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THE RELATIONSHIP BETWEEN FEAR OF COVID-19 AND SLEEP QUALITY IN UNIVERSITY STUDENTS
ÜNİVERSİTE ÖĞRENCİLERİNDE COVID-19 KORKUSU İLE UYKU KALİTESİ ARASINDAKİ İLİŞKİ

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ABSTRACT

This research was designed as a descriptive study to determine the effect of university students' fear of COVID-19 on sleep quality. The universe of the study consisted of students studying in associate degree and undergraduate programs of various private and public universities in Turkey, and the sample consisted of 450 students who were allowed to participate in the research and met the sampling criteria. The data of the study were collected from "Individual Characteristics Diagnostic Form", "Corona Virus 19 Phobia (CP19-S) Scale" and "Pittsburgh Sleep Quality Index (PSQI)". Data were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 22.0 program, using frequency and independent groups t test. The significance value was accepted as $p < 0.05$. 61.6% of the students stated that they slept 6-8 hours a day during the pandemic and 35.3% did not feel rested when they woke up. A significant correlation was found between the Corona Virus 19 Phobia (CP19-S) Scale and Pittsburgh Sleep Quality Index scores of the participants. The CP19-S scale with the psychological sub-neck's overall sleep quality score 26.6%, the social sub-dimension 29.7%, the CP19-S scale somatic sub-neck sleep disorder 35.8%, the CP19-S scale economic sub-neck sleep disorder There is a positive and significant correlation at the level of 27.3%. It has been determined that the COVID-19 pandemic has a negative effect on the sleep quality, latency, duration and sleep disorder of university students. It is recommended to develop mechanisms to cope with the COVID-19 pandemic, to increase and expand individual and community psychosocial support programs.

ÖZ

Bu araştırma, üniversite öğrencilerinin COVID-19 korkusunun uyku kalitesine etkisinin belirlenmesi amacıyla tanımlayıcı olarak tasarlanmıştır. Çalışmanın evrenini Türkiye'de çeşitli özel ve kamu üniversitelerinin ön lisans ve lisans programlarında eğitim gören öğrenciler, örneklemini ise araştırmaya katılım için izin alınan ve örneklem kriterlerini karşılayan toplam 450 öğrenci oluşturmuştur. Araştırmanın verileri "Bireysel Özellikler Tanılama Formu", "Korona Virüs 19 Fobisi (CP19-S) Ölçeği" ve "Pittsburgh Uyku Kalite İndeksi (PUKİ)" toplandı. Veriler SPSS (Statistical Pack age for Social Sciences) for Windows 22.0 programı ile frekans ve bağımsız gruplarda t testi kullanılarak analiz edildi. Anlamlılık değeri $p < 0.05$ olarak kabul edildi. Öğrencilerin % 61.6'sı pandemide günde 6-8 saat uyku uyuduğunu ve % 35.3'ü uyandığında kendini dinlenmiş hissetmediğini ifade etmiştir. Katılımcıların Korona Virüs 19 Fobisi (CP19-S) Ölçeği ve Pittsburgh Uyku Kalite İndeksi puanları arasında anlamlı ilişki bulunmuştur. CP19-S ölçeği psikolojik alt boyunun uyku kalitesi genel puanı ile %26.6, sosyal alt boyutunun %29.7, CP19-S ölçeği somatik alt boyunun uyku bozukluğu ile %35.8, CP19-S ölçeği ekonomik alt boyunun uyku bozukluğu ile %27.3 düzeyinde pozitif yönlü anlamlı ilişkisi bulunmaktadır. COVID-19 pandemisinin üniversite öğrencilerinin uyku kalitesi, latansı, süresi ve uyku bozukluğu üzerinde olumsuz etki yarattığı belirlenmiştir. COVID-19 pandemisiyle baş etme mekanizmalarının geliştirilmesi, bireysel ve toplumsal psikososyal destek programlarının artırılması ve yaygınlaştırılması önerilmektedir.

