ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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The Factors That Affect the Fear of COVID-19 in Students of the Physiotherapy and Rehabilitation Departments: A Descriptive Study

Fizyoterapi ve Rehabilitasyon Bölümü Öğrencilerinde COVID-19 Korkusunu Etkileyen Faktörler: Tanımlayıcı Bir Araştırma

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ABSTRACT Objective: To determine the level of fear of coronavirus disease-2019 (COVID-19) and the factors that affect the fear of COVID-19 in students of the physiotherapy and rehabilitation departments. Material and Methods: The study involved 253 volunteer students from 4 different universities in Türkiye. Utilizing an online data collection technology, the participant information form and the Fear of COVID-19 Scale were used to collect the study's data. Results: Female gender (p=0.06), not working in any job (p=0.76), income source only (p=0.92), smoking (p=0.26), and not using alcohol (p=0.88), history of chronic disease (p=0.32), no previous COVID-19 infection (p=0.96), 12 weeks after COVID-19 infection (p=0.17), 3 doses of vaccination (p=0.63), using public transportation (p=0.49) were factors that increased the level of fear in physiotherapy and rehabilitation department students. In addition, the fear levels of the students who had a family history of chronic disease (p=0.007) and had the thought of freezing the school (p=0.001) were significantly higher than the others. On the other hand, there was no significant difference between the fear of COVID-19 and terms of living environment, number of theoretical lessons, number of practical lessons and class size (p>0.05). Conclusion: Physiotherapy and rehabilitation department students have low-to-moderate fear of COVID-19. Those with a chronic disease in their family have a high fear of COVID-19, and those with a high level of fear consider freezing the school. The number of practical and theoretical lessons and class size have no effect on the level of fear.

Keywords: Fear; COVID-19; students; pandemic; education

ÖZET Amaç: Bu çalışmanın amacı, fizyoterapi ve rehabilitasyon bölümü öğrencilerinde koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] korku düzeyini ve COVID-19 korkusunu etkileyen faktörleri belirlemektir. Gereç ve Yöntemler: Çalışmaya Türkiye'deki 4 farklı üniversitede öğrenim gören 253 gönüllü öğrenci dâhil edildi. Araştırmanın verileri internet tabanlı veri toplama aracı kullanılarak katılımcı bilgi formu, COVID-19 Korkusu Ölçeği uygulanmasıyla elde edildi. Bulgular: Kadın cinsiyet (p=0,06), herhangi bir işte çalışmama (p=0,76), gelir kaynağının sadece maaş olması (p=0,92), sigara (p=0,26) ve alkol kullanmama (p=0,88), kronik hastalık öyküsü (p=0,32), daha önce COVID-19 enfeksiyonu geçirmemiş olma (p=0,96), COVID-19 enfeksiyonundan sonra 12 hafta süre geçmiş olması (p=0,17), 3 doz aşılanma (p=0,63), toplu taşıma araçlarını kullanma (p=0,49) fizyoterapi ve rehabilitasyon bölümü öğrencilerinde korku düzeyini artıran faktörlerdi. Ayrıca ailesinde kronik hastalık öyküsü bulunan (p=0,007) ve okulu dondurma düşüncesi olan (p=0,001) öğrencilerin korku düzeyleri diğerlerinden anlamlı derecede yüksekti. Buna karşın yaşama ortamı, teorik ders sayısı, uygulama dersi sayısı, sınıf mevcudu değişkenleri ile COVID-19 korkusu arasında anlamlı bir ilişki bulunmadı (p>0,05). Sonuç: Fizyoterapi ve rehabilitasyon bölümü öğrencilerinde düşük-orta düzeyde COVID-19 korkusu bulunmaktadır. Ailesinde kronik hastalığı olanlarda COVID-19 korkusu yüksektir ve korku düzeyi yüksek olanlar okulu dondurmayı düşünmektedir. Uygulama ve teorik ders sayılarının ve sınıf mevcudunun korku düzeyine etkisi yoktur.

