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Perceived COVID-19 anxiety, fear and depression levels among university students during the decreased restrictions of COVID-19 pandemic

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ABSTRACT

Introduction and aim. The COVID-19 pandemic has negatively impacted human life. It is observed that a significant group affected by this situation are university students. Evaluating the psychological states of students during the transition to normal life from the pandemic period is important. This study was conducted to examine the perceived levels of COVID-19 anxiety, fear, and depression among university students during the descreased restrictions of the COVID-19 pandemic.

Material and methods. This cross-sectional study was conducted with 1170 university students. The data were collected using "the Introductory Information Form, the Fear of COVID-19 Scale, the Coronavirus Anxiety Scale – Short Form, and the Depression Scale.

Results. It was observed that there was a difference between gender, class, education level, income level, having had COVID-19, and having a deceased relative due to COVID-19 and perceived COVID-19 anxiety and fear and depression levels among university students (p<0.05).

Conclusion. During the COVID-19 pandemic, although restrictions have been lifted, students still experience moderate levels of COVID-19 anxiety, fear, and depression. Therefore, considering the factors that affect university students' mental state, there is a need for services that support students' mental well-being.

Keywords. anxiety, depression, fear, pandemic, university students

Introduction

The coronavirus is a pandemic disease that affects many areas of life, including physical, social, and economic aspects, and has caused deaths.[1] According to the World Health Organization's report from March 2022, COVID-19 has led to more than 5.9 million deaths.[2] This disease not only poses a threat to the health of middle-aged and elderly individuals but also affects children.[3] It has been reported that COVID-19 has resulted in deaths among individuals aged 20 and under, accounting for 4% of total number of COVID-19 deaths.[4]

COVID-19, with its rapid spread and deadly consequences, has affected people of all ages. University students, who are in a period of their lives where they need to be independent and self-sufficient, have been particularly negatively affected in both their physical and mental health.[5] When reviewing the literature, it can be seen that the COVID-19 pandemic has brought about various challenges such as restrictions on disease prevention, disruption to educational processes, fear of the disease, living with parents, and increased use of digital devices.[6,7] It has been reported that the mental health of university students was negatively affected. During the COVID-19 process, mental problems such as fear, anxiety, depression, and addiction are reported to be experienced by students.[8–10] In one study, it was reported that

approximately one-third of adults experienced anxiety or depression, and this rate doubled especially at young age. It has been reported that young people aged 18–24 are at risk of depression and anxiety.[11] These psychological problems are also associated with gender, place of residence, medical history, substance use, weak and moderate levels of social support, lack of knowledge, and income status.[7,12] During the period when the Omicron variant of the COVID-19 virus was detected, pandemic restrictions were being relaxed and the world was beginning to move towards normalization. However, it has been reported that the Omicron virus is more prevalent among young people and spreads rapidly. Therefore, the study was designed to assess the impact of COVID-19 on university students during the decreased restrictions of the COVID-19 pandemic.

Aim
The aims of the study were to assess the perceived COVID-19 anxiety and fear, as well as depression levels among university students and identify the factors associated with perceived COVID-19 anxiety, fear, and depression levels among university students. Moreover, the aim was to determine the impact of COVID-19 on university students.

Material and methods
Design, sample and setting
This is a descriptive and cross-sectional study. The research was conducted between February 23 and March 31, 2022 at a university located in the eastern region of Türkiye. The population of the research consisted of 4116 undergraduate and associate degree students who registered for the 2022 Spring Semester at the university. During the period when the research was conducted, a sample of 1170 undergraduate and associate degree students voluntarily participated in the research, were reached, and filled out the data forms completely.

Data collection tools
In this study, university students were administered the Introductory Information Form, the Fear of COVID-19 Scale, the Coronavirus Anxiety Scale – Short Form, and the Depression Scale as data collection instruments.

University students' introductory information form
This form includes a total of 24 items that cover descriptive characteristics of university students such as age, gender, and educational status.