Keywords: COVID-19, Fear, Sleep quality

Anahtar kelimeler: COVID-19, Korku, Uyku kalitesi

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INTRODUCTION

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, which has affected the whole world, is on the agenda of countries as of 2020. After being declared a pandemic by the World Health Organization (WHO), it caused both individual and social precautions and responsibilities at the global level (1-3). Various restrictions have been applied to prevent transmission in the community and to control the number of cases. Social isolation, curfew time restrictions, weekend bans, restaurants, cafeterias, gyms, etc. In addition to taking measures such as closure of social areas, arrangements have been made in business and education life, and the period of working from home and online education has started (4,5). As a result of the threat posed by COVID-19, many educational institutions have canceled face-to-face classes and adopted a distance learning and teaching style. Both distance learning and the transfer of so many activities to the online world have meant that many people are starting to spend more time using computers, smartphones and other electronic devices. In Turkey, the almost permanent closure of universities from March 2020 to June 2021 has caused university students to live in this way and receive online education. The closure of schools and the time spent at home, this process, which dramatically affects daily life, had a negative impact on both physical and mental health components (6-10).

Facing stressful situations can reduce the level of sleep quality by causing symptoms such as suppression of sleep and increased alertness. However, sleep is a very important physiological process for maintaining mental and physical health (11,12). Sleep; It is the period of time when the immune system continues to work, the nervous system rests, individuals are freed from complex thoughts and go to rest. All living things need sleep in order to maintain their functionality. In Maslow's hierarchy of human needs, sleep is among the most basic physiological needs. In other words, sleep is essential for life (13-15). One-third of life is spent asleep. Therefore, sleep-related problems have a great impact on the quality of life. The decrease in sleep quality will decrease the body resistance of individuals (10). Fear of COVID-19 has led to a decrease in stress, anxiety and sleep quality in individuals. It has also been found that poor sleep quality is associated with poor academic achievement and health, as well as increased health care costs and absenteeism (16,17). It is reported that sleep problems are common among university students. In the light of this information, this study aimed to determine the effect of fear of COVID-19 on sleep quality in university students.

MATERIALS AND METHODS

This research was designed as a descriptive study to determine the effect of fear of COVID-19 on sleep quality of students studying in health departments of universities. Data were collected from the online survey database (Google Forms). An online informed consent form was sent to the participants and their consent was obtained and included in the study. The data were collected with the individual characteristics diagnosis form, which was prepared by the researchers in the light of the literature and consisting of 18 descriptive

questions, the Corona Virus 19 Phobia (CP19-S) Scale (18), and the Pittsburgh Sleep Quality Index (PSQI) (19). The universe of the research consisted of students studying in associate and undergraduate programs of health departments of various private and public universities in Turkey, and the sample consisted of a total of 450 students who gave consent for participation and met the sampling criteria. The conformity of quantitative variables to normal distribution was examined using the Shapiro Wilks test. The data were analyzed with the SPSS (Statistical Package for Social Sciences) for Windows 22.0 program, frequency analysis and independent groups t test. The significance value was accepted as $p < 0.05$. Correlation analysis was performed to determine the relationship between normally distributed variables and Pearson correlation coefficients were obtained. Permission was obtained from the Kayseri University Ethics Committee for the study (Number:02.03.22-10). The questions of the research; Were the sleep characteristics of university students adversely affected during the pandemic period? Is the sleep quality of students with fear of COVID-19 poor?

