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Evaluation of the Behavior, Anxiety and Stress of University Students in the New Type of Coronavirus Pandemic

ABSTRACT
Objective: Acute respiratory disease called COVID-19 caused by SARS-CoV-2 caused a pandemic affecting the whole world. Our aim in this study is to evaluate the cleaning behaviors and social behaviors, anxiety and stress situations of university students caused by COVID-19 pandemic.
Methods: At the beginning of Covid-19 pandemic; university students were asked questions about their socio-demographic characteristics, their cleaning and social habits, and their level of stress about being infected for themselves and their family members and also a questionnaire was applied which includes a generalized anxiety disorder scale to measure anxiety levels and Impact of Events Scale (IES) to assessing traumatic stress symptoms.
Results: It was observed that hand washing behavior increased in 62.4% of 463 participants. The mean of the students' generalized anxiety score was determined as 3.86 ± 4.86 and 17.5% (n = 81) of all students had high anxiety. The mean scores of the impact of event scale were 14.23 ± 10.9 and stress points average was found as 5.57 ± 2.9. Students' stress and anxiety affect their cleaning and social behaviors. In addition, when compared between student groups, anxiety, stress, and the IES and subscales were found to be significantly higher in female students and also in students of faculties other than medical students.
Conclusions: The state of anxiety and stress caused by pandemics affecting the whole world on people affects society and human behavior. At the beginning of the Covid 19 pandemic, an increase is observed in university students, especially in handwashing. In addition, other student groups other than medical students and female students are more affected by anxiety, stress and events.
Keywords: Coronavirus, Outbreaks, Student, Anxiety

Üniversite Öğrencilerinde Yeni Tip Corona Virus Pandemisinde Davranış, Kaygı Ve Stress Durumunun Değerlendirmesi

ÖZET
Amaç: SARS-CoV-2'nin neden olduğu COVID-19 olarak adlandırılan akut solunum yolu hastalığı tüm Dünya'yı etkileyen pandemiye neden olmuştur. Bu çalışmadaki amacımız üniversite öğrencilerinin COVID-19 pandemisi nedeniyle oluşan temizlik ve toplumsal davranışlarını, kaygı ve stress durumlarını değerlendirmektir.
Gereç ve Yöntem: Covid-19 pandemisi başlangıcında; üniversite öğrencilerine sosyodemografik özellikler, temizlik ve toplumsal alışkanlıklar, kendisine ve aile üyelerine bulaşmasıyla ilgili endişe düzeyini sorgulayan sorular ve kaygı düzeyleri ölçmek için Yaygın Anksiyete Bozukluğu Ölçeği ve stres durumlarını ölçen Olayların Etkisi Ölçeği'ni içeren anket uygulandı.
Bulgular: 463 katılımcıdan, %62,4'ünde el yıkama davranışının arttığı gözlendi. Öğrencilerin yaygın anksiyete puanı ortalaması 3,86±4,86 ve tüm öğrencilerin %17,5'inde (n=81) yüksek düzeyde anksiyete mevcuttu. Olay etki ölçeği puan ortalamaları 14,23±10,9 ve endişe puanları ortalaması 5,57±2,9. Öğrencilerin anksiyete ve endişeleri temizlik ve toplumsal davranışlarını etkilemektedir. Ayrıca öğrenci grupları arasında karşılaştırıldığında anksiyete, endişe ve olay etki ölçeği ve alt ölçekleri kız öğrencilerde ve tıp fakültesi öğrencilerine göre diğer fakülte öğrencilerinde anlamlı düzeyde daha fazla bulundu.
Sonuç: Tüm Dünya'yı etkileyen pandemilerin insanlar üzerinde yarattığı anksiyete ve endişe durumu, toplumu ve insan davranışlarını etkilemektedir. Covid 19 pandemisinin başlangıcında da üniversite öğrencilerinde özellikle el yıkama davranışında artış gözlenmektedir. Ayrıca tıp öğrencileri dışındaki diğer öğrenci gruplarında ve kız öğrencilerde daha fazla anksiyete, stres ve olaydan etkilenme yaşamaktadırlar.
Anahtar Kelimeler: Coronavirüs, Salgın, Öğrenci, Anksiyete