Anahtar Kelimeler: Korku; COVID-19; öğrenciler; pandemi; eğitim

Coronavirus disease-2019 (COVID-19) pandemic is a global outbreak that causes negative influences around the world. According to the World Health Organization data, approximately 441 million people worldwide have been infected with COVID-

19, and more than 5 million people have died due to the pandemic. Also, it is known that more than 14 million people have been infected and more than 91 thousand people have lost their lives because of this outbreak in Türkiye.^{1,2}

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Once it is suddenly determined that educational activities will be presented via distance learning methods because of the pandemic, both students and lecturers (academicians, teachers etc.) tried to adapt to this rapid change. Apart from individuals having been forced to keep up with changes that the pandemic brought, intolerance of uncertainties, such as not knowing how long this process will continue and when the pandemic will be ended, affected people adversely.3

The pandemic has negatively affected both the physical and mental health of individuals in the community, and its effects on mental health are at least as crucial as its effects on physical health. Although the effects of the pandemic on mental health can be expressed as depression, anxiety, stress, anger, and the fear of COVID-19, the fear of COVID-19 stands out as a psychological disorder characterized by feeling more fear than normal against the pandemic. The fear of COVID-19, which has revealed with the pandemic, has been seen in individuals from many different populations.4-6

After healthcare workers, the most who feel the fear of COVID-19 are university students.7 It is known that students of many different departments in medical and health sciences are exposed to psychological effects on various levels in the pandemic term.6 Within the scope of their education, students of physical therapy and rehabilitation department have to be close to each other due to applications that require direct contact such as respiratory rehabilitation, manual therapy and massage. However, it is not found any research about the fear of COVID-19 on students of the physiotherapy and rehabilitation departments. The precondition of preventing harmful implications that are generated in individuals' lives is that determining the factors which can be relevant to this fear in every section of the community, and implementing local/communal strategies by health authorities toward determined factors. In this respect, the aim of the present study to determine the level of fear of COVID-19 in physiotherapy and rehabilitation department students and the factors which affect the fear of COVID-19. In the present study, we tested the hypothesis of whether sociodemographic features, status relevant to COVID-19 and to their education

would affect the level of the fear COVID-19 in students of the physiotherapy and rehabilitation departments.

MATERIAL AND METHODS

This research has ethical approval from the Turkish Republic İstanbul Arel University Ethics Committee in January 7, 2021 date and 2022/01 number decision, also conducted according to the Rules of the Helsinki Declaration. While determining the sample size, sample data from previous studies and G*Power V3.1.9.6 (Heinrich Heine University Düsseldorf, Düsseldorf, Germany) program were used. According to performed power analysis which is previous studies were considered, in 95% power, 0.23 effect size, and 95% confidence interval at least 246 students were decided to be included in the study.8

Two hundred and fifty three voluntary students of the physiotherapy and rehabilitation departments from 4 different foundation universities in Türkiye were included in the study between November 29 2021-February 28 2022. Before recruitment, students were informed about the study (by NG), and when they approved to attend the study, the study forms were sent to students online. At the beginning of the study form, informed consent was presented to them about that if they filled the form, they were accepted they were voluntary to attend the study. The research data was obtained using the internet-based data collection tool (Google Forms) by applying the participant information form and the Fear of COVID-19 Scale (FCV-19S). All participants who filled out the forms were included in the study, while incomplete forms were excluded from the study.

PARTICIPANT INFORMATION FORM

It is generated for evaluating sociodemographic features and educational information of participants. The variables used in the evaluation were determined by the joint decision of the researchers after the literature review. In this form age, weight, height, gender, income source, living area, number of people living with, smoking and alcohol use, and the existence of the chronic disease in participants and their families were queried. Being infected with COVID-19, if they were infected with COVID-19 how long time passed after the disease, and vaccination status was asked. The questions about the curriculum relevant to the number of theoretical courses, the number of practical courses, the size of the class in which the courses were taken, and the way of transportation to the school were requested to answer. Also, in the case of the ongoing COVID-19 pandemic, if they will be thinking of freezing out the school was questioned.

FCV-19S

This is a scale, that contains 7 items in which all items are placed under only one dimension, developed by Ahorsu et al. Turkish validation and reliability study is done by Artan et al. All items placed on the scale are 5 points Likert-type, and for each item, there are 5 options which refer from "1-totally disagree" to "5-totally agree". The total score of the scale changes between a minimum of 7 to a maximum of 35 points, and greater scores indicate that the participants have a higher level of fear regarding to COVID-19. Examined FCV-19S, Cronbach's alpha coefficient of the total score of the scale is computed as 0.906, and the scale is seen as high level reliable. ^{9,10}

STATISTICAL ANALYSIS

For statistical analysis of the study data, SPSS® Statistics V21.0 (IBM, New York, United States) package programme was used. Descriptive statistics were used for the analysis of the sociodemographic data of participants. When the normality hypothesis of numerical data was tested, skewness and kurtosis values between ±1.5 were accepted as normal. While student's independent t-test and one-way ANOVA were used for normally distributed data, the Mann-Whitney U test and Kruskal-Wallis test were used for non-normally distributed data. The significance level is determined as p<0.05.

