

## INVESTIGATION OF CORONAPHOBIA IN UNIVERSITY STUDENTS

### ÜNİVERSİTE ÖĞRENCİLERİNDE KORONAFOBİNİN İNCELENMESİ

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#### Öz

##### Amaç

COVID-19 farklı yaş gruplarındaki tüm bireyleri fiziksel ve psikososyal olarak etkilemiştir. Bu bireyler arasında üniversite öğrencileri önemli bir yere sahiptir ve COVID-19'un koronafobi gibi psikososyal etkilerinin değerlendirilmesi önemlidir. Bu nedenle bu çalışmanın amacı üniversite öğrencilerinde koronafobiyi araştırmaktır.

##### Gereç ve Yöntem

Bu çalışma kesitsel bir çalışma olarak tasarlanmıştır. Araştırmaya Kasım 2020 ile Mart 2021 tarihleri arasında üniversiteye devam eden öğrenciler dahil edilmiştir. Google Formlar kullanılarak bir form oluşturulmuş ve bu form ile katılımcıların yaş, cinsiyet, öğrenim gördükleri bölüm, yıl, katılımcıların COVID-19 geçirip geçirmediği, COVID-19 fobisi olup olmadığı gibi demografik ve tanımlayıcı özellikleri sorgulanmıştır. Koronavirüs-19 Fobisi Ölçeği (CP19-S) de Google Formlar kullanılarak katılımcılara gönderilmiştir.

##### Bulgular

Kadın öğrencilerin erkek öğrencilerden daha yüksek koronafobi puanlarına sahip olduğu görülmüştür ( $p = 0.012$ ). Üniversitede öğrenim gördüğü yıla göre psikolojik alt boyutta istatistiksel olarak anlamlı farklılık saptanmıştır ( $p=0,004$ ). COVID-19 için yüksek riskli

bir grupla birlikte yaşayan öğrencilerin CP19-S toplam puanlarında ( $p=0,022$ ) ve somatik ( $p=0,027$ ) ve ekonomik ( $0,020$ ) alt boyutlarında istatistiksel olarak anlamlı bir fark gözlenmiştir.

##### Sonuç

Bu çalışma ile üniversite öğrencilerinin farklı düzeylerde ve farklı nedenlerle koronafobi yaşadıkları belirlenmiştir. Kadın cinsiyet, yüksek risk grubundaki bireylerle birlikte yaşama ve daha yüksek bir sınıfta öğrenim görme koronafobiyi artıran faktörler olarak bulunmuştur. Gelecekteki çalışmalar pandeminin etkilerini değerlendirmelidir. Ayrıca üniversite öğrencilerine psikososyal destek sağlanmalıdır.

**Anahtar Kelimeler:** Korku, Koronafobi, COVID-19, Öğrenciler, Pandemi

##### Abstract

##### Objective

The COVID-19 has affected all individuals in different age groups physically and psychosocially. University students have an important place among these individuals, and it is important to evaluate their psychosocial influences, such as coronaphobia. The aim of this study was to investigate coronaphobia in university students.

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## Material and Method

This study was designed as a cross-sectional study. Students attending university between November 2020 and March 2021 were included in the study. A form was created using Google Forms and then the demographic and descriptive characteristics of the participants, including age, gender, department of study, year, whether the participant has had COVID-19, and COVID-19 phobia, were obtained. The Coronavirus-19 Phobia Scale (CP19-S) was sent using Google Forms.

## Results

Female students had higher points than males ( $p = 0.012$ ). A statistically significant difference was determined in the psychological subdimension according to the year of study at the university ( $p = 0.004$ ). A statistically significant difference was

determined in the CP19-S total points ( $p = 0.022$ ) and the somatic ( $p = 0.027$ ) and economic (0.020) subdimensions for those students living together with a high-risk group for COVID-19.

## Conclusion

In this study, it was determined that university students experienced coronaphobia at varying levels and for different reasons. Female gender, living together with individuals in a high-risk group, and studying at a higher year level were found to be factors that increase coronaphobia. Future studies should evaluate the effects of the pandemic. Moreover, university students should be provided with psychosocial support.

**Keywords:** Coronaphobia, COVID-19, Fear, Pandemic, Students

## Introduction

The new coronavirus disease (COVID-19) caused by SARS-CoV-2 emerged in Wuhan, China, in December 2019. Following the rapid spread of the infection, COVID-19 was declared a global pandemic by the World Health Organization (1). The first case of COVID-19 in Turkey was recorded in March 2020, and due to the rapid spread of the virus with high morbidity and mortality rates, preventative measures were implemented, including the cessation of face-to-face education on March 16, 2020. This closure by the Ministry of Education of all educational institutions, including universities, was necessary to meet the confinement to home and social distancing measures implemented to prevent the spread of infection. For various reasons, this period had extremely negative effects on students, including personal and family economic problems, lack of academic life, lack of social life, and mental health problems (2, 3).