INTRODUCTION

SARS-CoV-2, which causes the acute respiratory disease called COVID-19, is a new beta-coronavirus. It first emerged on December 31, 2019 as a new acute respiratory infection disease of unknown etiology in Wuhan, Hubei Province, China. On January 30, 2020, the World Health Organization (WHO) declared the disease as an Internationally Important Public Health Emergency and on March 11, 2020 as a pandemic (1-3). The first confirmed COVID-19 case in Turkey was reported on March 11, 2020. With the COVID-19 pandemic, a rapid transformation and adaptation process began in the healthcare system and education system in many regions of the world and in Turkey. In order to prevent the spread of COVID-19 in our country, education was suspended in primary, secondary, and higher education as of March 16, 2020. Education at universities was moved online rather than face-to-face, and changes were made to educational processes in university institutions (4). In addition, life and work plans changed with the outbreak, and long-term home isolation further increased the levels of mental stress and anxiety in most university students (5).

Studies have shown that the number of people reporting mental health and psychosocial problems increases significantly during outbreaks (6). In addition to posing serious threats to the physical health of vulnerable people, emerging infectious diseases and large-scale outbreaks may worsen negative effects on mental health such as anxiety, depression, and other negative emotions, and they may even cause psychological crises (5). In addition, social behaviors of students change during the pandemic process. Studies show that behaviors that prevent infection, such as handwashing, are becoming more common during the pandemic (7,8).

Research shows that public health emergencies creates many psychological effects, such as fear and anxiety, and behavioral changes in university students (9). Our aim in this study is to evaluate the cleaning behaviors and social behaviors, anxiety and stress situations of university students during the coronavirus pandemic.

MATERIAL AND METHODS

A cross-sectional survey was designed to assess students' cleaning and social behavior, stress, and anxiety during the COVID-19 outbreak. The study was approved by the ethics committee of the Pamukkale University Clinical Research Ethics Commission.. It was conducted between March 3, 2020 and April 30, 2020, that is, it started in the period when COVID-19 cases were not yet detected in our country and ended when the cases started to emerge.

A face-to-face questionnaire was conducted. The students participating in the study were asked in the first part, which was six questions, about cleaning and social behaviors, along with sociodemographic features (age, gender, university department), and they were asked to score their level of stress about coronavirus infecting them and their family members between 1 and 10. In the second part, the generalized anxiety disorder scale was used to measure students' anxiety. In the third part, the Impact of Events Scale (IES) was used to measure post-traumatic stress levels.

Generalized Anxiety Disorder Scale: A seven-item, four-point Likert-type generalized anxiety disorder scale was used to evaluate the generalized anxiety disorder developed by Spitzer et al. This scale is a self-report scale with Turkish validity and reliability performed by Konkan et al. In the YAB-7 Turkish form, the most acceptable cutoff value for specificity and sensitivity was determined to be 8. This cutoff value was used in our study (10).

The Impact of Events Scale (IES): The IES is a five-point Likert-type scale composed of 22 items developed by Horowitz, Wilner, and Alvarez (1979) and whose validity and reliability in Turkish was performed by Çorapoğlu, Yargıç, Geyran, Kocabaşoğlu (2006). The scale has three subscales: 'Intrusion', 'Avoidance', and 'Hyperarousal'. The lowest score on the scale is 0, and the highest score is 88. The total score of the scale is calculated by adding up the scores obtained from each item. A high score indicates that the respondent is more affected by a negative life event, and a low score indicates that the respondent is less exposed to a negative life event (11).

RESULTS

The study included 463 students. The mean age of the students was 21.86 ± 1.96. Of the total number of students, 67% were female students. The majority of students (n = 349) stated that they received information about the coronavirus from social media. Table 1 presents the demographic characteristics of students and their sources of information about the coronavirus.

Table 1. Students' demographic characteristics and sources of information about corona virüs

Variables	n/mean	%
Age	21.56±1.96	
Gender		
Female	310	67.0
Male	153	33.0
Students' department		
Medical student	257	55.5
Health student	132	28.5
Other student	74	16.0
İnformation Sources*		
Ministry statements	209	45.1
Ministry websites	69	14.9
WHO	79	17.1
Other websites	144	31.1
Health institutions	110	23.8
Tv /newspaper	251	54.2
Social media/internet	349	75.4
Families and friends	199	43.0

* Multiple options are marked

When students were asked about changes in cleaning and social behaviors after the coronavirus started to be seen in China, it was determined that handwashing behavior increased in 62.4% of students, handshakes decreased in 34.4%, and presence in crowded environments decreased in 33.0%. Table 2 presents the findings of the answers about students' cleaning and social behaviors The mean of the students' generalized anxiety score was determined to be 3.86 ± 4.86, and 17.5% (n = 81) of all students had high anxiety. The mean scores of the IES were 14.23 ± 10.9 and rate of intrusion the subscales was 6,89 ± 4.41. Avoidance was 2.89 ± 3.9 and hyperarousal was 2.89 ± 3.9.

