Araştırma Makalesi
(Research Article)

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COVID-19 Risk Perceptions and Psychological Distress Levels of Nursing Students and Influencing Factors

Hemşirelik Öğrencilerinin COVID-19 Risk Algıları ve Psikolojik Sıkıntı Düzeyleri ve Etkileyen Faktörler

ABSTRACT

Objectives: This study was conducted to determine the COVID-19 risk perceptions, psychological distress levels of nursing students, and the affecting factors.
Methods: The sample of the descriptive and cross-sectional study included 338 students from the nursing department of a university. Data were collected using the personal information form, COVID-19 Related Psychological Distress Scale and COVID-19 Perceived Risk Scale between 17 June-17 July 2021 via online. Ethics committee approval, institutional permission, and written consent from the students were obtained to conduct the research. Descriptive statistical methods, Kruskal Wallis test, Mann Whitney-U test, Spearman correlation analysis test and linear regression analysis test were used in the analysis of the data.
Results: The mean score of the COVID-19 Related Psychological Distress Scale was found to be 39.61±8.75. It was determined that the mean total score of the COVID-19 Psychological Distress Scale was higher, and the differences were significant (p<0.05). The mean score of the students' COVID-19 Perceived Risk Scale was 25.53±5.15. There was a significant difference in the mean scores of the sub-dimensions and total scores of the COVID-19 Perceived Risk Scale according to gender and class (p<0.05). Positive correlations were found between COVID-19 Related Psychological Distress Scale and COVID-19 Perceived Risk Scale total score (r=0.447), COVID-19 Perceived Risk Scale cognitive subscale (r=0.186) and COVID-19 Perceived Risk Scale emotional subscale (r=0.476).
Conclusion: As a result of the study, it was determined that grade level and gender affected perceived risk and psychological distress in students. Fear-anxiety and suspicion were found to be predictors of perceived risk associated with COVID-19. It is recommended that psychological support trainings should be given to students who have just started their education in the nursing department and health professionals should conduct further studies on the psychological status of nursing students.

ÖZ

Amaç: Bu çalışma pandemi döneminde hemşirelik öğrencilerinin COVID-19 risk algılarını, psikolojik sıkıntı düzeylerini ve etkileyen faktörleri belirlemek amacıyla yapılmıştır.
Yöntem: Tanımlayıcı ve kesitsel tipte olan çalışmanın örneklemine bir üniversitenin hemşirelik bölümündeki 338 öğrenci alınmıştır. Veriler, kişisel bilgi formu, COVID-19 Psikolojik Sıkıntı Ölçeği ve COVID-19 Algılanan Risk Ölçeği ile 17 Haziran-17 Temmuz 2021 tarihlerinde online toplanmıştır. Araştırma için etik kurul izni, kurum izni ve öğrencilerden yazılı onam alınmıştır. Verilerin analizinde tanımlayıcı istatistiksel yöntemler, Kruskal Wallis testi, Mann Whitney-U testi, Spearman Korelasyon testi ve Lineer Regresyon testi kullanılmıştır.
Bulgular: Öğrencilerin COVID-19 Psikolojik Sıkıntı Ölçeği puan ortalaması 39.61±8.75 bulunmuştur. Kadınların erkeklere göre ve birinci sınıfların üçüncü sınıflara göre COVID-19 Psikolojik Sıkıntı Ölçeği toplam puan ortalamalarının daha yüksek ve farkların anlamlı olduğu belirlendi (p<0.05). Öğrencilerin COVID-19 Algılanan Risk Ölçeği puan ortalaması 25.53±5.15 bulundu. Cinsiyet ve sınıfa göre COVID-19 Algılanan Risk Ölçeği alt boyutları ve toplam puan ortalamalarında anlamlı farklılık saptandı (p<0.05). COVID-19 Psikolojik Sıkıntı Ölçeği ile COVID-19 Algılanan Risk Ölçeği toplam puanı (r=0.447), COVID-19 Algılanan Risk Ölçeği bilişsel alt boyutu (r=0.186) ve COVID-19 Algılanan Risk Ölçeği duygusal alt boyutu arasında pozitif ilişki saptandı (r=0.476).
Sonuç: Çalışma sonucunda, sınıf düzeyinin ve cinsiyetin öğrencilerde algılanan risk ve psikolojik sıkıntıyı etkilediği saptandı. COVID-19 ile ilişkili algılanan riskin prediktörünün korku-kaygı ve şüphe olduğu belirlendi. Hemşirelik bölümünde eğitime yeni başlayan öğrencilere psikolojik olarak destek eğitimleri verilmesi ve sağlık profesyonellerinin hemşirelik öğrencilerinin psikolojik durumlarına yönelik ileri çalışma yapması önerilir.

