 pandemic period.

## METHOD

The study was conducted in a descriptive fashion between 22-28 October-2021 with the students of the health school nursing department of a state university in Turkey. The population of the study consisted of nursing department students (n: 272) educated in a healthcare school. The sampling consisted of second, third, and fourth-grade students (n: 193) who had clinical practice courses in the fall semester. The study was completed with those who were willing to participate (161 students who owned smartphones or tablets).

### *Data Collection*

The data were collected digitally with a Questionnaire that was created by scanning the literature, the Clinical Stress Questionnaire (QSA), the subjective expression chart that was prepared by the researchers to evaluate the fear of being infected with the COVID-19 virus and other infectious agents, and the google form.

### *The Questionnaire Form*

The questionnaire had 10 statements on the socio-demographic characteristics of the students, the proposals for the COVID-19 pandemic process, and the questions on the distance education process and was created by the researchers.

### ***Fear of being infected with COVID-19 and other factors Subjective Expression Chart***

Students evaluate the fear of being infected with the COVID-19 virus and other infectious agents during clinical practice between 0-10 points in this form. It was created by the researchers and shows that, as the numerical value of the score in the form increases, the fear of being infected also increases in clinical practice.

### ***Clinical Stress Questionnaire***

This form has a Likert-type self-assessment design, and was developed by Pagana in 1989 to determine the initial stress levels threatening student nurses or requiring them to struggle in their first clinical practice experience. The items of the questionnaire are collected under four scales consisting of threats, struggle, harm, and benefit emotions. In the Clinical Stress Questionnaire; the threat scale includes “6” statements (I was upset, worried, depressed, touched, intimidated, scared), the challenge scale included “7” statements (I was stimulated, cheered up, hoped, liked, enthusiastic, excited, happy), the harm scale included “5” statements (I was angry, sad, felt guilty, disgusted, disappointed), and the benefit scale included “2” statements (I felt relaxed, and I trusted). Each item is evaluated with five grades as 0-“none”, 1-“some”, 2-“moderate”, 3-“a lot”, and 4-“very much” options. Based on the score given for each item, a minimum of “0” and a maximum of “80” points can be received from the questionnaire. A low score indicates a low stress level, and a high score indicates a high stress level (Şendir&Acaroğlu,2008).

### ***Ethical Aspect of the Study***

The present study was conducted in line with the “Helsinki Declaration”, and permission was obtained from the non-interventional studies of the Ethics Committee (2021/32-05), the institution (77914616-605.99-68149), and the Ministry of Health (2021-09-10T21\_55\_17), and from the students to collect the data.

### ***Statistical Analysis of Data***

The data of the study were evaluated with the Student t, One-Way ANOVA, Kruskal Wallis, and Mann-Whitney U tests; and  $p < 0.05$  was considered significant.

## **RESULTS**

### ***Investigation of the Relations between Some Conditions of the Students and the Mean Clinical Stress and Fear of Infection Scores***

A total of 71.4% of the students who participated in the study were female, 55.3% were between the ages of 21-23, 28.0% had COVID-19 infection, 34.8% had individuals with a family history of COVID-19 infection, and 29.8% had COVID-19 infection. It was found that 28.8% had lost their relatives. It was also found that 50.1% of the students had two doses of mRNA vaccine before the clinical application, 29.2% had two doses of inactive, 9.3% had one dose of mRNA vaccine, and 11.2% had no vaccine.

It was found that the clinical stress mean score of the women, those in the second grade, those who had COVID-19 infection, and those who had a family history of COVID-19 infection were higher at statistically significant levels ( $p < 0.05$ ). The mean score of the fear of being infected with COVID-19 infection in clinical practice was significantly higher in second-grade students, those with previous COVID-19 infection, and a family member with a COVID-19 infection ( $p < 0.05$ ) (Table 1).