Table 2. Changes in students' cleaning and social habits

	Unchanged		Slightly increased		İncreased a lot	
	n	%	n	%	n	%
Washing hands	174	37.6	227	49.0	62	13.4
Buying cleaning supplies	361	78.0	89	19.2	13	2.8
Avoiding contact with people	195	42.1	183	39.5	85	18.4
	Unchanged		Slightly decreased		Decreased a lot	
	n	%	n	%	n	%
Handshake	304	65.7	148	32.0	11	2.4
Being in crowded environments	310	67.0	147	31.7	6	1.3
Frequency of purchasing products from China	278	60.0	158	34.1	27	5.8

When student groups were compared, anxiety, stress, the impact of the event, intrusion, and hyperarousal were statistically significantly lower in medical students than other health students and students from other departments (p = 0.044; p = 0.002; p = 0.001; p = 0,0001; p = 0,0001 respectively). When compared in terms of gender, anxiety, stress, the impact of the event, and subscale scores were significantly higher in girls than in boys (p = 0,0001; p = 0,0001; p = 0,0001; p = 0,0001; p = 0,0001; p = 0,0001, respectively), (Table 3).

Table 3. Assessment of students' anxiety, impact of the event and stress scores

	Anxiety score	İmpact of event score	Intrusion score	Avoidance score	Hyperarousal score	Stress score
Gender						
Female	4.42±5.06	15.29±10.47	4.85±4.45	7.13±4.15	3.27±4.03	6.05± 2.89
Male	2.73±4.22	12.09±11.63	3.54±4.71	6.39±4.84	2.13±3.58	4.58±2.96
Statistics[a] *P*	*z=-4.278* *p= 0.0001*	*z=-4.503* *p= 0.0001*	*z=-2.408* *p= 0.16*	*z=-4.408* *p= 0.0001*	*z=-4.210 p= 0.0001*	*z=-4.952* *p= 0.0001*
Students' department						
Medical student	3.43±4.51	12.94±10.39	3.84±4.59	6.64±4.25	2.44±3.55	5.19±2.88
Health student	4.44±5.43	14.99±11.55	4.92±4.64	6.87±4.76	3.14±4.03	5.75±3.12
Other student	4.32±4.91	17.38±11.19	5.53±4.10	7.76±4.10	4.05±4.68	6.54±2.90
Statistics[b] *P*	*6.259* *P=0.044*	*13.777* *P=0.001*	*21.048* *P=0.0001*	*5.086* *P=0.079*	*15.497* *P=0.0001*	*12.16* *P=0.002*

[a] Significance of difference determined using Mann Whithey U
[b] Significance of difference determined using Kruskal walls

Table 4 shows the relationship between the cleaning and social behaviors of the students and anxiety, stress, and the impact of the event. It is observed that as students' anxiety, stress, and being affected by the event increase, handwashing behavior, cleaning equipment and avoiding contact with others increases and handshaking behavior decreases. In addition, anxiety, stress, and the impact of the event show a positive relationship with each other.

DISCUSSION

In this study, which began before COVID-19 cases were seen in Turkey and ended after a few cases emerged, high levels of anxiety were observed in 17.5% of university students. In studies conducted with university students in different parts of China, anxiety rates were found to be 7.7%–24.9% (5, 12). In an anxiety evaluation of nursing students in Israel, which was performed in the third week of the quarantine process, moderate anxiety was found in 42.8% and severe anxiety in 13.1% of the students (13). Anxiety was more common in female students and in students studying discplines other than medicine. In studies conducted during the outbreaks of MERS-CoV and SARS, which have similar transmission pathways, it was reported that more anxiety was observed in female students in both health and non-health areas (14-16). It was observed that high levels of anxiety were caused by the stress students experienced over whether they or