Fear of COVID-19 Scale
The Fear of COVID-19 Scale is a 7-item scale that was originally developed by Ahorsu et al.[13] It was adapted to Turkish by Bakioğlu et al. in 2020, and in that study, it was found to have good reliability with a Cronbach's al-

pha coefficient of 0.82. The scale is based on a 5-point Likert-type response format, with no reverse-coded items. Scores on the scale range from 7 to 35, and the total score reflects an individual's level of fear of COVID-19, with higher scores indicating greater levels of fear.[14] In the current study, the Cronbach's alpha coefficient of the scale was calculated to be 0.78.

The Coronavirus Anxiety Scale – Short form
The Coronavirus Anxiety Scale – Short form is a 5-point Likert-type scale with five items and one dimension. It was originally developed by Lee in 2020 and later adapted to Turkish by Biçer et al.[15,16] The scale measures anxiety related to the COVID-19 pandemic and has a total score range of 0-20, with each item being scored on a scale of 0-5.

Beck Depression Scale
The Beck Depression Inventory is a scale developed by Beck et al. to measure the behavioral symptoms of depression in adolescents and adults. It consists of 21 items and was translated into Turkish and validated for reliability by Hisli. The items are statements that assess self-evaluation of depression on a scale from 0 to 3, depending on the severity of the depression. A higher score on the inventory indicates a higher level of depression symptoms. Scores on the inventory can be interpreted as follows: 0-9 indicates low levels of depression, 10-16 indicates mild levels, 17-29 indicates moderate levels, and 30-40 indicates severe levels of depression.[17]

Ethical approval
In order for the research to be conducted, permission was first obtained from the Ministry of Health (date and number: 2022-02-10T19-12-05). Then, ethical approval was obtained from a university's Non-Invasive Ethics Committee (decision no. 03 dated January 28, 2022 and letter no. 42594 dated February 7, 2022). Legal permission was obtained from the university rectorate (letter no. E.44209 dated February 17, 2022) to conduct the research on students at the university. The principles of "Informed Consent," "Voluntariness," and "Protection of Privacy," which require the protection of individual rights, were fulfilled in the research. The Helsinki Declaration was adhered to during the research process.

Data collection and analysis
The data were collected between February 23rd and March 31st, 2022. After obtaining the necessary permissions, data forms were created using Google Forms. The data forms were then shared with the university students' advisors, who shared the links to the forms in WhatsApp groups they had created within the Provincial Directorate of National Education. Only completely filled out questionnaires were considered for assessment. During the specified period, parents were

asked to fill out the data forms online. Data analysis was performed using SPSS software version 22. normality test was conducted on the data. The data was analyzed using descriptive statistics such as numbers, percentages, means, t-tests, Mann-Whitney U tests, Kruskal-Wallis tests, and correlation tests.

Results

The average perceived COVID-19 anxiety score for female university students (75.8%) was 5.11±4.62, the perceived COVID-19 fear score was 16.86±7.18, and the depression score was 20.72±11.48. The perceived COVID-19 anxiety, fear, and depression scores of female university students were found to be statistically significantly higher than those of male students (24.2%) (p<0.05). The average perceived COVID-19 anxiety score of undergraduate students (69%) was 4.86±4.57, and the average perceived COVID-19 fear score was 16.34±7.06. The perceived COVID-19 fear level among undergraduate students was higher than that of associate degree students (31%), and this difference was statistically significant (p<0.05). On the other hand, the average depression score of associate degree students (21.29±12.60) was higher than that of undergraduate students, and this difference was also statistically significant (p<0.05).