RESULTS

The age of participants included study between 17-33 years (21.48±2.09). The weight of participants included study between 42-104 kg (63.70±13.73 kg). The height of participants included study between 147-190 cm (168.72±9.02 cm).

Majority of the participants (73.1%, n=185) were female. 83.8% (n=212) of the participants did

not do any additional work other than being a student. The income of 60.5% (n=153) of the students was only pocket money they received from their families and the majority of them (66.4%) lived in the family home. The number of students who did not use alcohol (n=155, 61.3%) and cigarettes (n=187, 73.9%) was higher than those who did. The rate of people, who have a chronic disease, to sample is determined about 19% (n=49), while those who have a chronic disease in their family is 52% (n=132). The sociodemographic data of the participants is given in Table 1.

The distribution of the scores of the participants in FCV-19S is given in Table 2. While the highest distribution is seen in the 7-16 score (n=120, 47.4%), the rate of participants with a score range in 27-35 is 13.1% (n=33). Also, mean FCV-19S scores of all participants is determined as 17.99±7.32.

FCV-19S mean scores in terms of miscellaneous variables of participants shown in Table 3. Women's mean scores on the scale (18.5±7.2) are found to be

TABLE 1: The sociodemographic data of the participants who were included in the study.				
Variables		n	%	
Gender	Female	185	73.1	
	Male	68	26.9	
Occupation	Student	212	83.8	
	Part-time worker	26	10.3	
	Full-time worker	15	5.9	
Income source	Salary	31	1.3	
	Pocket money	153	60.5	
	Scholarship/credit	58	22.9	
	Salary+scholarship/credit	3	1.2	
	Salary+pocket money	5	2	
	Other	3	1.2	
Living area	Student's home	31	12.3	
	Family's home	168	66.4	
	Dormitory	30	11.9	
	Apart flat	15	5.9	
	Other	9	3.6	
Smoking	Yes	66	26.1	
	No	187	73.9	
Drinking alcohol	Yes	98	38.7	
	No	155	61.3	
Chronic disease	Available	49	19.4	
	Not available	204	80.6	
Family history	Available	132	52.2	
	Not available	121	47.8	

TABLE 2: The distribution of the scores of the participants in FCV-19S.				
Fear level of the participants	FCV-19S score ranges	n	%	X±SD
Low level of fear	7-16	120	47.4	12.04±2.98
Moderate level of fear	17-26	100	39.5	20.49±2.75
High level of fear	27-35	33	13.1	32.09±2.87
Mean FCV-19S scores of all participants	7-35	253	100	17.99±7.32

FCV-19S: The Fear of COVID-19 Scale; SD: standard deviation.

Variables		X±SD (n)	p value	t value	F
Gender	Female	18.5±7.2 (185)	0.06a	1.82	
	Male	16.61±7.4 (68)			
Occupation	Student	18.13±7.18 (212)	0.76 ^b		0.26
	Student+part-time worker	17.03±8.19 (26)			
	Student+full-time worker	17.73±8.02 (15)			
Income source	Salary	18.29±7.8 (31)	0.92°		0.27
	Pocket money	18.11±7.23 (153)			
	Scholarship/credit	17.87±7.32 (58)			
	Salary+scholarship/credit	13.66±6.5 (3)			
	Salary+pocket money	17.8±10.32 (5)			
	Other	16±6.24 (3)			
Living area	Student's home	17.51±8.78 (31)	0.77°		0.53
	Family's home	17.68±6.84 (168)			
	Dormitory	19.53±7.25 (30)			
	Apart flat	19.13±9.3 (15)			
	Other	18.44±8.04 (9)			
Smoking	Yes	17.13±6.6 (66)	0.26a	-1.11	
	No	18.29±7.55 (187)			
Drinking alcohol	Yes	17.90±6.45 (98)	0.88ª	-0.15	
	No	18.05±7.84 (155)			
Chronic disease	Available	18.91±6.48 (49)	0.32a	0.96	
	N/A	17.77±7.5 (204)			
Family history	Available	19.18±7.6 (132)	*0.007a	7.42	
	N/A	16.7±6.79 (121)			