Table 4 The relationship between students' behavior, anxiety, stress and impact of event

		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Anxiety (A)	r									
	p									
Stress (B)	r	.308								
	p	.000								
impact of event (C)	r	.548	.394							
	p	.000	.000							
Intrusion (D)	r	.499	.428	.833						
	p	.000	.000	.000						
Avoidance (E)	r	.312	.202	.808	.462					
	p	.000	.000	.000	.000					
Hyperarousal (F)	r	.588	.419	.781	.688	.425				
	p	.000	.000	.000	.000	.000				
Washing hands (G)	r	.169	.297	.317	.360	.135	.337			
	p	.000	.000	.000	.000	.004	.000			
Handshake (H)	r	-.126	-.166	-.196	-.202	-.076	-.220	-.321		
	p	.007	.000	.000	.000	.103	.000	.000		
Cleaning materials (I)	r	.204	.175	.262	.266	.141	.263	.372	-.268	
	p	.000	.000	.000	.000	.002	.000	.000	.000	
Avoiding contact with people (K)	r	.173	.245	.273	.278	.159	.259	.264	-.074	.168
	p	.000	.000	.000	.000	.001	.000	.000	.114	.000

their families might be infected. In studies evaluating students' anxiety levels during the COVID-19 pandemic, student anxiety was shown to be related to their place of residence, the source of parental income, whether they lived with parents, and whether a relative or acquaintance was infected with COVID-19 (12).

Students commonly experience stress during these outbreaks. In a study on medical stuents carried out during the MERS-CoV epidemic in Saudi Arabia, it was stated that, although medical students have a high estimated total stress level, medical students are less stressed than nursing and non-medical university students (14, 15, 17). Similarly, this study showed that students focusing on areas other than nursing and healthcare had higher stress scores than medical students. Studies have shown that medical students have a more positive attitude, as they have more information about infectious diseases that cause epidemics (18, 19). We postulate hat this situation explains why the stress levels of non-medical students are higher than those of medical students.

In our study, an increase in cleaning and social-avoidance behaviors, especially handwashing, was observed among students. A study conducted among Korean university students during the H1N1 pandemic showed an increase in handwashing compared to the year prior (20). In a study conducted by Aker et al., 86.7% of university students saw frequent handwashing as the most important method of protection against COVID-19 (21). In another study, the majority of students stated that the first line of defense against the COVID-19 pandemic was regular handwashing, social-isolation strategies, and advanced personal-hygiene measures (22). In addition, as anxiety levels and the impact of the event increased, an increase was observed in cleaning and social behavior adjustment In the study conducted by Al-Rabiaah et al., the stress level scores and anxiety scores correlated significantly with each other, and both the stress level scores and anxiety scores were associated with social avoidance and a change of cleaning habits (14). Similarly, another study showed that there were significant changes in healthcare workers' compliance with hand hygiene and universal precautions (for example, wearing masks and gloves) during the COVID-19 pandemic, and there was a decrease in social visits, handshake habits, and the use of public facilities (23). Consequently, anxiety over and fear of pandemic situations can affect the behavior of individuals. Anxiety over becoming infected with COVID-19, given the evident global effects, may prompt individuals to adopt preventative behaviors (24, 25).

It was observed that our student group used the internet and social media as sources of information about the COVID-19 pandemic. Studies in the literature indicate that participants report using various media types to gain information about the COVID-19 pandemic; the most-used media types are social media and the internet, followed by television and newspapers (16, 18, 26). This shows that the young population is comfortable accesing these media types, and it is possible to communicate with young people through social media and the internet to change social behaviors to prevent outbreaks.

Limitations

As far as we know, this study began investigating the effects of anxiety and stress on university students before COVID-19 was detected

in Turkey. However, our research is limited by its cross-sectional structure and lacks longitudinal tracking. Finally, the research reachs only students within our university, and its voluntary nature may have led to selection bias. The participants also may not represent the entire population.

CONCLUSION

Anxiety and stress caused by infectious diseases and pandemics surrounding the world affect human behavior and society. This study started when there were no cases in our country yet and ended in the days when the cases started to appear. The results of the study are important in terms of showing the anxiety and stress it creates on people even at this point. In order to guide social behavior and take necessary precautions in the management of pandemic diseases, it is necessary to carry out such studies with more working groups during various periods of this pandemic.

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