INTRODUCTION

With the change in global learning and teaching models during the COVID-19 pandemic, all students began distance web-based education, including students in the applied sciences (Wallace, Schuler, Kaulback, Hunt and Baker, 2021). The continuation of education through distance learning instead of face-to-face learning due to social distance precautions affected nursing students (Şanlı, Uyanık and Avdal, 2021), and it was determined that students were concerned about developing clinical skills when practical classes ended suddenly (Aslan and Pekince, 2021). Increasing demands for quality patient care in health institutions have led to the need to integrate the theoretical knowledge acquired with clinical practices for nursing students to gain the appropriate qualifications before they begin their professional life (Lazenby et al., 2020; Ulenaers, Grosemans, Schrooten and Bergs, 2021). This need made clinical practice mandatory during the COVID-19 period for nursing students. However, students who could not have clinical practice or only partly completed it during the COVID-19 period were exposed to different stressors and this situation caused students to experience stress, anxiety and fear (Dewart, Corcoran, Thirsk and Petrovic, 2020). Perceiving the risk due to the continuing struggle with the pandemic as excessive may increase stress and anxiety and impact students in psychological terms (Savitsky, Findling, Ereli and Hendel, 2020). Previous studies found that nursing students experienced anxiety, nervousness, and depressive mood during the COVID-19 pandemic (Bai et al., 2021; Dewart et al., 2020; Savitsky et al., 2020). Even in the period before the pandemic, nursing students experienced anxiety in the clinical environment and this anxiety further increased during the pandemic (Savitsky et al., 2020).

When the period before the pandemic is examined, the reasons for anxiety experienced by university students were assessed as academic performance, career planning after graduation and family pressure (Beiter et al., 2015). Students experiencing fear of catching COVID-19 themselves or for family members with the pandemic caused situations like stress and concentration disorder in addition to academic concerns (Fitzgerald and Konrad, 2021). In this process, there have been nurses who had to distance themselves from their families, whose lives were threatened and even lost their lives due to reasons such as not knowing the course of the disease clearly (Çevirme and Kurt, 2020; Huang, Lei, Xu, Liu and Yu, 2020). It is thought that the difficulties experienced may trigger psychological problems such as anxiety, fear and anxiety in students who want to do this profession and may affect their attitudes towards the profession. For this reason, determining the COVID-19 risk perceptions and psychological distress levels of nursing students and taking the necessary measures is very important for students who are the future of the nursing profession. In the studies in literature, it was determined that many studies were conducted on the distance education process of nursing students, but there were a limited number of studies on COVID-19 risk perceptions and psychological distress levels.

The aim of this study was to determine the COVID-19 risk perceptions, psychological distress levels and effective factors among nursing students during the pandemic.

Research questions:

- What are the COVID-19 risk perception scores of nursing students?
- What are the levels of COVID-19 psychological distress among nursing students?
- What are the factors that influence COVID-19 risk perception and psychological distress in nursing students?
- Is there a correlation between COVID-19 risk perception and psychological distress in nursing students?

METHODS

Research Design

The research is descriptive and cross-sectional.

Population and Sample

The population for this descriptive and cross-sectional type of research comprised 457 students attending 1st, 2nd, 3rd, and 4th year in the nursing department of a state university located in a province in the Black Sea region of Turkey. The target was to reach the whole population without any sample selection and the sample comprised 338 students abiding by the inclusion criteria and accepting participation in the study. Reached 74% of the total sample.

Inclusion criteria for the study

Nursing students who volunteered to participate in the study, who were nursing students in the relevant institution and who were continuing their education at the time of the study were included in the study.

Exclusion criteria for the study

Students who were actively working as nurses were not included in the study, considering that the risk they perceived, and their psychological distress levels would be affected because they continued to work in the hospital during this process and experienced the process.

Data Collection Tools

The data were collected using a Personal Information Form, COVID-19 Perceived Risk Scale and COVID-19 related Psychological Distress Scale between 17 June 2021 and 17 July 2021. Data were collected using the Google Form online survey application lasting approximately 10-15 minutes.