^{*}Student's independent t-test; *One-way ANOVA; *Kruskal-Wallis; *p<0.01; FCV-19S: The Fear of COVID-19 Scale; SD: Standard deviation; N/A: Not available.

higher than men's (16.61 ± 7.4) ; but there is no statistically significant difference between 2 genders (p=0.06). In terms of the participants' scale scores for their occupations, did not show any statistically significant differences (p=0.76). According to income sources, the group with the highest FVC-19S score was those who made a living on salary only (18.29 ± 7.8) . Scale scores of smokers and alcohol users $(17.13\pm6.6; 17.90\pm6.45)$ were lower than those who did not smoke and drink alcohol $(18.29\pm7.55;$

 18.05 ± 7.84). However, the difference between the means is not statistically significant (p>0.05). The fear levels of the students who had a family history of chronic disease were significantly higher (p=0.007).

According to the status relevant to COVID-19, the mean scale scores of the students were presented in Table 4. In this respect, although the students who did not be infected with COVID-19 (18.01 ± 7.63) had a greater level of fear than those who were infected with COVID-19 (17.96 ± 6.68); there is no significant

TABLE 4: According to the status relevant to COVID-19, the mean FCV-19S scores of the participants who were included in the study.						
Variables		n (%)	Χ±SD	p value	t value	F
Being infected with COVID-19	Yes	83 (32.8)	17.96±6.68	0.96a	-0.04	2.95
	No	170 (67.2)	18.01±7.63			
The passed time after the COVID-19 infection	Shorter than 12 weeks	37 (14.6)	16.83±6.59	0.17a	-1.38	0.01
	Longer than 12 weeks	46 (18.2)	18.86±6.69			
The status of the COVID-19 vaccine	1 dose of vaccine	1 (0.4)	12±0	0.63b		0.64
	2 doses of vaccine	185 (73.1)	17.95±7.53			
	3 doses of vaccine	61 (24.1)	18.59±6.84			
	4 doses of vaccine	3 (1.2)	14.33±4.04			
	Not vaccinated	3 (1.2)	14.33±6.65			

^aStudent's independent t-test; ^bOne-way ANOVA; FCV-19S: The Fear of COVID-19 Scale; SD: Standard deviation.

Variables		n (%)	X±SD	p value	t value	F
The number of theoretical courses	1-7 theoretical courses	196 (77.5)	18.15±7.44	0.51ª	0.65	0.30
	8-14 theoretical courses	57 (22.5)	17.43±6.92			
The number of practical courses	0-5 practical courses	224 (88.5)	17.71±7.10	0.08a	-1.70	1.9
	6-10 practical courses	29 (11.5)	20.17±8.69			
Class size	5-57 size	179 (70.8)	18.08±7.61	0.76a	0.29	2.5
	58-110 size	74 (29.2)	17.78±6.60			
The way of transportation to the school	Public transport	228 (90.1)	18.15±7.39	0.49 ^b		0.7
	Self car	10 (4.0)	14.50±4.83			
	Walking	13 (5.1)	17.92±7.72			
	Public transport +self car	2 (0.8)	18.00±5.65			
The idea of freezing out the school	Yes	33 (13.0)	23.93±10	*0.001a	3.80	20.
	No	220 (87.0)	17.10±6.39			

^aStudent's independent t-test; ^bOne-way ANOVA; *p<0.01; FCV-19S: The Fear of COVID-19 Scale; SD: Standard deviation.

difference between them (p=0.96). Participants who had time passed after the COVID-19 infection longer than 12 weeks had a greater level of fear (18.86 \pm 6.69), than those who had time shorter than 12 weeks (16.83 \pm 6.59) (p=0.45). There was no statistical significance between the vaccination dose and the fear of COVID-19 (p>0.05).

According to Table 5 when compared mean scores in terms of the status which is relevant to the education of participants, rise of the number of practical courses made the level of fear increased but there was no significant difference between the fear of COVID-19 and neither number of theoretical lessons nor practical lessons (p>0.05). Class size has no effect on the fear level. There was no significant

relationship between the mode of transportation to school and FCV-19S score. Students who had the thought of freezing out the school had a considerably higher level of fear (p=0.001) when the level of fear was compared according to whether they had it.

DISCUSSION

In this study, level of fear of COVID-19 and the factors that affect the fear of COVID-19 in students of the physiotherapy and rehabilitation departments were investigated. It has been concluded that students have low to moderate COVID-19 fear, those with a chronic disease in their family have a high level of fear of COVID-19, and those with a high level of fear are thinking of freezing the school. It was seen that

the number of practical and theoretical lessons and class size had no effect on the level of fear.