On the one hand, students wished to continue their education, and on the other, they started to develop a fear with respect to the course of the virus. These fears, which have been expressed in different terms in literature, such as "coronaphobia" or "fear of COVID-19," resulted in the emergence of a new phobia (4). The lack of treatment for the disease, the continuous increase in its incidence, the uncertainty of when it will ultimately end, and the high contagion potential have been effective in forming this fear. As a result of this fear, a feeling of burnout, anxiety, and depression can occur in students, and it is negative

effect to continue their daily life. Studies have reported that conditions related to public health have caused fear, concern, and anxiety in students (5). Cao et al. (2020) reported that approximately 24.9% of students suffered anxiety because of the COVID-19 pandemic (2).

Researchers stated that the increasing mortality rates and spread of the pandemic would increase coronaphobia. The reasons for coronaphobia seen in young people in particular include contracting COVID-19, infecting family and friends, and sharing a home with a person with COVID-19. Coronaphobia has become a subject of interest because of the negative effects of these situations on students. Previous studies have examined the psychosocial effects of the pandemic in various populations, such as patients, health workers, children, and geriatrics, yet no study in the literature has examined coronaphobia in university students (6-8). Therefore, the aim of this study was to examine coronaphobia in university students.

## Material and Method

This study was designed as a cross-sectional study and conducted according to the principles of the Helsinki Declaration. Students attending university between November 2020 and March 2021 were defined as the study population. Approval for the study was granted by the Non-Interventional Clinical Research Ethics Committee of İzmir Demokrasi University in 2020 (Decision no: 2020/22-7). Permission for the study

was also obtained from the Ministry of Health and İzmir Demokrasi University. Written information about the study was given to all the participants, and an online informed consent was obtained from all the voluntary study participants. Voluntary individuals aged > 18 years and studying at a university were included in the study. As the study universe was formed of all the students at a university, the sample size required was calculated to be 370 with an error level of 0.05 and a sample error of  $d = 0.05$ .

### Procedure

Google Forms was used to create a form, which provided information about the study in the first part, followed by the informed consent section and then the questionnaire. The link to this document was sent to the institutional e-mail address of all the students by the student affairs department of the university.

### Measures

#### Assessment of Demographic and Descriptive Data

The demographic data of the participants were recorded on this form, including age, gender, department of study, and year. Questions were also asked to ascertain whether the participant has had COVID-19, whether anyone with whom they were living has had COVID-19, if they had any chronic diseases, the number of people living in the house, whether anyone in the house was >65 years or <18 years of age, how many days a week they went outside, and their sources of information about COVID-19.

#### Assessment of COVID-19 Phobia

The Coronavirus-19 Phobia Scale (CP19-S), developed by Arpacı et al. (2020), was used to evaluate the coronaphobia of participants. The CP19-S is a self-reported evaluation scale with five-point Likert-type responses; it was designed to evaluate the phobia that can develop against COVID-19. The Cronbach alpha coefficient of the scale was found 0.92. The responses are scored from 1 to 5, where 1 = I completely disagree and 5 = I completely agree. There are 20 items in 4 subdimensions: items 1, 5, 9, 13, 17, and 20 constitute the psychological subdimension; items 2, 6, 10, 14, and 18 the somatic subdimension; items 3, 7, 11, 15, and 19 the social subdimension; and items 4, 8, 12, and 16 the economic subdimension (4).

The sum of the items in each subdimension was calculated as the total subdimension score, and the sum of the subdimensions was calculated as the total scale score, which ranged from 20 to 100. High scores indicate a high level of coronaphobia in both the subdimensions and in general (4).

### Statistical Analysis

The data obtained in this study were statistically analyzed using IBM SPSS version 24.0 software. The data were expressed as mean  $\pm$  standard deviation (SD) value, number (n), and percentage (%). The population of the study is university students in Turkey. Sample size was determined by convenience sampling. The normality of distribution of the data of continuous variables was evaluated with the Kolmogorov-Smirnov test. The Mann-Whitney U test and the Kruskal-Wallis test were used to compare data that did not have a normal distribution. A p-value < 0.05 was considered statistically significant. The effect size was calculated for the significant results. Eta square value was interpreted as 0.01 small, 0.06 moderate and 0.14 large effects (9).

