The Relationship between Pre-clinical Practice Anxiety and Coronavirus Anxiety of Nursing Students in Türkiye

Abstract

Background: The COVID-19 pandemic caused many problems in Türkiye and the world. Education became one of the most important issues negatively affected by this process. Clinical practice, which is stressful for nursing students, can be even more stressful during the pandemic process.

Aim: The aim of this study was to evaluate the relationship between pre-clinical practice anxiety and coronavirus anxiety among nursing students.

Methods: The study is a cross-sectional design. Data were collected with online survey. The study was completed with 166 nursing students. Data were collected with the Personal Information Form, the State Anxiety Inventory and Trait Anxiety Inventory (SAI and TAI), and the Coronavirus Anxiety Scale (CAS). Data were analyzed by Mann–Whitney U, Kruskal–Wallis, Independent Sample t-test, and Wilcoxon and Pearson correlations tests.

Results: The mean age of the students was 19.74 ± 1.38 years, and 81.4% were female. The anxiety levels of the students before the clinical practice; the mean score of SAI was 44.99 ± 7.3, TAI was 46.99 ± 11.7, and CAS was 3.36 ± 4.31. After clinical practice, the mean score of SAI was 43.33 ± 9.4, and CAS was 1.97 ± 2.58. There was a statistically significant decrease in the mean scores of SAI and CAS after clinical practice ($P < 0.05$). There was a positive relationship between SAI and CAS levels.

Conclusion: The stress and coronavirus anxiety level of nursing students was high before the first clinical practice, and their stress level decreased after the clinical practice. This study proposes the implementation of interventions to reduce the stress levels of students before clinical practice.

Keywords: Coronavirus disease 2019, COVID-19, nursing student, anxiety

Afife Yurttaş[1], Merdiye Şendir[2],
Demet İnangil[2], Ayşe Kabuk[3],
İlayda Türkoğlu[2]

[1]Department of Nursing, Faculty of Nursing, Ataturk University, Erzurum, Türkiye
[2]Department of Nursing, Hamidiye Faculty of Nursing, University of Health Sciences, Istanbul, Türkiye
[3]Department of Nursing, Zonguldak Bulent Ecevit University, Faculty of Health Sciences, Zonguldak, Türkiye

Introduction

The COVID-19 pandemic has brought into focus the mental health of various affected populations. It is known that the prevalence of epidemics accentuates or creates new stressors including fear and worry for oneself or loved ones, constraints on physical movement and social activities due to quarantine, and sudden and radical lifestyle changes.[1] During the pandemic, there is an increase in anxiety disorders among the general population, including those clinical practice students who are associated with health care services.[2]

The COVID-19 pandemic caused many problems in Türkiye as well as in the world. Education became one of the most important issues negatively affected by this process. The emergence of the COVID-19 pandemic has required rapid changes in the form of education in nursing schools as well as innovation, flexibility, and rapid action.[3] The risk of health problems in nursing students is higher than in the general population or other health students.[4]

Theoretical courses conducted face-to-face in nursing education have been rapidly transferred to online platforms. In many parts of the world, the clinical learning has been canceled, considering the uncertainty of the virus, the supply of the personal protective equipment (PPE), health insurance, and educator supervision.[3] Nursing education was one of the most fragile groups during the COVID-19 pandemic. Students could not practice at hospitals. The courses and practice examinations were done by distance education.[5,6]

While students' academic education continues with lectures and examinations, clinical practice causes them to experience extra anxiety. This anxiety is greatest on the 1st day of clinical practice. The reason for this is that students do not know how to act in an active and complex environment and cannot decide how to communicate positively with the environment.[7] In addition, the obscurity associated with the COVID-19 pandemic may further increase this anxiety. The pandemic has encouraged everyone to use PPE and follow scientific disinfecting protocols.[8]