Personal information form: The individual descriptive form was created by the researchers in line with the literature. The form included questions about the student's class, gender, age, geographical region, income status, chronic disease, diagnosed mental illness status and had COVID-19, vaccinated against COVID-19, death of a family member due to COVID-19, a family member's case of COVID-19 (Dewart et al., 2020; Lazenby et al., 2020; Savitsky et al., 2020).

COVID-19 Perceived Risk Scale: The COVID-19 Perceived Risk Scale (CPRS) was developed by Yıldırım and Güler (2020) and measures the COVID-19 risk perceived personally. The scale is five-point Likert type and has 8 items. Each item on the scale is rated with 1 point for 'negligible' to 5 points for 'very large' probability. A minimum of 8 and a maximum of 40 points are obtained from the scale. Higher points indicate the perceived risk of COVID-19 is higher. The scale comprises two subscales of 'cognitive' (min 4-max 20 points) and 'emotional' (min 4-max 20 points). The reliability of the scale was 0.70-0.74 for the cognitive dimension and 0.84-0.88 for the emotional dimension. The Cronbach alpha coefficients were 0.73 for the cognitive dimension and 0.88 for the emotional dimension. In this study, Cronbach's alpha reliability coefficients were 0.68 for the cognitive subscale, 0.83 for the emotional subscale, and 0.76 for the total scale.

COVID-19 related Psychological Distress Scale: The COVID-19 related Psychological Distress Scale (CORPDS) was developed by Feng et al. (2020). The Turkish validity-reliability study for the scale was completed by Ay et al. (2022). The scale measures psychological distress, suspicion, fear, and anxiety related to COVID-19. The scale comprises 12 items with 5-point Likert rating (1=definitely disagree to 5=definitely agree) and the lowest points are 12 with highest points of 60. The COVID-19-related Psychological Distress Scale comprises two subscales of fear-anxiety (items 1, 2, 3, 4 and 5, min 5-max 25 points) and suspicion (items 5, 7, 8, 9, 10, 11, and 12, min 7-max 35 points). The total points obtained from all items on the scale reflect the psychological distress level experienced by the individual related to COVID-19. High points obtained on the scale mean that high levels of psychological distress related to COVID-19 are experienced. The original study had Cronbach alpha coefficients of 0.88 for the total CORPDS, 0.74 for the fear and anxiety subdimension and 0.87 for the suspicion subdimension. In this study, Cronbach's alpha coefficients were 0.84 for the fear-anxiety subscale, 0.83 for the suspicion subscale and 0.89 for the total scale.

Data Analysis

Analysis of data used descriptive statistical methods including frequency, percentage, mean and standard deviation. The fit of research data to normal distribution was assessed with the Kolmogorov-Smirnov test, histogram graph, normal distribution curve, skewness and kurtosis and variation coefficients. As data did not abide by normal distribution, analysis of differences between groups used the Mann-Whitney U test and Kruskal Wallis test. Correlations between points obtained on the scales were assessed with the Spearman correlation analysis. In addition, Linear regression analysis test and t test results were used to evaluate the cause-and-effect relationship between the variables. In the study, the statistical level of significance was taken as $p < 0.05$ (Büyüköztürk, 2012).

Ethical Considerations

Before the research, permission to use the scales was obtained with e-mail from the authors. Ethical approval was granted by Ordu University Clinical Research Ethics Committee (Decision number: 146 on 17 June 2021) and institutional permission and permission from the Ministry of Health (2021-05-26T14-42-44)) were obtained. It was explained to the students that the purpose of the study, the data obtained would be used only within the scope of this research and would not be shared with any person or institution. Students participating in the research provided informed written consent. The research abided by the principles of the Helsinki Declaration.

RESULTS

The mean age of the students was 21.04 ± 1.79. Among the 338 students included within the scope of the research, 29.6% were in 2nd year, 79.6% lived in the Black Sea region, 65.2% were 18-21 years of age, 74.3% had income equal to expenditure, 9.5% had chronic disease, 4.4% had diagnosed mental illness, 70.4% not vaccinated against COVID-19 and 19.5% had COVID-19 disease (Table 1).

The COVID-19 psychological distress levels of nursing students were found to be above middle values. Students were found to have mean CORPDS points of 39.61 ± 8.75 for the whole scale, 18.37 ± 4.18 for the fear-anxiety subdimension and 21.23 ± 5.33 for the suspicion subdimension (Table 1). The mean points for COVID-19 perceived risk total scale and subdimensions were above middle values. The mean CPRS points for nursing students were 25.53 ± 5.15, with mean points of 10.33 ± 2.82 for the cognitive subscale and 15.14 ± 3.64 for the emotional subscale (Table 2).