The average perceived COVID-19 anxiety score for students living in dormitories was 4.89±4.58, the perceived COVID-19 fear score was 16.32±7.36, and the depression score was 20.54±11.74, with a percentage of 87.6%. The perceived COVID-19 anxiety, fear, and depression scores of students living in dormitories were found to be statistically more significant and higher than those living at home (12.4%) (p<0.05). The average perceived COVID-19 anxiety score for students (82.4%) with insufficient income to meet their needs was 4.94±4.63, the perceived COVID-19 fear score was 16.21±7.39, and the depression score was 21.13±11.88. The perceived COVID-19 anxiety, fear, and depression scores of students with insufficient income to meet their needs were statistically significant and higher than those of students with sufficient income (17.6%) (p<0.05). The average perceived COVID-19 anxiety score for students who have had COVID-19 (34.4%) was 5.36±4.89, the perceived COVID-19 fear score was 16.50±7.42, and the depression score was 21.88±12.3. The COVID-19 anxiety and depression scores for students who have had COVID-19 were found to be statistically significant and higher compared to students who have not had COVID-19 (65.6%) (p<0.05). The perceived COVID-19 anxiety score of students who have lost a close relative due to COVID-19 (46.5%) was found to be 5.38±4.74, the perceived COVID-19 fear score was 17.07±7.44, and the depression score was 21.32±11.73. The COVID-19 anxiety, fear, and depression scores of students who have

lost a close relative to COVID-19 were statistically significant and higher than those who did not lose a close relative (53.5%) to the disease (p<0.05). The average perceived COVID-19 anxiety score of students who have received the COVID-19 vaccine (95.3%) was 4.77±4.59, the perceived COVID-19 fear score was 16.11±7.24, and the depression score was 20.31±11.7. The COVID-19 anxiety, fear, and depression scores of students who have received the vaccine were found to be statistically significant and higher than those who have not received the vaccine (4.7%) (p<0.05) (Table 1).

Table 1. Mean scores of Perceived Fear, Anxiety, and Depression according to the descriptive characteristics of university students

Characteristics	n	%	COVID-19 Anxiety M±SD	COVID-19 Fear M±SD	Beck Depression M±SD
Age	21.20±2.05		(Min=18, Max= 41)		
Gender					
Female	886	75.8	5.11±4.62	16.86±7.18	20.72±11.48
Male	284	24.2	3.54±4.38	13.26±6.88	19.01±12.98
Test/p			t=5.020 p<0.001	t=7.410 p<0.001	t=2.117 p=0.03
Education status					
Associate degree	363	31.0	4.44±4.69	15.23±7.67	21.29±12.60
Undergraduate	807	69.0	4.86±4.57	16.34±7.06	19.87±11.51
Test/p			t=-1.442 p=0.15	t=-2.433 p=0.01	t=1.896 p=0.05
Class					
1	400	34.2	3.97±4.09	15.38±7.09	20.36±11.88
2	493	42.1	5.10±4.99	16.48±7.57	20.58±12.36
3	226	19.3	5.37±4.49	16.30±7.00	20.14±10.98
4	51	4.4	4.25±4.57	14.84±6.55	18.03±10.73
Test/p			KW=17.644 p=0.001	KW=6.000 p=0.11	KW=1.555 p=0.67
Accommodation					
Dormitory	1025	87.6	4.89±4.58	16.32±7.36	20.54±11.74
Home	45	12.4	3.60±4.71	13.68±6.16	18.68±12.68
Test/p			MU=58592.0 p<0.001	MU=59009.5 p<0.001	MU=67298.0 p=0.05
Perceived average income					
Insufficient income	963	82.4	4.94±4.63	16.21±7.39	21.13±11.88
sufficient income	207	17.6	3.75±4.43	15.00±6.60	16.43±11.04
Test/p			t=3.371 p=0.001	t=2.159 p=0.03	t=5.214 p<0.001
COVID-19 infection status					
Yes	403	34.4	5.36±4.89	16.50±7.42	21.88±12.31
No	767	65.6	4.38±4.42	15.73±7.19	19.48±11.56
Test/p			t=3.454 p=0.001	t=1.729 p=0.08	t=3.293 p=0.001
Having a relative dying due to COVID-19					
Yes	544	46.5	5.38±4.74	17.07±7.44	21.32±11.73
No	626	53.5	4.16±4.43	15.07±7.00	19.42±11.93
Test/p			t=4.526 p<0.001	t=4.739 p<0.001	t=2.731 p=0.006
Being vaccinated COVID-19					
Yes	1115	95.3	4.77±4.59	16.11±7.24	20.31±11.70
No	55	4.7	3.82±5.13	13.60±7.65	19.90±14.93
Test/p			MU=22974.0 p=0.03	MU=21337.0 p=0.005	MU=25996.50 p=0.41