Clinical practice is a complementary and necessary part of nursing education that enables students to learn professional knowledge, skills, and nursing roles. Nursing is a practice-oriented discipline. For this reason, it is possible to transform the theoretical knowledge learned in the classroom environment into a skill in the clinical environment.[9-11] Therefore, understanding the experiences of nursing students under extraordinary circumstances such as the COVID-19 pandemic helps develop better responses and organizations in future health crises.[7]

During this period, students' experiences and unknowns may be among the reasons why they feel the effects of the pandemic more and their anxiety increases decidedly.[8] These pandemics affecting the world will continue. Nurses play a key role in difficult conditions such as the pandemic. For this reason, nursing education should not stop under any circumstances. Revealing the stress experienced by students in difficult situations will guide how education should be continued. It should be possible to explain whether the stress experienced by students during clinical practice is related to COVID-19. Identifying stress helps determine the necessary steps to continue nursing education. The purpose of this study was to evaluate the relationship between concerns and coronavirus anxiety levels of nursing students in before and after clinical practice.

Research Questions

- What are the anxiety levels of nursing students who will receive clinical practice training for the 1st time during the COVID-19 pandemic, according to their sociodemographic characteristics?
- Is there a difference in the state anxiety and coronavirus anxiety of nursing students who will receive clinical practice training for the 1st time during the COVID-19 pandemic compared to before and after clinical practice?
- Is there a relationship between the state anxiety and coronavirus anxiety of nursing students who will receive clinical practice training for the 1st time during the COVID-19 pandemic?

Material and Methods

Type of the Study

This study is a cross-sectional and correlational design between April 15, and June 15, 2021.

Study Population and Sample

The University of the Research consisted of 230 nursing students (2. and 3. grade students) who will receive clinical practice training for the 1st time during the COVID-19. According to the curriculum of the faculty in which the research was conducted, 1st-year students did not have clinical practice courses, while 4th-year students had already done clinical practice before the pandemic. Therefore, only 2nd- and 3rd-year students were included in the study. The Raosoft sample size calculator was used to determine the study sample. Sample calculation was made considering a 50% non-response rate. The sample was founded as 142 nursing students with the sample size calculated with a 95% confidence interval and a 5% error margin. The study was completed by 166 nursing students.[12]

Inclusion Criteria

The following criteria were included in the study:

- Being enrolled in the theoretical course of fundamentals of nursing (2nd class practice course) or course of Child Health and Disease Nursing (3rd class practice course)
- Volunteering to participate.

Exclusion Criteria

The following criteria were excluded from the study:

- Being a graduate of health vocational high school
- Working in the health organization during the COVID-19 pandemic.

Data Collection Tools

Data were collected through Personal Information Form, State-Trait Anxiety Inventory (STAI), and the Coronavirus Anxiety Scale (CAS).

Personal Information Form
This form comprised 12 questions such as the sociodemographic characteristics of the students with regard to class, accommodation, having a chronic disease, diagnosed with COVID-19, and vaccination status.[13-15]

State-Trait Anxiety Inventory
Spielberger *et al*. developed the STAI.[16] The validity and reliability of the Turkish version have been published.[15] This inventory consists of two parts and includes 20 items both of them. State Anxiety Inventory (SAI) assesses the state of anxiety at the time of evaluation, while the Trait Anxiety Inventory (TAI) assesses the state of anxiety that one generally feels. Both scales are 4 point Likert (0, 1, 2, and 3) type. Each scale contains 20 questions and the total score ranges from 0 to 60. As the score increases, the level of anxiety also increases.[16,17] Its reliability coefficient varies between 0.83 and 0.96.[17] In this study, the Cronbach's alpha value of the situational anxiety scale was 0.91. Considerable evidence attests to the construct and concurrent validity of the scale. Students' anxiety levels were evaluated at the beginning and end of the study (after 2 weeks) with SAI and at the beginning of the study with TAI.