**Table 1.** Comparison of Some Situations of Students and the Average of Clinical Stress and Fear of Infection Scores

FEATURE	n (%)	Clinical Stress Scale		Fear of being infected with the corona virus		Fear of being infected with other factors	
		X ±SD	p	X ±SD	p	X ±SD	p
<b>Gender</b>							
Female	115(71.4)	52.17±3.20	p=0.011	5.28±1.14	p= 0.675	4.42±1.32	p=0.950
Male	46 (28.6)	50.63±3.79	Z= -2.547	5.19±1.34	Z= -0.419	4.47±0.93	Z= -0.062
<b>Age</b>							
18-20	72 (44.7)	52.30±3.08	p=0.057	5.41±1.28	p=0.167	4.59±0.98	p=0.098
21-23	89 (55.3)	51.26±3.65	t=1.949	5.11±1.49	t=1.387	4.29±1.33	t= 1.666
<b>Class</b>						4.75±1.00	
2	58 (36.0)	53.51±3.26	p=0.000	5.68±1.06	p=0.004	4.65±1.09	p= 0.000
3	53 (32.9)	51.56±2.72	KW=30.08	5.18±1.68	KW=11.101	3.82±1.30	KW=20.590
4	50 (31.1)	49.84±3.30	3	4.80±1.30			
<b>Have you had covid</b>							
Yes	45(28.0)	53.60±2.68	p=0.002	6.46±1.14	p=0.000	5.28±1.14	p= 0.000
No	116(72.0)	51.00±3.44	Z= -4.538	5.78±1.20	Z= -6.910	4.09±1.04	Z= -5.436
<b>Does anyone in the family have COVID?</b>							
Yes	56 (34.8)	53.01±3.22	p=0.000	5.80±1.48	p=0.000	4.82±1.14	p= 0.064
No	105(65.2)	51.04±3.37	Z= -3.598	4.95±1.28	Z= -3.682	4.11±1.12	Z= -2.844
<b>Have any of your relatives died from COVID?</b>							
Yes	48 (29.8)	52.00±4.01	p= 0.561	5.37±1.55	p=0.325	4.58±1.19	p= 0.191
No	113 (70.2)	51.61±3.18	t= 0.584	5.19±1.34	Z= -0.985	4.36±1.19	Z= -1.308
<b>Your COVID immunization status</b>							
2 doses of mRNA vaccine	81 (50.3)	51.38±3.55		4.66±1.33		4.40±1.10	
2 doses inactivated vaccine	47 (29.2)	51.82±3.53	p= 0.253 KW=4.076	5.59±1.37	p= 0.004 KW=13.216	4.46±1.29	p= 0.897 KW=0.598
1 dose of mRNA vaccine	15 ( 9.3)	52.60±5.57		5.73±1.09		4.46±1.30	
I'm not vaccinated	18 (11.2)	52.33±2.70		6.03±1.64		4.38±1.33	

t: Student T test F: Anova test KW: Kruskal Walls test Z: Manny Whitney-U test

### Investigation of the Relations between the Thoughts of Students on Distance Education in the COVID-19 Pandemic Process and the Mean Clinical Stress Scores

A total of 47.2% of the nursing students said that they wanted to change the nursing department during the pandemic period, 55.3% did not feel ready for clinical practice, 31.7% said that distance education materials were sufficient for clinical practice courses. It was found that the mean clinical stress level of the students who considered changing departments during the COVID-19 pandemic process ( $p < 0.05$ ), and the mean score of both clinical stress level and fear of contracting COVID-19 and other infection factors were higher for students who were not ready for clinical practice ( $p < 0.05$ ). (Table 2).

**Table 2.** Comparison of Students' Thoughts on Distance Education in the COVID-19 Pandemic Process and Clinical Stress Level Score Average