It was found that the mean CORPDS scores of the students were significantly different only according to the class of study (first- and third-year student) ($p=0.019$) and gender ($p=0.006$) (Table 1). It was found that the mean scores of both the fear, anxiety ($p=0.004$) and suspicion sub-dimensions ($p=0.007$) of the CORPDS were higher in female students than in male students and the difference between them was statistically significant. The mean CORPDS fear-anxiety subscale points were higher for female students (18.97 ± 18.37) compared to male students (16.72 ± 5.52) and the difference was statistically significant ($p=0.004$). For the suspicion subscale, students with mental illness (23.8 ± 4.81) had higher points compared to those without mental illness (21.12 ± 5.34) and this difference was identified to be significant ($p=0.028$) (Table 1).

When the "cognitive" sub-dimension scores of the CPRS were analysed, it was found that there was a significant difference between the mean scores of the second and first grades and between the second and third grades (Table 2). It was determined that the CPRS cognitive sub-dimension scores of students who had COVID-19 vaccination were significantly different from those who did not ($p=0.000$). When the "emotional" sub-dimension of the CPRS was examined, it was found that female students had higher total scores than male students and those living in the Black Sea Region had higher total scores than those living in the Central Anatolia Region and the difference between them was statistically significant (Table 2).

Correlations between COVID-19 Perceived Risk Scale and COVID-19 related Psychological Distress Scale

As shown in Table 3, anxiety, and fear subscale scores on the CORPDS positively correlated with the CPRS emotional subscale scores ($r=0.525$), CPRS total scores ($r=0.426$), and CORPDS suspicion subscale scores ($r=0.594$). The CORPDS suspicion subscale scores positively correlated with the CPRS cognitive subscale ($r=0.220$), CPRS emotional subscale ($r=0.367$) and CPRS total scores ($r=0.382$). The CORPDS total scores positively correlated with the CPRS cognitive subscale scores ($r=0.186$), CPRS emotional subscale scores ($r=0.476$) and CPRS total scores ($r=0.447$). Correlations were found to be statistically significant ($p<0.01$).

Predictors of COVID-19 Perceived Risk

A linear regression model was used to evaluate the effect of perceived risk related to COVID-19 on CORPDS. It was found that fear-anxiety and suspicion affected the perceived risk related to COVID-19 ($R=0.466$, $R^2=0.217$, $F=46.508$, $p=0.000/p=0.009$). According to these results, 46.6% of the variation in perceived COVID-19 risk of students was explained. Standard regression coefficients (β) were identified for fear-anxiety ($\beta=0.329$) and suspicion ($\beta=0.174$) in relation to perceived risk of COVID-19. When the t test results for the regression coefficients are examined, it was found that fear-anxiety and suspicion were predictive factors ($p<0.001$) (Table 4).

Table 1. Comparison of COVID-19 related Psychological Distress Scale and its Sub-Dimensions Mean Scores According to Students' Socio-demographic and COVID-19 Characteristic

Characteristics of students	n	%	CORPDS Fear-Anxiety sub-dimension X̄±SD	CORPDS Suspicion sub-dimension X̄±SD	CORPDS Total score X̄±SD
Student's class					
1st year student (a)	79	23.4	19.30±3.96	22.24±5.77	41.54±8.86
2nd year student (b)	100	29.6	18.1±3.84	21.76±5.11	39.86±8.32
3rd year student (c)	89	26.3	17.87±4.49	19.79±5.31	37.67±9.09
4th year student (d)	70	20.7	18.37±4.39	21.2±4.89	39.57±8.40
Test and p			KW= 6764, p=0.800	KW=1117, p=0.110	KW= 9905, **p=0.019** *Difference between a-c*
Gender					
Female	248	73.4	18.97±18.37	21.83±4.73	40.81±7.21
Male	90	26.6	16.72±5.52	19.6±6.47	36.32±11.44
Test and p			MWU= 8898, **p=0.004**	MWU= 9011, **p=0.007**	MWU=8989, **p=0.006**
Geographical region					
Mediterranean Region	6	1.8	16.66±3.20	22.0±6.54	38.66±9.26
Eastern Anatolia Region	11	3.2	17.54±4.05	18.81±5.54	36.36±8.60
Southeast Anatolia Region	9	2.7	18.33±4.44	22.11±5.75	40.44±8.86
Central Anatolia Region	28	8.3	17.6±3.44	19.35±5.22	36.96±8.09
Black Sea Region	269	79.6	18.57±4.31	20.57±5.34	40.14±8.91
Marmara Region	15	4.4	17.66±3.41	19.66±3.61	37.33±5.93
Test and p			KW=8694, p=0.122	KW=1038, p=0.065	KW=9836/.080
Income status					
Income less than expenditure	37	10.9	18.94±3.89	22.32±5.28	41.27±7.97
Income equal to expenditure	251	74.3	18.37±4.23	21.08±5.33	39.46±8.81
Income higher than expenditure	50	14.8	17.98±4.14	21.2±5.42	39.18±9.04
Test and p			KW=1.02, p=0.472	KW=2454, p=0.293	KW=1856, p=0.395
Chronic disease					
Yes	32	9.5	18.15±3.7	21.65±4.74	39.81±7.71
No	306	90.5	18.4±4.23	21.19±5.4	39.59±8.87
Test and p			MWU=4561, p=0.522	MWU=4604, p=0.578	MWU=4834, p=0.907
TOPLAM	338	100	18.37±4.18	21.23±5.33	39.61±8.75