Coronavirus Anxiety Scale

Lee developed the CAS[18] The scale measures anxiety associated with the coronavirus crisis according to self-report. The scale consists of five items scored between 0 and 4. "0" means "not at all" and "4" means "nearly every day." The lowest score that can be obtained from the scale is 0, and the highest score is 20. The validity and reliability of the Turkish version were conducted by Akkuzu et al.[19] Its reliability coefficient varies 0.93.[17] In this study, Cronbach's alpha value of the CAS was 0.89.

CAS was used for coronavirus anxiety. Because it focused on anxiety about the coronavirus, participants also had to have spent at least 1 h during the last 2 weeks thinking about and/or watching media about the coronavirus, as well as have experienced significant anxiety, fear,

or worry about the disease outbreak. CAS is a brief mental health screener to identify probable cases of dysfunctional anxiety associated with the COVID-19 crisis.[18]

Data Collection

Research data were collected through the online survey method through the Microsoft Forms platform. Research data were collected on the 1st day of clinical practice training and on the past day of clinical practice training. The time for students to answer surveys is approximately 15 min. The study was completed with 77 2nd-year students and 89 3rd-year students who participated in the pre- and post-clinical practice. Forty-seven students did not answer questionnaires after the past day of clinical practice. Students continued clinical practice for 2 weeks. They practiced 5 days a week. The duration of clinical practice was the same for both classes. The research flowchart is provided in Figure 1.

Data Analysis

Data were analyzed using the IBM SPSS Statistics version 21 (IBM Inc., Armonk, NY, USA). Numbers, percentage and standard deviation were used for definition of the data. Mann–Whitney U and Kruskal–Wallis tests were used to compare descriptive data with CAS score and STAI score. Independent Sample t-test and Wilcoxon tests were used to compare pretest and posttest CAS scores or STAI scores. The correlation between CAS and STAI scores was analysed by Pearson correlations test.

Ethical Considerations

This research was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the University of Health Sciences Ethical Committee (Approval Number: 21/297, Date: 05.05.2021). Written and verbal consent was obtained from the individuals participating in the study. Written permissions were obtained from the authors for the scales.

Results

The mean age of the students was 19.74 ± 1.38 and 81.4% were female. Table 1 showed that the mean scores of STAI and CAS of the students before clinical practice were compared according to sociodemographic characteristics. There was a statistically significant difference in the mean score of the TAI according to class level ($P =.027$). It was observed that the presence of own chronic disease caused an increase in the mean score of the SAI ($P =.024$). There was a statistically significant difference in the mean score of CAS in previous exposure to COVID-19 infection caused ($P =.049$). Except for this, there was no statistically significant difference in the mean score of the STAI and CAS according to sociodemographic characteristics (Table 1).

Before the clinical practice, the mean score of SAI was 44.99 ± 7.3 and the mean score of TAI was 46.99 ± 11.7. When Table 2 was examined, there was a statistically significant decrease in the mean scores of SAI after clinical practice ($P =.012$). The mean score of the CAS was 3.36 ± 4.31 before clinical practice and 1.97 ± 2.58 after clinical practice. There was a statistically significant decrease was found in the mean scores of the CAS after the clinic practice ($P =.001$).

When Table 3 was examined, it was determined that a positively significant relationship had between the mean score of the SAI and the CAS ($P <.001$).