FINDINGS

When the distribution by gender is examined, the rate of women is 76.4% and the rate of men is 23.6%. When the distribution by departments is examined, the rate of health sciences students is 88.2%, the rate of social sciences students is 7.6%, and the rate of technical sciences students is 4.2%. 56.2% are second grade. The rate of those with chronic disease is 6.7%, while the rate of those without chronic disease is 93.3%. While 15.6% of the participants are currently working, the rate of those who do not work is 84.4%. When the sleep patterns of the participants were examined, 28% stated that they slept at the same time, 34.4% sometimes slept at the same time, and 37.6% stated that they did not sleep at the same time. 39.6% of the participants stated that they consume drinks containing caffeine in the evening, 32.2% sometimes consume them, 28.2% do not. When the distribution according to the total sleep duration is examined, the rate of those who sleep 4-6 hours is 9.6%, the rate of those who sleep 6-8 hours is 61.6%, and the rate of those who sleep for 8 hours or more is 28.9%. 28.2% of the participants stated that they felt rested when they woke up, 36.4% said they did sometimes, and 35.3% did not feel rested when they woke up. When the frequency of napping during the day is examined, the rate of those who do not sleep at all is 27.8%, the rate of those who doze off is 36.2%, the rate of those who nap occasionally is 17.6%, the rate of those who nap occasionally is 15.6%, and the rate of those who nap frequently is 2.9%. When the channels of access to information about the COVID-19 are examined, official institutions were used as 48.9%, social media 82.2%, and TV news channels 56.9% as information sources. When the participants have trouble falling asleep or sleeping while thinking about the COVID-19; The rate of those who have problems is 11.6%, the rate of those who sometimes have problems is 25.8%, and the rate of those who do not have a problem is 62.7% (Table I).

A significant relationship was found between the CP19-S and PUKI scores of the students participating in the study. The CP19-S psychological sub-dimension's gen-

Table I. Descriptive Characteristics of Participants

Descriptive Features		n	%
Gender	Female	344	76.4
	Male	106	23.6
Department	Health sciences	397	88.2
	Liberal arts	34	7.6
	Technical departments	19	4.2
Class	1	46	10.2
	2	253	56.2
	3	84	18.7
	4	67	14.9
Do you have any chronic diseases?	Yes	30	6.7
	No	420	93.3
Do you smoke?	I use	121	26.9
	I do not use	305	67.8
	I quit smoking	24	5.3
Do you drink alcohol?	I use	107	23.8
	I do not use	343	76.2
Are you currently working in a job?	Yes	70	15.6
	No	380	84.4
Do you go to bed at the same time at night?	Sometime	155	34.4
	No	126	28.0
	Yes	169	37.6
Do you consume drinks containing caffeine (coffee, etc.) in the evening?	Sometime	145	32.2
	Yes	178	39.6
	No	127	28.2
How many hours is your total sleep time? (24 hours)	4-6 hour	43	9.6
	6-8 hour	277	61.6
	8 hours or more	130	28.9
Do you feel rested when you wake up?	No	164	36.4
	Yes	127	28.2
	Sometime	159	35.3
What is the frequency of napping during the day?	Occasionally	79	17.6
	Sometime	70	15.6
	None	125	27.8
	Often	163	36.2
	Rarely	13	2.9
Where do you get information about the COVID-19?	Government agencies	220	48.9
	Social media	370	82.2
	TV news channels	256	56.9
Have you had trouble falling asleep or staying asleep while thinking about the COVID-19?	Sometime	116	25.8
	No	52	11.6
	Yes	282	62.7

eral sleep quality score was positively weak ($r=0.266$), the social sub-dimension was positively weak ($r=0.297$), and the CP19-S somatic sub-dimension had a weak positive relationship with sleep disorder ($r=0.266$). $r=0.358$), CP19-S economic sub-dimension has a weak positive and significant relationship with sleep disorder ($r=0.273$).

Subjective sleep quality ($r=0.188$), sleep latency ($r=0.247$), habitual sleep efficiency ($r=0.223$), sleep disturbance ($r=0.252$), daytime dysfunction ($r=0.204$) of the psychological sub-dimension of the CP19-S scale There is a weak positive correlation. An increase in sleep quality scores indicates poor sleep quality. Therefore, while a positive relationship is observed mathematically, the increase in the level of fear indicates that the sleep quality levels decrease (Table II).

Subjective sleep quality ($r=0.231$), sleep latency ($r=0.276$), habitual sleep efficiency ($r=0.241$), sleep disturbance ($r=0.271$), daytime dysfunction ($r=0.243$) of the Corona Virus 19 Phobia Scale social sub-dimension has a weak positive relationship with An increase in sleep quality scores indicates poor sleep quality. Therefore, while a positive relationship is observed mathematically, the increase in the level of fear indicates that the sleep quality levels decrease (Table II).