X̄:Arithmetic Mean, SD: Standard Deviation, MWU: Mann-Whitney U test, KW: Kruskal Wallis test, *Tamhane T2, CORPDS: COVID-19 related Psychological Distress Scale

Table 1. "Continue" Comparison of COVID-19 related Psychological Distress Scale and its Sub-Dimensions Mean Scores According to Students' Socio-demographic and COVID-19 Characteristic

Characteristics of students	n	%	CORPDS Fear-Anxiety sub-dimension $\bar{x}$±SD	CORPDS Suspicion sub-dimension $\bar{x}$±SD	CORPDS Total score $\bar{x}$±SD
Vaccinated against COVID-19					
Yes	100	29.6	18.28±3.41	21.67±4.7	39.95±7.38
No	238	70.4	18.42±4.47	21.05±5.58	39.47±9.28
Test and p			MWU=1081, p=0.185	MWU=1021, p=0.400	MWU=1184, p=0.950
Diagnosed mental illness status					
Yes	15	4.4	17.53±3.73	23.8±4.81	41.33±7.97
No	323	95.6	18.41±4.2	21.12±5.34	39.53±8.79
Test and p			MWU=1978/p=0.228	MWU=**1610**, p=0.028	MWU=2095, p=0.376
Had COVID-19 disease					
Yes	66	19.5	18.83±3.28	21.83±4.87	40.66±7.39
No	272	80.5	18.26±4.37	21.09±5.44	39.36±9.05
Test and p			MWU=8696, p=0.693	MWU=8128, p=0.233	MWU=8222, p=0.290
A family member's case of COVID-19					
Yes	141	41.72	18.35±4.02	20.92±5.35	39.28±8.58
No	197	58.28	18.39±4.3	21.46±5.33	39.85±8.89
Test and p			MWU=1332, p=0.524	MWU=1287, p=0.250	MWU=1303, p=0.334
Death of a family member due to COVID-19					
Yes	34	10.1	17.47±5.34	20.11±5.18	37.58±9.36
No	304	89.9	18.48±4.03	21.36±5.35	39.84±8.67
Test and p			MWU=4767, p=0.457	MWU=4415, p=0.163	MWU=4408, p=0.159
TOPLAM	338	100	18.37±4.18	21.23±5.33	39.61±8.75

$\bar{x}$:Arithmetic Mean, SD: Standard Deviation, MWU: Mann-Whitney U test, KW: Kruskal Wallis test, *Tamhane T2, CORPDS: COVID-19 related Psychological Distress Scale

Table 2. Comparison of COVID-19 Perceived Risk Scale Sub-Dimensions and Average Scores According to Students' Socio-demographic Characteristics