Discussion

Chronic diseases significantly affected the prognosis of COVID-19 infection.[20] However, some studies[5,21,22] reported that the chronic
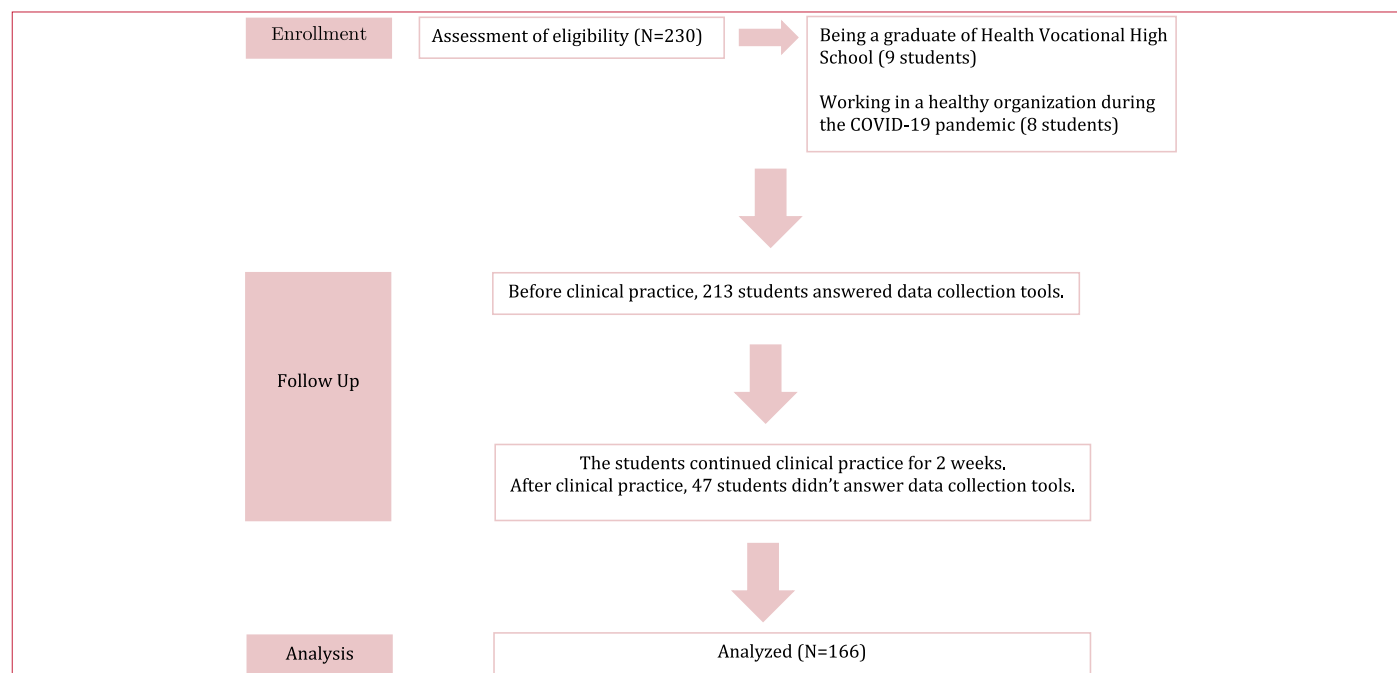

Figure 1. Flowchart of the study.

Table 1. Comparison of the pre-clinic state-trait anxiety and coronavirus anxiety total point averages according to nursing students' characteristics