Subjective sleep quality ($r=0.250$), sleep latency ($r=0.301$), habitual sleep efficiency ($r=0.317$), sleep disturbance ($r=0.358$), daytime dysfunction ($r=0.332$) of Corona Virus 19 Phobia Scale somatic sub-dimension has a weak positive relationship with An increase in

sleep quality scores indicates poor sleep quality. Therefore, while a positive relationship is observed mathematically, the increase in the level of fear indicates that the sleep quality levels decrease (Table II). Subjective sleep quality ($r=0.184$), sleep latency ($r=0.192$), habitual sleep efficiency ($r=0.179$), sleep disturbance ($r=0.273$), daytime dysfunction ($r=0.249$) of the economic sub-dimension of the Corona Virus 19 Phobia Scale has a weak positive relationship with An increase in sleep quality scores indicates poor sleep quality. Therefore, while a positive relationship is observed mathematically, the increase in the level of fear indicates that the sleep quality levels decrease (Table II).

When the variation of PSQI sub-dimensions according to gender was examined; PSQI overall, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, and daytime dysfunction sub-dimensions differ significantly according to gender ($p<0.05$). The mean of women is significantly higher than men for these sub-dimensions (Table III).

DISCUSSION AND CONCLUSION

Sleep is an important physiological activity for maintaining physical and mental health and a good quality of life. Disruption in the normal sleep cycle leads to insufficient sleep and prolonged wakefulness, leading to insomnia, nightmares, daytime instability, and fatigue. Potential risk factors for the development of sleep disorders include severe stressful situations, depression, anxiety, trauma, low socioeconomic status,

Table II: Relationship between CP19-S and PSQI

		Psychological	Social	Somatic	Economic
Subjective Sleep Quality	r	.188**	.231**	.280**	.184**
	p	<0.001	<0.001	<0.001	<0.001
Sleep Latency	r	.247**	.276**	.301**	.192**
	p	<0.001	<0.001	<0.001	<0.001
Sleep Time	r	.002	-.033	-.076	-.049
	p	.972	.489	.108	.301
Habitual Sleep Activity	r	.223**	.241**	.317**	.179**
	p	<0.001	<0.001	<0.001	<0.001
Sleeping disorder	r	.252**	.271**	.358**	.273**
	p	<0.001	<0.001	<0.001	<0.001
Sleeping pill	r	-.010	.058	.199**	.123**
	p	.835	.219	.000	.009
Daytime Dysfunction	r	.204**	.243**	.332**	.249**
	p	<0.001	<0.001	<0.001	<0.001
PSQI	r	.266**	.297**	.354**	.241**
	p	<0.001	<0.001	<0.001	<0.001

* $p<0.001$ **Correlation is significant at the 0.01 level (2-tailed)

Table III. Distribution of PSQI Sub-Dimensions by Gender

Gender		n	Average	Std. deviation	t**	p*
PSQI	Female	344	14.40	3.76	3.919	<0.001*
	Male	106	12.73	4.10		
Subjective Sleep Quality	Female	344	1.34	0.73	0.923	0.357
	Male	106	1.26	0.67		
Sleep Latency	Female	344	1.40	1.17	2.111	0.035*
	Male	106	1.12	1.14		
Sleep Time	Female	344	7.80	1.53	2.466	0.014*
	Male	106	7.32	2.35		
Habitual Sleep Activity	Female	344	1.40	1.17	2.111	0.035*
	Male	106	1.12	1.14		
Sleeping disorder	Female	344	1.33	0.63	3.986	<0.001*
	Male	106	1.06	0.63		
Sleeping pill	Female	344	0.15	0.57	1.475	0.141
	Male	106	0.07	0.42		
Daytime Dysfunction	Female	344	0.99	0.84	2.215	0.027*
	Male	106	0.78	0.82		

*p<0.001 **Independent Samples t Test

urban life, technology use, and social media. It has been reported that sleep problems are even more common among university students (14,15,20). The prevalence of poor sleep quality among university students has been reported to range between 19.17% and 57.5% (20,21). According to Alaca et al. reported that 72.48% of the students had low sleep quality. In previous studies in our country, there are publications showing poor sleep quality at a rate of 59% to 70% (12,13,22).