The COVID-19 pandemic affects individuals in different parts of the society in different dimensions, and one of the primary groups exposed to these effects is students. ¹¹ The present study was conducted in order to determine the level of fear of COVID-19 and the factors which affect the fear of COVID-19 in students of the physiotherapy and rehabilitation departments.

Although the FCV-19S we used in our study is widely used and reliable, the level of fear is not classified in the FVC-19S, there are no cut-off values for this scale in literature. 9-12 The cut-off values for this population were determined as a result of the analysis made by calculating the distribution of the data we obtained from our study. A score of 7-16 obtained from FCV-19S was accepted as low level of fear, a score of 17-26 was considered a moderate level of fear, and a score above 27 was considered a high level of fear. These values given in our study can be used as cut off values.

Due to the extremely high infection rate and relatively high mortality rate, COVID-19 causes people to suffer from the fear of disease. 12 Despite this, the FCV-19S score average of the students participating in present study was calculated as 17.99 and was evaluated between low and moderate. Terzic-Supic et al. in their study with medical students, they found that students' average FCV-19S scores were 12.91 and concluded that adequate knowledge of COVID-19 increased compliance with preventive practices and was associated with lower levels of COVID-19 fear. 13 In this respect, not having high scores in students of the physiotherapy and rehabilitation departments who have knowledge in the health field, can be assumed as normal. Moreover, in the date interval in which the present study was conducted, the number of cases and mortalities tended to decrease, which can be another cause of taking the participants' lower scale scores.2

The female gender is noted as a risk factor for bringing out psychopathologies in COVID-19 pandemic.¹⁴ In the studies conducted in miscellaneous populations, it is shown that the fear of COVID-19 is greater in women.^{15,16} Although there is no significant

difference between genders in terms of FCV-19S scores in the present study, the fear of COVID-19 is detected greater in the female gender, similar to research in literature. Moreover, developing COVID-19 prevention and management policies that contain a special focus on gender and determining whether men are willing to declare the fear lesser in further studies are proposed. 18

It was discovered that the students who do not have jobs have higher levels of fear than those who do. According to Gökkaya et al., people who are unemployed have higher levels of coronaphobia and fear of COVID-19 than people who are employed.¹⁹ The presence of the fear of COVID-19 among the reasons for not working was not questioned. Therefore, it is uncertain in which direction the association between these 2 factors is. International Labour Organization reported ahead of the primary impacts of COVID-19 were a reduction in working hours and a loss of jobs.²⁰ In the current study, the students who have just a salary as an income source had a higher level of fear than others is revealed. This situation is thought to be related to worry about loss of salary or participants contacting more people in the working environment. The low scores of FCV-19S in the students who can afford the health expenses support this result.¹⁴

Students who were sheltered in crowded places, such as an apartment and a dorm, showed greater fear of COVID-19. The risk of disease contamination was high due to the huge number of individuals who sought shelter in these regions and the requirement of common usage in some areas, such as a mess hall, cafeteria, toilet/bathroom, and this may have resulted in considerable fear. It is known that secondary contamination is higher in group living environments (dormitory, etc.) than in the home environment.²¹

Smoking and alcohol use have a negative impact on the fear of COVID-19.9 Students who declared to smoke received higher scale scores than those who did not, according to Modena et al.²² In contrast, the current study indicated that students who do not smoke or drink alcohol have higher levels of fear. It is recognized that smoking increases death rates connected to COVID-19.²³ Participants who do not smoke or not drink alcohol may be those who are

more concerned with their health, and because of this pattern of health-related behavior, it is possible that they may be more fearful of the pandemic.

The fear of COVID-19 is associated with the presence of any chronic disease and regular drug use. ²⁴ In addition, the fear of COVID-19 is higher in those who lost a relative due to COVID-19 and in students with a history of illness. ²⁵ In our study, those with a chronic disease history in themselves and in their family had a higher fear score, and also scores of those who have a family history of the disease are seen as statistically significant. This may be due to the fact that individuals are more worried about their families than themselves about getting infected.