Table 2. Levels of Perceived Anxiety, Fear, and Depression According to the Impact of COVID-19

Characteristics	n	%	COVID-19 Anxiety	COVID-19 Fear	Beck Depression
The situation that negatively affect life					
Yes	1082	92.5	4.89±4.60	16.37±7.26	20.46±18.38
No	88	7.5	2.76±4.36	11.43±5.8	18.38±11.4
Test/p			MU=31848.5 p<0.001	MU=27141.5 p<0.001	MU=42491.5 p=0.09
The situation that affect the economic situation					
Yes	1095	93.6	4.83±4.62	16.19±7.26	20.56±11.80
No	75	6.4	3.18±4.20	13.25±6.89	16.66±12.36
Test/p			MU=31167.0 p<0.001	MU=30340.5 p<0.001	MU=32382.0 p=0.002
The situation that affect the education status					
Yes	1039	88.8	4.92±4.62	16.30±7.30	20.58±11.91
No	131	11.2	3.18±4.24	13.62±6.63	18.15±11.34
Test/p			MU=50761.5 p<0.001	MU=52772.0 p<0.001	MU=59474.5 p=0.01
The situation that follow COVID-19 news					
Yes	872	74.5	5.12±4.63	16.81±7.27	20.08±11.81
No	298	25.5	3.58±4.49	13.61±6.73	20.96±12.06
Test/p			MU=101511.0 p<0.001	MU=94545.0 p<0.001	MU=124416.0 p=0.27

The perceived COVID-19 anxiety score average among students who reported that COVID-19 had a negative impact on their lives was 4.89±4.60, the perceived COVID-19 fear score average was 16.37±7.26, and the depression score average was 20.46±18.38. The COVID-19 anxiety, fear, and depression scores were statistically significantly higher among students who reported that COVID-19 had a negative impact on their lives compared to those who reported no impact (p<0.05). The perceived COVID-19 anxiety score of students (93.6%) who were negatively affected by the COVID-19 pandemic on the economic situation was 4.83±4.62, perceived COVID-19 fear score was 16.19±7.26, and depression score was 20.56±11.80. It was observed that the perceived COVID-19 anxiety, fear, and depression scores of students who were negatively affected by COVID-19 were statistically significantly higher than those who were not affected (6.4%) (p<0.05). The average perceived COVID-19 anxiety score for students (88.8%) affected by the COVID-19 education disruption was 4.92±4.62, the perceived COVID-19 fear score was 16.30±7.30, and the depression score was 20.58±11.91. It was found that the perceived COVID-19 anxiety, fear, and depression scores of students affected by COVID-19 education disruption were statistically significantly higher than those who were not affected (11.2%) (p<0.05). The perceived COVID-19 anxiety score average is 5.12±4.63 and the COVID-19 fear score average is 16.81±7.27 among students who follow COVID-19 news (74.5%). The

COVID-19 anxiety and fear score averages of students who follow COVID-19 news were found to be statistically significant and higher than those who do not follow COVID-19 news (25.5%) (p<0.05) (Table 2).

The average perceived COVID-19 anxiety score for university students was calculated as 4.73±4.61, the COVID-19 fear score as 16.00±7.27, and the Beck depression score as 20.31±11.87 (Table 3).

Table 3. Distribution of total scale point averages of COVID-19 Anxiety, Fear, and Beck Depression perceived by university students

Scale	Mean	±SD	Min	Max
COVID-19 Anxiety	4.73	4.61	0	20
COVID-19 Fear	16.00	7.27	7	34
Beck Depression	20.31	11.87	0	60

Positive and statistically significant correlation was found between COVID-19 anxiety, fear, and Beck depression mean scores among university students (p<0.05) (Table 4).