Characteristics of students	n	%	CPRS Cognitive sub-dimension $\bar{x}$±SD	CPRS Emotional sub-dimension $\bar{x}$±SD	CPRS Total Score $\bar{x}$±SD
Student's class					
1st year student (a)	79	23.4	9.7±2.58	15.21±3.54	24.92±4.62
2nd year student (b)	100	29.6	11.44±2.72	14.58±3.63	26.02±5.36
3rd year student (c)	89	26.3	9.75±2.85	15.39±3.63	25.14±5.36
4th year student (d)	70	20.7	10.44±2.78	15.57±3.74	26.01±5.15
Test and p			KW=2626, p=0.000 * Difference between a-b and b-c	KW=4063, p=0.255	KW=5097, p=0.150
Gender					
Female	248	73.4	10.46±2.82	15.51±3.52	25.98±5.06
Male	90	26.6	10.15±2.82	14.13±3.80	24.28±5.23
Test and p			MWU=1013, p=0.195	MWU=8756, p=0.002	MWU=8940, p=0.050
Geographical region					
Mediterranean Region (a)	6	1.8	9.83±4.75	14.5±2.58	24.33±6.97
Eastern Anatolia Region (b)	11	3.2	10.90±1.57	13.45±3.50	24.36±3.69
Southeast Anatolia Region (c)	9	2.7	11.88±3.44	14.44±3.6	26.33±6.46
Central Anatolia Region (d)	28	8.3	10.07±2.56	13.21±4.45	23.28±5.74
Black Sea Region (e)	269	79.6	10.37±2.82	15.4±3.57	25.78±5.1
Marmara Region (f)	15	4.4	10.0±2.92	16.06±2.25	26.06±3.65
Test and p			KW=4414, p=0.353	KW=1050, p=0.033 * Difference between d-e	KW=6526, p=0.163
Income status					
Income less than expenditure	37	10.9	10.59±3.33	15.78±3.25	26.37±4.92
Income equal to expenditure	251	74.3	10.29±2.64	15.06±3.76	25.36±5.1
Income higher than expenditure	50	14.8	10.66±3.29	15.08±3.31	25.74±5.59
Test and p			KW=0.663, p=0.718	KW=0.920, p=0.631	KW=1057, p=0.589
TOPLAM	338	100	10.33±2.82	15.14±3.64	25.53±5.15

** p< 0.01, CORPDS: COVID-19 related Psychological Distress Scale, CPRS: COVID-19 Perceived Risk Scale

Table 2. "Continue" Comparison of COVID-19 Perceived Risk Scale Sub-Dimensions and Average Scores According to Students' Socio-demographic Characteristics

Characteristics of students	n	%	CPRS Cognitive sub-dimension x̄±SD	CPRS Emotional sub-dimension x̄±SD	CPRS Total Score x̄±SD
Chronic disease					
Yes	32	9.5	10.81±3.38	15.28±3.61	26.09±5.25
No	306	90.5	10.33±2.76	15.13±3.65	25.47±5.15
Test and p			MWU=4478, p=0.424	MWU=4781, p=0.826	MWU=4605, p=0.579
Vaccinated against COVID-19					
Yes	100	29.6	11.59±2.68	14.81±3.58	26.4±5.1
No	238	70.4	9.87±2.73	15.28±3.66	25.16±5.14
Test and p			MWU=7714, p=0.000	MWU=1097, p=0.255	MWU=1038, p=0.065
Diagnosed mental illness status					
Yes	15	4.4	11.0±2.69	14.6±4.13	25.6±5.28
No	323	95.6	10.35±2.83	15.17±3.62	25.52±5.15
Test and p			MWU=1915, p=0.168	MWU=2274, p=0.687	MWU=2369, p=0.885
Had COVID-19 disease					
Yes	66	19.5	10.43±3.04	15.69±3.83	26.13±5.54
No	272	80.5	10.37±2.77	15.01±3.59	25.38±5.05
Test and p			MWU=8805, p=0.809	MWU=7761, p=0.087	MWU=8003, p=0.171
A family member's case of COVID-19					
Yes	141	41.72	10.29±2.81	15.14±3.73	25.43±5.4
No	197	58.28	10.44±2.84	15.15±3.58	25.59±4.98
Test and p			MWU=1353, p=0.685	MWU=1379, p=0.919	MWU=1374, p=0.873
Death of a family member due to COVID19					
Yes	34	10.1	9.52±3.2	15.41±4.42	24.94±6.2
No	304	89.9	10.48±2.77	15.11±3.55	25.59±5.03
Test and p			MWU=4198, p=0.071	MWU=4636, p=0.323	MWU=5046, p=0.822
TOPLAM	338	100	10.33±2.82	15.14±3.64	25.53±5.15

** p< 0.01, CORPDS: COVID-19 related Psychological Distress Scale, CPRS: COVID-19 Perceived Risk Scale

Table 3. Correlations between Students' COVID-19 related Psychological Distress Scale and COVID-19 Perceived Risk Scale Scores