### Results

This study involved 376 university students from different faculties, with a mean age of  $19.99 \pm 1.69$  years (range: 18–31 years). Thirty-six students reported chronic diseases such as asthma, bronchitis, diabetes, rheumatic diseases, epilepsy, allergy, and psoriasis. Table 1 shows the demographic information about the participants and their responses to the questions asked.

The CP19-S had a mean total score of  $52.85 \pm 13.72$  points. The scale ranged from 20 to 100 points, implying that the mean points indicate a mild to moderate level of coronaphobia. When the subdimensions of the scale were examined, the psychological, social, and economic subdimensions were found to be the most affected (Table 2).

When the total CP19-S and scale subdimension points were evaluated, a statistically significant difference was observed in the psychological subdimension based on gender ( $p = 0.012$ ), with the female respondents scoring significantly higher points than the male respondents ( $20.48 \pm 4.98$  vs.  $18.84 \pm 5.66$ ) ( $p = 0.012$ ). There was a statistically significant difference in the psychological subdimension based on the year of university study ( $p = 0.004$ ) (Table 3).

There was a statistically significant difference in the CP19-S total points ( $p = 0.022$ ) as well as in the somatic ( $p = 0.027$ ) and economic (0.020) subdimensions when the respondents were evaluated based on living with a person in a high-risk group for COVID-19. Those who lived with a high-risk individual had a mean total point of  $54.42 \pm 14.18$  on the scale, whereas those who did not live with a high-risk individual had a

**Table 1** Demographic and Descriptive Characteristics of the Participants

Variables	n (%)
<b>Gender</b>	
Female	273 (72.6)
Male	103 (27.4)
<b>Class</b>	
1	151 (40.2)
2	116 (30.9)
3	68 (18.1)
4	41 (10.9)
<b>Having had COVID-19</b>	
Yes	45 (12)
No	331 (88)
<b>Having someone at home who has had COVID-19</b>	
Yes	88 (23.4)
No	288 (76.6)
<b>Presence of chronic disease</b>	
Yes	36 (9.6)
No	340 (90.4)
<b>Presence of individuals over 65 and / or under 18 at home</b>	
Yes	210 (55.9)
No	166 (44.1)
<b>Frequency of go out in week</b>	
1-2 Days	215 (57.2)
3-5 Days	75 (19.9)
More than 5 Days	18 (4.8)
None	68 (18.1)
<b>Source of COVID-19 information</b>	
Television	59 (15.7)
Internet	298 (79.3)
Article	6 (1.6)
Neighborhood	9 (2.4)
Other	4 (1.1)
<b>Total</b>	<b>376</b>

mean total point of  $50.87 \pm 12.89$ . The mean somatic subdimension point for those who lived with a high-risk individual was  $10.21 \pm 3.86$ , whereas that for those who did not live with a high-risk individual was  $9.34 \pm 3.34$ . The mean economic subdimension point for those who lived with a high-risk individual was  $8.76 \pm 3.06$ , whereas that for those who did not live with a high-risk individual was  $8.08 \pm 2.78$ . The effect size of statistically significant results was examined in this study. Consequently, it was observed that the "gender" variable had a large effect on psychological

factors, and the "presence of individuals over 65 and / or under 18 at home" variable on psychosomatic, economic, and total values. Also, it was observed that the "class" variable had a small effect on psychological factors (Table 3).

### Discussion

The factors that affect coronaphobia in university students were examined in this study. The results revealed that variables such as gender, year of

**Table 2** Coronavirus-19 Phobia Scale Total and Subdimension Scores

CP-19-S (n=376)	Minimum	Maximum	Mean±SD
Psychological	6	30	20.03±5.223
Psycho-somatic	5	25	9.83±3.669
Social	5	25	14.54±4.302
Economic	4	20	8.46±2.956
Total	20	100	52.85±13.72

Coronavirus-19 Phobia Scale: CP-19-S, SD: Standard Deviation

**Table 3** Comparing the Interrogated Parameters According to the Coronavirus-19 Phobia Scale Total and Subdimension Scores