Table 4. The Correlation between COVID-19 Anxiety, Fear, and Depression mean scores[a]

Factors	COVID-19 Anxiety	COVID-19 Fear	Beck Depression
COVID-19 Anxiety		0.630**	0.350**
COVID-19 Fear	0.630**		0.303**
Beck Depression	0.350**	0.303**	

[a] **– p<0.001

Discussion

COVID-19 continues to affect life in many areas. In addition to being a physical health emergency, COVID-19 is described as a crisis related to an unnatural trauma that also affects mental health.[18] To control the disease during the COVID-19 pandemic, many countries have implemented rules such as isolation and quarantine for protection purposes. However, this situation has led to negative effects on human relationships, causing mental health problems such as loneliness, fatigue, anger, anxiety, fear, and depression.[16,19] Yang et al. have reported that stressors related to COVID-19 will have a long-term impact on adolescents.[20]

In this study conducted during a period when quarantine was not mandatory and restrictions were relaxed, a positive relationship was found between perceived COVID-19 anxiety, fear levels, and depression levels among university students. When similar studies on the subject were examined, it was observed that the average anxiety scores of students ranged from 3.34, 4.72±4.45, 7.74 to 8.36; average fear score ranges from 14.90, 14.95, 16.87 to 22.42 and average depression scores were 5.92, 6.59±5.44, 9.24 and 12.58.[5,8,10,18,21-24] The score ranges indicated on the scales represent moderate levels of anxiety and depression in students. The COVID-19

quarantine period and its aftermath have shown that levels of anxiety and depression are still moderate.

In this study, it was found that female university students who reside in dormitories, have insufficient income to meet their needs, have received the COVID-19 vaccine, and have lost a loved one due to COVID-19, had high levels of perceived COVID-19 anxiety, fear, and depression. COVID-19 anxiety and depression scores were also higher for university students who had recovered from the disease, while fear levels were higher for undergraduate students. Similar studies have shown that being female, being in quarantine or isolation, starting school later, experiencing financial difficulties, having low income, and having a family member with COVID-19 are all associated with anxiety, fear, and depression.[5–7,20] Concern about the disease, uncertainty about the future, and feelings of loneliness have also been reported to be related to fear and anxiety.[9,24] Infection fear, protective measures, monotony, lack of knowledge, decreased family income, or loss experienced have been reported to cause fluctuations in adolescent mental health and have negative effects on mental health.[25] Hu and Quian reported an increase in behavioral problems and peer relationship problems, but a decrease in psychosocial tendencies.[26]

In this study, it was found that students who reported that COVID-19 had a negative impact on their daily lives, economic situation, and education also had higher levels of COVID-19 anxiety, fear, and depression. Students who followed COVID-19 news more closely had lower levels of COVID-19 anxiety and fear. University students are more susceptible to psychosocial problems compared to other individuals. Akın-odeyne et al. reported that 26.4% of students experienced financial difficulties during the COVID-19 pandemic, 55.8% had negative effects on their friendships, and more than 40% reported negative impacts on their academic life.[25] Piya et al. found that 13.5% of students were unable to focus on their studies and 54% spent most of their time on social media.[21] Ünal et al. found that university students had a high level of knowledge about COVID-19, and the majority of participants experienced normal levels of depression, anxiety, and stress.[27] This was attributed to the high level of knowledge about the disease, low risk perception, and living with parents. Visser et al. reported that during the quarantine period, individuals experienced significant distress, had difficulty adapting academically, and felt socially isolated, leading to emotional challenges.[28] Leroy et al. showed that students studying in health and non-health fields had a lower likelihood of showing poor mental health outcomes and lower risks of depression.[29]

Conclusion
It has been observed that university students have moderate levels of COVID-19 anxiety, fear, and depression, despite the relaxation of pandemic restrictions. These mental health issues were found to be more prevalent among female students, those living in dormitories, those with low incomes, those who have lost a relative, those whose lives have been negatively impacted by the disease, those experiencing economic difficulties, those whose education has been affected, and those who follow news about the disease. It was also determined that COVID-19 anxiety, fear, and depression levels trigger each other. Therefore, there is a need for support services to reduce these mental health problems among students. In this context, it is important for groups that provide services specifically for university students to actively use integrated counseling services with healthcare services.

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