FEATURE	n (%)	Clinical Stress Scale X ±SD	p	Fear of being infected with the corona virus X ±SD	p	Fear of being infected with other factors X ±SD	p
<b>Have you thought about changing departments at the university during the COVID-19 pandemic?</b>							
Yes	76 (47.2)	52.83±3.41	<b>p=0.022</b> Z= 2.228	5.46±1.47	p= 0.083 Z= 1.732	4.57±1.28	p=0.148 Z=-
No	85 (52.8)	50.10±3.36		5.05±1.33		4.29±1.10	
<b>Do you feel ready for clinical practice?</b>							
Yes	89 (55.3)	50.97±3.26	<b>p=0.002</b> t= 0.071	5.03±1.15	<b>p= 0.024</b> Z= 2.256	4.01±1.06	<b>p=0.000</b> Z= -
No	72 (44.7)	52.66±3.44		5.51±1.64		5.04±1.26	
<b>Do digital training materials sufficient for clinical practice?</b>							
Quite Enough	23 (14.3)	51.17±3.36	p=0.172 F=1.620	4.95±1.26	p=0.051 F=2.416	4.95±1.26	p=0.071 F=2.169
Enough	51 (31.7)	51.11±3.17		5.01±1.25		5.01±1.25	
I'm not sure	45 (28.6)	51.80±3.45		5.13±1.40		4.69±1.24	
Insufficient	35 (21.7)	52.91±3.79		5.85±1.59		4.68±1.27	
Very insufficient	6 (3.7)	51.66±2.73		5.66±1.36		4.00±1.67	

### Investigation of the Clinical Stress Levels and Mean Scores of Fear of Infection of Students

It was also found that the mean total clinical stress level of the students was  $51.73 \pm 3.44$ , the threat sub-dimension mean score was  $15.45 \pm 3.10$ , the struggle sub-dimension mean score was  $19.53 \pm 3.30$ , the benefit sub-dimension mean score was  $4.13 \pm 1.60$ , the harm sub-dimension mean score was  $13.13 \pm 2.36$ . Also, the mean score of fear of contracting COVID-19 infection was  $5.86 \pm 1.4$ , and the mean score of fear of being infected with other infections was found to be  $4.42 \pm 1.19$  (Table 3).

**Table 3.** Average of Clinical Stress Level and Fear of Infection Scores of Students

	X±SD	Max-Min
<b>Clinical Stress Total Score</b>	51.73 ±3.44	(0-80)
<b>Threat Sub-Dimension</b>	15.45±3.10	(0-24)
<b>Combat Sub-Dimension</b>	19.53±3.30	(0-28)
<b>Benefit Sub-Dimension</b>	4.13±1.60	(0-8)
<b>Damage Sub-Dimension</b>	13.13±2.36	(0-20)
<b>Fear of being infected with COVID-19</b>	5.86±1.4	(0-10)
<b>Fear of being infected with other infectious agents</b>	4.42±1.19	(0-10)

## DISCUSSION

The education and training process is among the areas that were affected at the highest level by the COVID-19 pandemic, which continues to affect the world, especially healthcare systems (İlaslan&Demiray,2021; Seven&Abban,2020; Ercan&Künç,2020). Nursing students, who are among the healthcare staff of the future, had to take a break from clinical practices, which is one of the most important steps of their education, during the pandemic process (Seven&Abban,2020; Yılmaz,2021). However, some institutions continued clinical practices in line with various measures in our country

(İlaslan&Demiray,2021; Seven&Abban,2020; Yılmaz,2021). As it is known, nursing students are struggling with many stressors in clinical practice, and as of 2020, they also faced the risk of contracting the COVID-19 virus. In this regard, the levels of clinical stress experienced by the students of the nursing department of a university, who continued the theoretical and practical courses with the distance education model during the COVID-19 pandemic process, in the first clinical practice period, was examined in the present study.

Nursing students face clinical practice in a new environment that they are not accustomed to and experience stress factors. For this reason, it is extremely important to know the stress levels of the students and to prevent the negative impacts of stress on the education level for the clinical education of nursing students to reach the targeted goals. In the study, the mean clinical stress score that the nursing department students experienced in the first clinical practice during the COVID-19 pandemic period was found to be  $51.73\pm 3.44$ , and this level was determined to be high. The clinical stress level was found to be  $33.96 \pm 10.2$  in the study of Taşdelen and Zaybak,  $28.6\pm 8.86$  in the study of Açıksöz et al., and  $48.05\pm 5.00$  in the study that was conducted by Arabacı et al. (Taşdelen& Zaybak,2013; Açıksöz et al.,2013& Arabacı et al.,2015). The high mean clinical stress score in this study may have been because of the long interruption of clinical practice training of students due to the pandemic and the fear of being infected with the COVID-19 virus.