Coronavirus-19 Phobia Scale Total and Subdimension Scores										
Variables	Psychological		Psycho-somatic		Social		Economic		Total	
	Mean±SD	p (η <sup>2</sup> )	Mean±SD	p (η <sup>2</sup> )	Mean±SD	p (η <sup>2</sup> )	Mean±SD	p (η <sup>2</sup> )	Mean±SD	p (η <sup>2</sup> )
<b>Gender</b>										
Male	18.84±5.66	<b>0.012</b>	9.46±4.08	0.119	14.19±4.83	0.236	8.74±3.43	0.575	51.23±15.88	0.077
Female	20.48±4.98	(0.13)	9.97±3.49		14.67±4.08		8.35±2.75		53.47±12.79	
<b>Class</b>										
1	19.01±5.10	<b>0.004</b> (0,03)	9.55±3.45	0.743	13.96±4.40	0.080	8.56±2.84	0.766	51.08±13.40	0.203
2	20.51±5.13		9.98±3.73		15.19±4.11		8.38±3.04		54.06±13.56	
3	21.31±5.15		10.15±4.25		15.07±4.49		8.26±3.05		54.79±14.71	
4	20.29±5.47		9.88±3.25		13.95±3.88		8.63±3.03		52.76±13.36	
<b>Having had COVID-19</b>										
Yes	18.49±6.02	0.075	9.84±5.58	0.545	13.87±4.55	0.231	8.29±3.02	0.857	50.49±16.26	0.232
No	20.24±5.07		9.82±3.53		14.63±4.26		8.48±2.95		53.18±13.34	
<b>Having someone at home who has had COVID-19</b>										
Yes	19.48±5.53	0.349	10.05±4	0.640	14.31±4.12	0.665	8.83±2.89	0.121	52.66±14.39	0.989
No	20.20±5.12		9.76±3.56		14.61±4.36		8.34±2.97		52.91±13.54	
<b>Presence of individuals over 65 and / or under 18 at home</b>										
Yes	20.48±5.37	0.080	10.21±3.86	<b>0.027</b> (0.12)	14.97±4.41	0.060	8.76±3.06	<b>0.020</b> (0.12)	54.42±14.18	<b>0.022</b> (0.12)
No	19.46±4.98		9.34±3.34		13.99±4.10		8.08±2.78		50.87±12.89	

university study, and living with high-risk individuals affected coronaphobia levels in university students. The psychological subdimension of coronaphobia was found to be more affected in females and individuals in higher year level. The somatic, economic, and total effects were found to be high in respondents who

lived with risk groups of over 65 years and under 18 years. When all the participants were considered, coronaphobia was found to be at a moderate level, and when the subdimensions were examined, the psychological, social, and economic subdimensions were found to be significantly affected.

All the students continued with online education during the data collection period, as stay-at-home restrictions had been imposed. Preventative measures were promptly implemented in Turkey because of the rapid spread of COVID-19 and the high morbidity and mortality rates. Consequently, several psychosocial functioning effects such as anxiety, depression, fear, and panic developed as a result of the uncertainty about education, restrictions, confinement to home, and social isolation (10). The COVID-19 pandemic caused personal and family economic problems, academic shortfalls, social isolation, and mental health problems, which are among the subjects that have been studied. It has also been reported that one out of every four students suffer from pandemic-related anxiety (2, 10). University students are normally concerned about their careers and future, and the pandemic has increased their level of concern about these issues.

The sources of information regarding the pandemic were questioned, as it was believed that young people, in particular, can be negatively affected, increasing their level of concern about this subject. Several studies have reported that young people obtain information about the pandemic mainly through social media (11-13). In this study, the students reported that they obtained information from the Internet and television. As with many subjects, it is critical that the public is properly informed about the COVID-19 pandemic, and media outlets should do this in collaboration with healthcare professionals (14). To prevent misinformation, it is important to prevent the transmission of false information caused by the increased use of technology by young people in particular. Informing and educating young people about reliable sources of information, such as articles, official government publications, and daily information broadcasts by the Ministry of Health, can be considered beneficial.

When the students were asked how often they went outside, the vast majority reported that they went out 1–2 days a week. This suggests that they had adopted a sedentary lifestyle. Considering the numerous studies that have demonstrated the positive effects of physical activity on mental health, the students' level of coronaphobia could have been influenced by their sedentary lifestyle (15). Therefore, students should be encouraged to engage in physical activities and exercises that can be applied at home to combat coronaphobia.

In the present study, the female students were

observed to score highly in relation to the psychological subdimension and, therefore, to have a moderate level of coronaphobia. The gender variable has been examined in a number of prior studies. In accordance with the findings of this study, Elsharkawy and Abdelaziz (2020) and Nguyen et al. (2020) reported that female students developed a higher level of COVID-19-related fear than male students (16, 17). Similarly, a study by Aristovnik et al. (2020) determined that male students were more hopeful and experienced fewer psychosocial effects than female students (18). Moreover, several studies have shown that female students exhibit higher levels of anxiety than male students (19-22). By contrast, Cao et al. (2020) reported that the vast majority of students did not experience anxiety, and further, that there was no difference between male and female students in this regard. It is possible that personal factors and other factors known to affect anxiety may have influenced these latter results (2).