In a study conducted with 1,213 university students, it was shown that students who did not have the disease before had a higher fear of COVID-19 than those who did, and their anxiety levels were significantly different between the two groups.²⁵ Similar to the previous study, students who did not infect COVID-19 had higher levels of fear than those who did. It is believed that persons who contract this illness have a natural immunity to COVID-19 and have a lower risk of reinfection.²⁶ In the study of Boyton and Altmann after COVID-19 infection approximately up to 6 months the risk of reinfection is relatively lower is reported.²⁷ Also, an 80.5% reduction in the risk of reinfection is provided by the prior infection.²⁸ The level of fear is higher in people who have had the condition for longer than 12 weeks than it is in those who have had the sickness for less time. After a while, the disease's natural immune cells start to decline, and people may become more fearful as a result of the possibility of reinfection.²⁹ Looking at the vaccination status, the increase in the level of fear along with the vaccine dose could be originated from these individuals were keen on their health and internalized a self-protective health-related behavior. However, the individuals who took 4 doses of the vaccine had lesser fear, and this could be associated with that they felt safe themselves because of the vaccines.³⁰

The level of fear decreased as the number of theoretical courses increased, and the level of fear increased as the number of practical courses increased, but the intergroup difference did not express significance, according to a comparison of the scale mean scores of the participants based on their educational status. Similar to this, there is no discernible difference between classes with low and large student enrollment. The utilization of varied physical conditions and ventilation facilities in the classrooms where the theoretical and practical courses were taught could be the cause of this situation. According to a study, the number of people and the ventilation systems in the classrooms are linked to the concentration of airborne particles.³¹ Since insufficient physical conditions rise the particle concentration in the environment and also the risk of infection, could lead to detect a higher level of fear in the students.

There is a high positive correlation between public transportation and the increase in the number of cases. 32,33 In the study of Zhang et al., it has been reported that public transportation has left the place of personal vehicle, bicycle and walking in people's transportation preferences due to the pandemic. 33 This change in transportation types is thought to be related to the fear of COVID-19.

In studies conducted, it has been reported that nursing students have a high intention to drop out, while medical students think about changing their specialization.^{34,35} In our study, it was observed that the level of fear was significantly higher in students who wanted to freeze out the school. It is thought that the majority of the training given in the field of health is based on practice on the patient and requires close contact with the patients, leading to a higher fear of COVID-19.

This is the first study to evaluate the fear of COVID-19 and related factors in physiotherapy and rehabilitation department students in Türkiye. In addition, statistical analysis was performed, and cut-off values were determined for this population, which were not found in previous studies.

The study was carried out only with students studying at foundation universities. Although this contributes to the homogeneity of the population, the lack of students studying at state universities and only being conducted in İstanbul is the missing part of the study. Planning studies with a larger effect size, including all universities and other provinces, would be good in terms of achieving more valid results.

CONCLUSION

In recent study, low-to-moderate fear of COVID-19 was detected in students of the physiotherapy and rehabilitation departments. The female gender, not working in any job, only salary as an income source, not smoking and not drinking alcohol, history of chronic disease, no previous COVID-19 infection, 12 weeks after COVID-19 infection, 3 doses of vaccination, using public transportation were determined as the factors that increase the level of fear in students of the physiotherapy and rehabilitation departments. However, no significant relationship was found that these factors affect the fear of COVID-19. In addition, it was observed that the fear levels of the students with a family history of chronic disease and the thought of freezing out the school were significantly higher than the others. On the other hand, no clear inference could be reached about whether living environment, number of theoretical lessons, number of practical lessons, and class size are the factors affect the fear of COVID-19. Therefore, future studies are needed to report more precise results regarding these features.

In the light of results of this study, it can be said that students of the physiotherapy and rehabilitation departments have a similar level of fear of COVID-19 to the students of other health and medical sciences, and these students are among the vulnerable groups in terms of mental effects in the COVID-19 pandemic. As a result, adopting the necessary prevention strategies and health policies for this vulnerable group by university administrators and local and national health authorities is required.

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Conflict of Interest

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Authorship Contributions

Idea/Concept: Nazlı Güngör, Neslişah Gün; Design: Nazlı Güngör, Neslişah Gün; Control/Supervision: Nazlı Güngör; Data Collection and/or Processing: Nazlı Güngör, Neslişah Gün; Analysis and/or Interpretation: Nazlı Güngör; Literature Review: Nazlı Güngör, Neslişah Gün; Writing the Article: Nazlı Güngör, Neslişah Gün; Critical Review: Nazlı Güngör, Neslişah Gün; References and Fundings: Nazlı Güngör.