It was reported in the literature that stress can be affected by many factors (Özden et al.,2013; Taşdelen& Zaybak,2013). In Karaca et al.'s study, it was determined that women and first and second-grade students had higher clinical stress levels (Karaca et al.,2017). In Duruk's study, it was shown that female nursing department students had higher clinical stress levels in many dimensions compared to male students (Duruk,2019). In this study, it was determined that the mean clinical stress score of women, those who considered changing departments during the pandemic period, those who did not feel ready for clinical practice, and students in the second year had higher scores at statistically significant levels. This may be related to the fact that women are more affected by the factors causing stress, and especially men express their feelings and thoughts less frequently than women in Turkish society. The higher level of stress of the second-year students can be explained by the fact that the theoretical and practical courses of these students were continued with the distance education model from the moment they registered to the department.

Healthcare workers who had to work in the frontline during the COVID-19 pandemic period found themselves forced to struggle with an incurable disease at an unexpected time (Çalışkan et al.,2021). It was reported in the literature that students who saw this difficult process that was experienced by the healthcare staff working actively during the pandemic period and chose the nursing profession had some uneasiness regarding the studentship process and professional life (Çalışkan et al.,2021; Lovrić et al.,2020). Worrying situations include the risk of being infected with the COVID-19 virus in the clinic. It was found in the present study that the mean score of fear of being infected with the COVID-19 virus of nursing students was  $5.86\pm 1.4$ . In the study of Çalışkan et al., it was found that the fear of COVID-19 was at a high level among nursing students and those who were in contact with COVID-19 cases in the last two months (Çalışkan et al.,2021; Okuyan et al.,2020). In the study of Aslan and Pekince, it was reported that students who had COVID-19 in their relatives were more stressed (Aslan&Pekince,2021). In this study, too, it was found that the mean score of fear of being infected with the COVID-19 virus in the clinic was higher for students who had previously had COVID-19 in themselves and their families. It was also determined that the fear of being infected with the COVID-19 virus in the clinic and the clinical stress levels of the nursing department students who were not vaccinated were higher than those who were fully vaccinated. This may be related to the fact that students did not have sufficient and inaccurate information on the vaccine and the COVID-19 virus, which are among the protective measures.

The risk of patients, healthcare staff, and nursing students who continued to practice continued to be infected with other infectious diseases in hospitals during the COVID-19 pandemic period. However, in the literature review, no study was detected evaluating the fears of healthcare staff and students studying in the departments of healthcare disciplines about these risks during the COVID-19 pandemic. In the present study, it was found that the mean score of fear of being infected with microorganisms other than COVID-19 in the clinic was  $4.42\pm 1.19$  in the nursing department students. Also, this fear was found to be higher at statistically significant levels in those who had the COVID-19 and in second-year students. These results may be related to the increased susceptibility of those who

were ill with the COVID-19 virus to all infectious agents. It can be argued that it is because of the lack of knowledge of the second-year students on the disease agents and the methods of protection against nosocomial infections.

## CONCLUSION AND RECOMMENDATIONS

The clinical stress levels of the nursing department students were found to be high during the COVID-19 pandemic. It was found that this was associated with the female gender, having a COVID-19 infection, having a relative with a diagnosis of COVID-19, and considering changing the department during the pandemic period. It was also determined that the fear of being infected with COVID-19 in clinical practices of those who were studying in the second year, those whose relatives had COVID-19, those who were not vaccinated against COVID-19, or those who received a missing dose was higher. In line with these results, it can be suggested that scientific information on the COVID-19 virus must be given to the nursing department students, scientific evidence for the effectiveness of vaccines and other prevention methods must be told, and the necessary support must be provided by evaluating the stress levels of students, especially in clinical practice.

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## Conflict of Interest

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## Authors Contributions

Plan, design: SMİ, ÖO; Material, methods and data collection: SMİ, ÖO; Data analysis and comments: SMİ, ÖO; Writing and corrections: SMİ, ÖO.

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