In a study by Cao et al. (2020), university students reported that they faced a higher risk of anxiety when a relative or close friend had COVID-19 (2). Furthermore, a previous study conducted in Turkey found that the fear of relatives being infected with the virus was greater than the fear of the individual themselves being infected (23). In the present study, the levels of coronaphobia were observed to be higher in those students who lived in the same house as individuals categorized as being in high-risk groups when compared with those who did not live with high-risk individuals. This finding may stem from the students accepting a degree of moral responsibility to protect those closest to them from COVID-19. No significant difference with respect to coronaphobia was observed in this study between those who had previously been infected with the virus and those who had not. By contrast, in a study involving medical students conducted by Nakhostin-Ansari et al. (2020), the levels of both depression and anxiety were determined to be higher in those students who showed symptoms of COVID-19 than in those who did not (19).

A study by Aristovnik et al. (2020) found that first-year university students reported greater feelings of boredom than students in other year groups, while Elsharkawy and Abdelaziz (2020) determined that students in lower classes exhibited higher levels of fear and uncertainty (16, 18). Similarly, Nguyen et al. (2020) reported that older students and those in higher year level experienced lower levels of fear (17). In contrast to these studies, in the present study, the

students in higher year level were found to be more affected, particularly in relation to the psychological subdimension of coronaphobia. This finding was thought to be due to concerns and uncertainties related to their career and future, a greater awareness and understanding of the seriousness of the pandemic, anxiety concerning lessons (including professional practice), geographical differences, differing levels of family and peer support, and economic concerns.

### Strengths and Limitations

To the best of our knowledge, this study is the first to have examined coronaphobia among university students. Contrary to previous studies, it handled the coronaphobia of university students due to COVID-19 with psychological, somatic, social and economic sub-dimensional. Therefore, its findings may provide valuable guidance for public health studies related to the impacts of the pandemic in young adults. The limitations of this study concern the fact that it was conducted in a single university setting, and further, that the participants were not a homogenous group with regard to the faculties in which they were studying, which prevent the generalization of the results obtained.

### Conclusion

This study determined that university students experience coronaphobia to varying levels and for different reasons. The female gender, living with individuals in high-risk groups, and being in higher year level were all variables found to increase coronaphobia. Based on these results, there exists a need for further studies to evaluate the psychological, social, and economic effects of the pandemic in students, in addition to identifying ways of preventing these effects among both students and other population groups. If students are to be able to live healthy and productive educational lives, it is highly important to make all necessary arrangements and provide sufficient psychosocial support for them. For this, we think that students can be trained on coping with stress and supported with psychosocial support programs according to their needs. In order to continue participating in social life, activities, where students can interact together should be organized on online platforms.

Unfortunately, many people and sectors worldwide have been adversely affected in different ways by the COVID-19 pandemic. University represents the final step in most people's formal education; therefore, it marks a turning point in life prior to moving on to

training and employment in many fields. At this stage, individuals acquire the qualifications necessary to enter the profession in which they may well remain throughout their lives, which causes their position in society to change. Thus, protecting both the physical and mental health of university students is of great importance in terms of ensuring their professional success in the future. The present study has shown that university students experience different dimensions of coronaphobia and face concerns that may affect their futures. Health professionals play a vital role in ensuring students reduce anxiety during this process. In light of this, serious measures should be adopted by multidisciplinary teams and implemented as soon as possible. Most importantly, it should be borne in mind that coronaphobia can cause significant problems among university students if allowed to develop into a chronic condition. As a consequence, the protection and improvement of the mental health of students, who can be considered the architects of the future, who will go on to work in various fields, and who will eventually become the parents of the next generation, represent key aspects of the fight against coronaphobia.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Ethical Approval

This study was designed as a cross-sectional study and conducted according to the principles of the Helsinki Declaration. Students attending university between November 2020 and March 2021 were defined as the study population. Approval for the study was granted by the Non-Interventional Clinical Research Ethics Committee of İzmir Demokrasi University in 2020 (Decision no: 2020/22-7).

### Consent to Participate and Publish

Written informed consent to participate and publish was obtained from all individual participants included in the study.

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### Availability of Data and Materials

Data sharing not applicable

### Authors Contributions

BT: Conceptualization; Investigation; Data curation; Formal analysis; Writing-original draft; Writing-review & editing

FT: Conceptualization; Investigation; Data curation; Formal analysis.

HG: Conceptualization; Investigation; Data curation; Formal analysis.

ASKK: Data curation; Formal analysis; Writing-original draft; Writing-review & editing

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