REFERENCES

- World Health Organization [Internet]. [Cited: March 6, 2022]. WHO Coronavirus (COVID-19) Dashboard. Available from: [Link]
- T.C. Sağlık Bakanlığı COVID-19 Bilgilendirme Platformu [İnternet]. Copyright © 2022 [Erişim tarihi: 22 Mayıs 2022]. Erişim linki: [Link]
- Doğanülkü HA, Korkmaz O, Griffiths MD, Pakpour AH. Fear of COVID-19 lead to procrastination among Turkish university students: The mediating role of intolerance of uncertainty. BMC Psychol. 2021;9(1):1-8. [Crossref] [PubMed] [PMC]
- Demir B, Demir S, Doğrul AC. COVID-19 salgını sürecinde Türkiye'de endişe, stres, öfke ve korkudaki değişim: seri-kesitsel takip bulguları [Fluctuations in worry, stress, anger, and fear during the COVID-19 pandemic in Turkey: Findings of a serial cross sectional study]. Klinik Psikiyatri Dergisi. 2021;24(4):537-46. [Crossref]
- Galea S, Merchant RM, Lurie N. The mental health consequences of COVID-19 and physical distancing: the need for prevention and early intervention. JAMA Intern Med. 2020;180(6):817-8. [Crossref] [PubMed]
- Alsolais A, Alquwez N, Alotaibi KA, Alqarni AS, Almalki M, Alsolami F, et al. Risk perceptions, fear, depression, anxiety, stress and coping among Saudi nursing students during the COVID-19 pandemic. J Ment Health. 2021;30(2):194-201. [Crossref] [PubMed]

- Luo F, Ghanei Gheshlagh R, Dalvand S, Saedmoucheshi S, Li Q. Systematic review and meta-analysis of fear of COVID-19. Front Psychol. 2021;12:661078. [Crossref] [PubMed] [PMC]
- Nguyen HT, Do BN, Pham KM, Kim GB, Dam HTB, Nguyen TT, et al. Fear of COVID-19 scale-associations of its scores with health literacy and health-related behaviors among medical students. Int J Environ Res Public Health. 2020;17(11):4164. [Crossref] [PubMed] [PMC]
- Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: development and initial validation. Int J Ment Health Addict. 2022;20(3):1537-45. [Crossref] [PubMed] [PMC]
- Artan T, Meydan S, Irmak HS. Turkish Version of the Fear of COVID-19 Scale: Validity and Reliability Study. Archives of Health Science and Research. 2021;8(2):117-23. [Crossref]
- Elmer T, Mepham K, Stadtfeld C. Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. PLoS One. 2020;15(7):e0236337. [Crossref] [PubMed] [PMC]
- Islam MR, Sultana MS, Khan AH, Hossain S, Sikder MT, Hasan MT, et al. Fear and depressive symptoms amid COVID-19: A cross-sectional pilot study among adult population in Bangladesh. Heliyon. 2021;7(7):e07395. [Crossref] [PubMed] [PMC]

- Terzic-Supic Z, Todorovic J, Bajcetic M, Jankovic J, Santric-Milicevic M, Stamenkovic Z, et al. Knowledge, attitudes and practices and fear of COVID-19 among medical students in Serbia. J Infect Dev Ctries. 2021;15(6):773-9. [Crossref] [PubMed]
- Ji G, Wei W, Yue KC, Li H, Shi LJ, Ma JD, et al. Effects of the COVID-19 pandemic on obsessive-compulsive symptoms among university students: prospective cohort survey study. J Med Internet Res. 2020;22(9):e21915. [Crossref] [PubMed] [PMC]
- Bäuerle A, Teufel M, Musche V, Weismüller B, Kohler H, Hetkamp M, et al. Increased generalized anxiety, depression and distress during the COVID-19 pandemic: a cross-sectional study in Germany. J Public Health (Oxf). 2020;42(4):672-8. [Crossref] [PubMed] [PMC]
- Güven E, Altay B. The level of fear experienced by the individuals and their applications to health institutions during the Covid-19 pandemic. Omega (Westport). 2022:302228221103105. [Crossref] [PubMed] [PMC]
- Korukcu O, Ozkaya M, Faruk Boran O, Boran M. The effect of the COVID-19 pandemic on community mental health: A psychometric and prevalence study in Turkey. Health Soc Care Community. 2021;29(5):e204-e13. [Crossref] [PubMed]
- Çimke S, Yıldırım Gürkan D, Esenkaya D. Fear of COVID-19 and affecting factors. International Journal of Health Services Research and Policy. 2021;6(3):273-83. [Crossref]
- Gökkaya D, Gürkan DY, Yorulmaz R. Investigation of the relationship between fear of coronavirus, coronaphobia and personality traits. Eastern Journal of Medicine. 2022;27(1):173-81. [Crossref]
- Johns Hopkins University of Medicine [Internet]. © 2022 by Johns Hopkins University & Medicine [Cited: December 12, 2022]. Impact of the COVID-19 Crisis on Loss of Jobs and Hours among Domestic Workers. Available from: [Link]
- Akaishi T, Kushimoto S, Katori Y, Kure S, Igarashi K, Takayama S, et al. COVID-19 transmission in group living environments and households. Sci Rep. 2021;11(1):11616. [Crossref] [PubMed] [PMC]
- Modena CF, Kogien M, Marcon SR, Demenech LM, Nascimento FCDS, Carrijo MVN. Factors associated with the perception of fear of COVID-19 in university students. Rev Bras Enferm. 2021;75Suppl 1(Suppl 1):e20210448. English, Portuguese. [Crossref] [PubMed]
- Patanavanich R, Glantz SA. Smoking is associated with worse outcomes of COVID-19 particularly among younger adults: a systematic review and meta-analysis. BMC Public Health. 2021;21(1):1554. [Crossref] [PubMed] [PMC]