Scales and Sub-scales		CORPDS anxiety and fear subscale	CORPDS suspicion subscale	CORPDS total	CPRS cognitive dimension	CPRS emotional dimension	CPRS Total
CORPDS anxiety and fear subscale	r	-					
CORPDS Suspicion subscale	r	0.594**	-				
	p	0.000					
CORPDS Total	r	.838**	0.926**	-			
	p	0.000	0.000				
CPRS Cognitive dimension	r	0.074	0.220**	0.186**	-		
	p	0.173	0.000	0.001			
CPRS Emotional dimension	r	0.525**	0.367**	0.476**	0.202**	-	
	p	0.000	0.000	0.000	0.000		
CPRS Total	r	0.426**	0.382**	0.447**	0.675**	0.837**	-
	p	0.000	0.000	0.000	0.000	0.000	

Table 4. Predictors of Perceived Risk related to COVID-19 by Nursing Students

	B	*SE*	*β*	*t*	*p value*
(Constant)	14.508	1.170		12.399	.000
CORPDS anxiety and fear subscale	0.406	0.082	0.329	4.956	**.000**
CORPDS Suspicion subscale	0.168	0.064	0.174	2.616	**.009**

B: Unstandardized Coefficients, *SE*: Std. Error, *β*: Standardized Coefficients, [R=0.466, R^2=.0217, F=46.508, p=0.000]

DISCUSSION

With isolation precautions taken during the pandemic, face-to-face education stopped, and most universities began online education. In this process, first nursing students received online education and then they began clinical practice in the hospital environment for applied lessons. In this study completed with 338 nursing students, the COVID-19-related psychological distress levels, and COVID-19 perceived risk of nursing students during the pandemic were researched. It was found that the psychological distress of nursing students during the pandemic period was slightly above the medium level and the perceived risk was at a medium level. The study by Alsolais et al. (2021) determined the nursing students had mean risk perception and fear of catching COVID-19 during the pandemic, while Fitzgerald and Konrad (2021) found very high levels of anxiety and stress among nursing students. A study investigating the COVID-19 perception levels of nursing students in Italy (Vitale, Moretti, Notarnicola and Covelli, 2020) detected the presence of depression in students. Findings of the study by Aslan and Pekince (2021) found that stress levels increased in students who had COVID-19. The study by Çalışkan et al. (2021) found nursing students had middle levels of COVID-19 fear and noted that the result of this situation caused impacts in a negative sense psychologically among students. In line with these findings, it can be said that the pandemic period affects nursing students in many ways, and the risk factors perceived by students cause stress, anxiety and psychological negative consequences in students.

In this study, it was found that the mean scores of the "fear-anxiety" and "suspicion" sub-dimensions of the CORPDS were above the average level and at the average level, respectively. The mean score of the "cognitive" sub-dimension of the CPRS was below the average and the mean score of the "emotional" sub-dimension was above the average. These findings support the presence of negative emotions and thoughts of the nursing students included in the study during the pandemic period, as in similar study results (Aslan and Pekin, 2021; Çalışkan et al., 2021). It is thought that the pandemic may cause serious psychological consequences on students in the following periods, and at this point, it is thought that nursing students should be evaluated psychologically.

It was determined that the mean CORPDS scores of the first grades were higher than the third grades and the difference was statistically significant. The findings of De Los Santos et al. (2021) support current study findings. It is thought that first-year nurses had higher CORPDS scores because they had just started their vocational education, had never seen the clinic, and had seen the difficulties experienced by nurses during the pandemic period. In addition, the mean CPRS scores of the second grades were significantly different from the first and third grades. In the study conducted by Karabulut et al. (2021), the perceived stress levels of 4th grade students were higher. At this point, it is thought that the risk perceived by the students is higher because they will start internal medicine/surgical diseases nursing practices in the second year and coronavirus is a disease in the category of internal medicine.

In this study, the CORPDS total points and CPRS emotional subscale points of female students were found to be higher compared to men. Savisky et al. (2020) identified that female students had more anxiety compared to male students during the COVID-19 pandemic. Another study found that female students in the health field had higher levels of worry, stress, anxiety and psychological distress (Li et al., 2021). Şentürk and Bakır (2021) found that women had higher mean points for subscales on the Depression-Anxiety-Stress Scale compared to men. At this point, it is thought that students in the nursing department experience conditions such as depression, anxiety, and stress at a higher rate due to the higher proportion of female students (73%) in the nursing department. In the literature, it is seen that women experience psychological problems more than men (Huang et al., 2020; Savitsky et al., 2020; Li et al., 2021).