Variables		State anxiety inventory		Trait anxiety inventory		Coronavirus anxiety scale	
		Mean±SD	Test value-*P*	Mean SD	Test value-*P*	Mean SD	Test value-*P*
Sex	Female (n=135)	47.76±11,06	−1.75*	45.62±7.05		3.52±4.38	−1.614*
	Male (n=31)	43.64±13.93	.081	42.29±7.88		2.17±2.78	.107
Class level	2 (n=77)	46.53±10.97	−.441* .659	43.53±6.28	−2.205 **.027**	3.09±4.05	−.355 .723
	3 (n=89)	47.39±12.35		46.25±7.90		3.6±4.54	
Current living arrangement	Family (n=112)	47.77±10.69	2.92** .231	45.57±6.56	1.23** .539	3.33±4.35	.012** .994
	Friend (n=40)	44.10±12.71		44.02±8.49		3.25±4.08	
	Alone (n=14)	49.00±15.62		43.92±9.36		4±4.94	
Accommodation	House (n=133)	47.98±11.50	−1.87* .061	45.15±7.08	−.790* .429	3.39±4.49	−.307* .759
	Dormitory (n=33)	43.00±11.88		44.36±8.23		3.27±3.57	
Presence of chronic diseases among parents or relatives	Yes (n=75)	48.52±11.32	−1.68* .093	45.92±7.16	−1.280* .200	3.05±3.44	−.374* .709
	No (=91)	45.73±11.93		44.23±7.37		3.62±4.92	
Presence of your chronic disease	Yes (n=14)	53.85±11.58	2.25* **.024**	44.42±5.87	−.119 .905	5.21±4.66	3.35* .067
	No (n=152)	46.36±11.55		45.04±7.43		3.19±4.26	
Have you been infected with COVID-19?	Yes (n=25)	43.00±11.83	−1.93* .053	44.6±7.38	−.626 .531	1.76±2.71	−.2.47* **.013**
	No (n=141)	47.70±11.58		45.06±7.31		3.66±4.49	
Have you been vaccinated?	Yes (n=8)	52.00±13.04	−1.14* .253	46.87±5.43	−.97* .332	6.12±6.51	−1.406* .16
	No (n=158)	46.74±11.62		44.89±7.39		3.22±4.15	
Do you have a relative diagnosed with COVID-19?	Yes (n=55)	42.27±11.27	−.18* .85	45.54±7.73	−.49* .620	3.74±4.12	−1.27* .202
	No (n=111)	46.85±11.97		44.72±7.10		3.18±4.41	
Do you have a relative who died from COVID-19?	Yes (n=38)	48.73±7.21	−1.28** 0.2	45.39±6,60	−.425	4.68±5.39	−1.73* .083
	No (n=128)	46.47±5.40		44.87±5,62	0.671	2.97±3.88	

Note. SD: Standard deviation, *Mann–Whitney U, **Kruskal–wallis

conditions of students and their relatives created anxiety in them. In our study, the mean SAI scores of students with a chronic disease were found to increase compared to other students (*P* =.024). Identifying students with chronic diseases was important to ensure that they were in safer environments against infection during their clinical training. Students who were not previously infected with COVID-19 had a significantly higher mean CAS score than those who were infected (*P* =.013). This finding suggests that not only it is possible to experience anxiety in the face of the unknown but also anxiety may be intensified with less experience.

Another parameter that we thought might affect the anxiety level of the students was the place where they lived. Students may be afraid of spreading this infection to the people they live with. Therefore, we questioned whom they were living with, where they lived, and whether they had chronic diseases because a previous study has reported increased state anxiety with the increased fear of infecting a family member.[5] However, our study demonstrated that these did not cause anxiety in our students. Besides, the factors of gender, vaccination, a relative being diagnosed with COVID-19, and having a relative who died due to COVID-19 had no effect on anxiety.

Table 2. Comparison of score averages before and after clinical practice from the state anxiety inventory and coronavirus anxiety scale

	Before clinical practice	After clinical practice	Test Value	
	Mean±SD	Mean±SD	*t/Z*	*P*-value
State anxiety inventory	46.99±11.7	43.33±9.4	3.06*	**.012**
Coronavirus anxiety scale	3.36±4.31	1.97±2.58	−2.928**	**.001**

Note. *: Independent sample t-test, **: Wilcoxon, n: Number of participants, SD: Standard Deviation, *P*<0.001

Table 3. Relationship of score averages from the state anxiety inventory and coronavirus anxiety scale

	Coronavirus anxiety scale	
	r	*P*-value
State anxiety inventory	.380	**<.001**

Note. r: Pearson correlations, *P*<.001

There was no significant difference between the academic years of the students and their SAI and CAS average scores, but the TAI average scores of the 3rd-year students increased significantly compared to the 2nd-year students (P =.027). In the school where the research was conducted, students practice in a clinic for the 1st time in the 2nd grade. Theoretically,[11,23] it was expected that their 1st clinical practice would cause more anxiety, but the results of our study were different. Besides, some studies with nursing students have shown that there was no significant difference between academic year and anxiety levels[5,22,23] whereas one other study, consistent with ours, demonstrated higher anxiety levels as students' academic years progressed.[24] It is thought that the reason for this is not the state anxiety of the students, but the difference in their trait anxiety and the thought that they should take more responsibility as their graduation approaches. In other words, this is the difference in the general stress situation of the students regardless of the clinical practices.