- Özmen S, Özkan O, Özer Ö, Yanardağ MZ. Investigation of COVID-19 fear, well-being and life satisfaction in Turkish society. Soc Work Public Health. 2021;36(2):164-77. [Crossref] [PubMed]
- Yeni Elbay R, Yılmaz H, Çifteci K, Karadere E. The Psychological Effects of COVID 19 on Medical and Non-medical University Students. Psychiatr Danub. 2021;33(Suppl 10):126-131. [PubMed]
- Harvey RA, Rassen JA, Kabelac CA, Turenne W, Leonard S, Klesh R, et al. Real-world data suggest antibody positivity to SARS-CoV-2 is associated with a decreased risk of future infection. medRxiv [Preprint]. 2020:2020.12.18.20248336. [Crossref] [PubMed] [PMC]
- Boyton RJ, Altmann DM. Risk of SARS-CoV-2 reinfection after natural infection. Lancet. 2021;397(10280):1161-3. [Crossref] [PubMed] [PMC]
- Hansen CH, Michlmayr D, Gubbels SM, Mølbak K, Ethelberg S. Assessment of protection against reinfection with SARS-CoV-2 among 4 million PCR-tested individuals in Denmark in 2020: a population-level observational study. Lancet. 2021;397(10280):1204-12. [Crossref] [PubMed] [PMC]
- O Murchu E, Byrne P, Carty PG, De Gascun C, Keogan M, O'Neill M, et al. Quantifying the risk of SARS-CoV-2 reinfection over time. Rev Med Virol. 2022;32(1):e2260. [Crossref] [PubMed] [PMC]
- Bigot A, Banse E, Cordonnier A, Luminet O. Sociodemographic, cognitive, and emotional determinants of two health behaviors during SARS-CoV-2 outbreak: an online study among French-speaking Belgian responders during the spring lockdown. Psychol Belg. 2021;61(1):63-78. [Crossref] [PubMed] [PMC]
- Chillon SA, Millan M, Aramendia I, Fernandez-Gamiz U, Zulueta E, Mendaza-Sagastizabal X. Natural ventilation characterization in a classroom under different scenarios. Int J Environ Res Public Health. 2021;18(10):5425. [Crossref] [PubMed] [PMC]
- Cartenì A, Di Francesco L, Martino M. The role of transport accessibility within the spread of the Coronavirus pandemic in Italy. Saf Sci. 2021;133:104999. [Crossref] [PubMed] [PMC]
- Zhang J, Hayashi Y, Frank LD. COVID-19 and transport: Findings from a world-wide expert survey. Transp Policy (Oxf). 2021;103:68-85. [Crossref] [PubMed] [PMC]
- Yazici HGN, Ökten Ç. Nursing students' clinical practices during the COVID-19 pandemic: Fear of COVID-19 and anxiety levels. Nurs Forum. 2022;57(2):298-304. [Crossref]
- De Los Santos JAA, Labrague LJ, Falguera CC. Fear of COVID-19, poor quality of sleep, irritability, and intention to quit school among nursing students: A cross-sectional study. Perspect Psychiatr Care. 2022;58(1):71-8. [Crossref] [PubMed] [PMC]