It was found that students living in the Marmara region had a higher perceived risk of COVID-19 than those living in the Black Sea region. It is thought that the difference is since the population of the Marmara region is much higher than the Black Sea region, COVID-19 transmission is more common/faster, and this increases the perceived risk.

In the present findings, it was found that the mean scores of CPRS cognitive sub-dimension scores of students who were vaccinated were statistically different compared to those who were not vaccinated. In a similar study, it was reported that students' intention to be vaccinated against COVID-19 was higher than that of influenza vaccination because they thought that the vaccine was protective from getting the disease and was important (Graupensperger, Abdallah and Lee, 2021). Due to the high risk perceived by the students about COVID-19, it can be said that students turn to vaccination to protect themselves from the disease.

Students with diagnosed mental illness had higher suspicion mean points compared to those without diagnosis. It is thought that students with mental illness are more psychologically affected because they perceive COVID-19 as an additional risk, switch to complete closure and social isolation at home during the pandemic process, and thus decrease social relations. In the current study, the CPRS scores of students with chronic diseases were higher than those without a disease, but no significant difference was found. In the study of Ersin and Kartal (2021), unlike this study, the perceived stress level of students with chronic diseases was found to be statistically significantly higher. It is thought that there is a difference due to reasons such as students' class, income status, the status of the place where they live, lifestyle, the status of having COVID-19 disease, the status of losing a family member due to COVID-19, the course and severity of the chronic disease they have.

In this study, it was determined that 19.5% of nursing students had COVID-19. In a study conducted by Dost et al. (2021) with 170 intern student nurses, it was reported that 15% of the students had COVID-19, which is similar to the current study. Due to reasons such as social isolation and online education, students experienced full isolation at home like individuals all around the world. It is thought that students are less likely to get coronavirus because they are young, most of them do not have chronic diseases (%90.5) and are at lower risk compared to the elderly population.

In this study, it was found that COVID-19 perceived risk and psychological distress levels were not affected by characteristics such as income status, had COVID-19 disease and death of a family member due to COVID-19. In Jardon and Choi's (2022) study, like the findings of this study, it was found that the mental health of nursing students in COVID-19 was not related to having COVID-19 and losing a family member due to COVID-19. It can be thought that students who had COVID-19 and lost a family member due to COVID-19 perceived COVID-19 as a situation beyond risk. In addition, it is thought that no significant difference was found because most people were infected with coronavirus.

In line with the data obtained from the students, a statistically significant positive relationship was found between the total score of the CPRS and the total score of the CORPDS (r=0.447, p<0.01). The t-test results of the regression coefficients revealed that the predictor factors were fear-anxiety and suspicion. It has been reported that anxiety levels of nursing students are quite high in the pandemic, and they have problems such as depression (Fitzgerald and Konrad, 2021; Huang et al., 2020; Vitale, 2020). In the study by Çalışkan et al. (2021), similar to this study, it was emphasized that the fear experienced by nursing students due to COVID-19 may affect students psychologically negatively. In this study, it is thought that the psychological problems of the students can be solved by eliminating the fear and suspicion identified as predictors.

Limitations

The results of this study are limited to nursing students in the school where the research was performed. It cannot be generalized to the whole population. It is recommended that advanced studies be performed about this topic.

CONCLUSION

As a result of the research, it was found that the risk and psychological distress levels perceived by nursing students regarding COVID-19 were above the medium value. It was found that class, gender, vaccination, mental illness, and geographical region affected nursing students' COVID-19 risk perceptions and psychological distress levels, and CPRS and CORPDS scales were positively correlated. Especially after the pandemic, training and orientation programs should be carried out for the psychology of new nursing students. Since first-year students have higher anxiety, fear, and suspicion, these problems can be prevented by making interventions especially for first-year students. In addition, the risk perceived by second-year students regarding COVID-19 was significantly higher. In this context, the risk they perceive can be reduced by explaining isolation methods more carefully and developing education/training methods to protect against diseases, especially in cases of epidemics, to students who will practice internal medicine/surgical diseases nursing. At the same time, fear and suspicion were found to be

predictive factors for perceived risk. The negative effects of the COVID-19 pandemic, especially on the psychology of female nursing students, should be taken into consideration. In addition, it is recommended to conduct studies with a higher level of evidence with a larger sample to evaluate the mental health of students.

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