The pandemic and the quarantine measures taken have had a heavy impact on people's mental health. Factors such as long-term isolation, fear of infection, uncertainty, disappointment, fatigue, stigma, insufficient data and information about the disease, insufficient material, economic problems, unemployment, and lack of social support have negatively affected the sleep patterns of individuals. Based on this information, the results of our study support that fear of COVID-19 negatively affects sleep quality in university students. 62.7% of the students who participated in the study reported that they had trouble falling asleep or sleeping when they thought about the COVID-19 epidemic, 36.2% of them dozed off frequently during the day, and 36.4% of them did not feel rested when they woke up (Table I). Perez-Carbonell et al. reported that 69.4% of the participants had a change in their sleep patterns, less than half (44.7%) had a restful sleep, and 45.6% were more sleepy than before the quarantine (23). According to Jahrami et al. in their meta-analysis, the prevalence of sleep disorders in the pandemic was 32.3% in the general population; 36% in healthcare workers; it has been revealed that it is 74.8% in COVID-infected patients (24). Alnofaiey et al. in their studies, the prevalence of

sleep disorders was found to be 43.9% during the pandemic period (11). Findings from the literature support the findings of the study.

In our study, a significant relationship was found between students' CP19-S and PSQI scores. In our study, a significant relationship was found between students' CP19-S and PUKI scores. The CP19-S psychological sub-dimension's overall sleep quality score was positively weak ($r=0.266$), the social sub-dimension was positively weak ($r=0.297$) 29.7%, the CP19-S somatic sub-dimension had a weak positive correlation with sleep disorder. level ($r=0.358$), CP19-S economic sub-length has a weak positive and significant relationship with sleep disorder ($r=0.273$) (Table II). In the smoke study, it was revealed that students had a moderate (16.87 ± 6.69) fear of COVID-19. They also reported that they were moderately (38.79 ± 8.81) intolerant to uncertainty (25). Gencer reported that the overall mean score of CP19-S in his study was close to the middle (26). Sleep quality evaluated by PSQI before the COVID-19 pandemic in our country, Arslan et al. In their study (17), it was found to be bad in 37.8% of patients with stable chronic obstructive pulmonary disease, Sahin et al. (27), it was found that 63.6% of individuals who applied to primary health care institutions were poor. In the Kabeloglu and Gul study (4), the PSQI total score was higher than in the pre-COVID-19 pandemic period. This shows that the frequency of mental disorders such as depression and anxiety and sleep disorders increase during the course of infectious diseases spreading worldwide. Findings from the literature support the findings of the study.

In our study, it was determined that the mean CP19-S

and PSQI scores were higher in women (Table III). Altundag stated in her study that women have more fear of COVID-19 compared to men (16). In the Gencer study, it was found that women's COVID-19 levels were higher than men's (26). Similarly, Bakioglu et al. also found women to have higher COVID-19 fear levels (28). This finding is consistent with the results of various studies showing that women have higher levels of anxiety and risk perception (29-31). Findings from the literature support the findings of the study. Unlike these results, in their study with students, Cao et al. (2020) found that the psychological effect of the COVID-19 epidemic did not differ according to gender, and that male and female students experienced similar stress and negative emotions due to the epidemic (32).

As a result; the COVID-19 pandemic continues to affect the whole world and all societies, and in this process, the mental health of the individual and society has become an issue that cannot be ignored. Although some psychological consequences caused by fear and fear are understandable to some extent during epidemic periods, preventive intervention programs should be diversified and implemented and existing practices should be followed seriously in order to reduce the effects of the epidemic. In addition, the entire society should be prepared for the post-pandemic period. In this process, the most important issue is making updates in the field of education, providing educators with online teaching methods training, providing accurate and reliable information through written and visual media, and the authorities' continuing to share information about the epidemic in a transparent manner are important elements of the struggle. Considering the prevalence of social media use, especially among young individuals, informational content and applications related to COVID-19 should be emphasized on the internet and various social media tools. Fighting a global epidemic can only be won when done together.

Conflict of Interest

The authors do not have any conflict of interest.

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