The study found that the mean scores of SAI were 44.99 ± 7.3, and the mean scores of TAI were 46.99 ± 11.7. İnangil et al. (2020) examined the anxiety levels of students before the clinical practice and reported the mean scores of SAI as 39.52 ± 8.83 and the mean score of TAI as 41.24 ± 6.91.[11] Another study reported that the mean score of SAI was 41.05 ± 10.69, and the mean score of TAI was 48.05 ± 5.00.[22] According to these studies and other similar studies, it can be said that our students have similar anxiety levels.[2,5,6,21,24,25]

In our study, the mean score of the CAS was 3.36 ± 4.31 before clinical practice and 1.97 ± 2.58 after clinical practice. According to the studies using the CAS, migrant workers in India scored 8.53 ± 0.12 points,[26] adults in Iran scored 2.46 ± 0.65 points[27] and adults in Pakistan scored 3.24 ± 4.21 points.[28] The lower score on the CAS in our study compared to the literature is due to the fact that our sample consisted of nursing students and they had more scientific knowledge about coronavirus.[26-28]

In our study, the mean scores of the SAI and CAS after clinical practice were found to be significantly lower (P <.05). The uncertainty caused by the pandemic before clinical practice may lead to an increase in anxiety score averages. The levels of anxiety may be decreased in clinical practice due to, for example, getting used to the environment, fulfilling the expectations, accessing protective equipment, witnessing the pandemic closely, and seeing those who recover after receiving treatment.[21,23,29]

In a study, it was reported that as students' anxiety about being infected with COVID-19 increased, their state anxiety also increased.[21] In another study, it was reported that with the widespread use of practices that provide protection from COVID-19 infection, such as effective hand washing and access to PPE, students' state anxiety, and anxiety about being infected with COVID-19 decreased.[21,23] In line with this literature, when the relationship between students' SAI and CAS scores was analyzed, it was observed that there was a positive relationship between students' state anxiety levels and coronavirus anxiety levels.

In the studies involving nursing students, they reported that COVID-19 negatively affected their work, they hoped that they would be able to return to school as soon as the pandemic ended and that their top priority would be to attend school and return to their normal work when the epidemic came to an end.[6,30,31] In addition, the anxiety levels of students who had problems in education due to COVID-19 as a stressor were found to be higher.[6] In our study, it was seen that not postponing clinical practice and continuing the education may have been influential in reducing the state anxiety of the students.

According to the study, it will be useful to provide students with training to help developing the knowledge, attitude, and coping methods that they use to deal with their COVID-19-related concerns. It may be important to implement interventions to reduce stress so that anxious students can spend their clinical education productively. In addition, the philosophy of helping the nursing profession should be discussed in these trainings. Nurses who care for COVID-19 patients and students can meet with online meetings.

Limitations

There are some strengths and limitations. The strength of this work can be collecting data before and after clinical practice. The students who participated in the study needed an internet connection and technological devices such as computers/smartphones.

Conclusion

The stress and coronavirus anxiety level of nursing students was high before the first clinical practice, and their stress level decreased after the clinical practice. This study proposes the implementation of interventions to reduce the stress levels of students before clinical practice.

As a result, it is recommended to conduct studies with larger samples to evaluate the stress levels and affecting factors of students in clinical practice areas, clinical practice applications should not be postponed as much as possible. In addition, it is recommended to conduct and use experimental studies to reduce the stress levels of nursing students. This result has significantly contributed to the literature in identifying risk factors that increase anxiety during clinical practice.

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