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COVID-19 PHOBIA AND SLEEP QUALITY AMONG ADOLESCENTS*
ERGENLERDE COVID-19 FOBİSİ VE UYKU KALİTESİ

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This study was carried out to determine the sleep quality levels of adolescents with COVID-19 phobia and the relationship between them. This descriptive and correlational research was conducted in public high schools in Kırşehir. The data of the study were collected between 20.01.2021 and 24.02.2021 using the "Student Information Form", "Coronavirus 19 Phobia Scale" and "Pittsburgh Sleep Quality Index". The research was conducted with 406 high school students. The Pittsburgh Sleep Quality total score average of the adolescents participating in the study was 5.97 ± 3.53 , 'Coronavirus 19 Phobia total score average was 46.97 ± 13.59 '. It was determined that 49.5% of the adolescents had poor sleep quality. The sleep quality of the adolescents who went to vocational and technical Anatolian high school was found to be better. In addition, adolescents who are female, feel stressed due to COVID-19, think that nothing will be the same as before due to COVID-19, have moderate COVID-19 phobias and low sleep quality. Adolescents' sleep quality was low and their COVID-19 phobia was moderate. It has been determined that COVID-19 phobia and sleep quality affect each other.

ÖZ

Bu çalışma, ergenlerin COVID-19 fobisi ile uyku kalitesi düzeyleri ve aralarındaki ilişkiyi belirlemek amacıyla gerçekleştirilmiştir. Tanımlayıcı ve ilişki arayıcı türde olan bu araştırma Kırşehir'deki devlet liselerinde yapılmıştır. Araştırmanın verileri 20.01.2021-24.02.2021 tarihleri arasında "Öğrenci Tanıtım Formu", "Koronavirüs 19 Fobisi Ölçeği" ve "Pittsburgh Uyku Kalitesi İndeksi" kullanılarak toplanmıştır. Araştırma 406 lise öğrencisiyle yapılmıştır. Araştırmaya katılan ergenlerin Pittsburgh Uyku Kalitesi toplam puan ortalaması 5.97 ± 3.53 , 'Koronavirüs 19 Fobisi toplam puan ortalaması 46.97 ± 13.59 'dur. Ergenlerin %49.5'inin uyku kalitesinin kötü olduğu saptanmıştır. Mesleki ve teknik anadolu lisesine giden ergenlerin ise uyku kaliteleri daha iyi bulunmuştur. Ayrıca cinsiyeti kadın olan, COVID-19 sebebiyle kendini stres altında hisseden, COVID-19 sebebiyle hiçbir şeyin eskisi gibi olmayacağını düşünen, ergenlerin COVID-19 fobileri orta düzeyde uyku kaliteleri düşük bulunmuştur. Ergenlerin uyku kaliteleri düşük ve COVID-19 fobileri orta düzeyde bulunmuştur. COVID-19 fobisi ve uyku kalitesinin birbirlerini etkilediği saptanmıştır.

Keywords: Adolescent, COVID-19, COVID-19 phobia, phobia, sleep

Anahtar kelimeler: Ergen, COVID-19, COVID-19 fobisi, fobi, uyku

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INTRODUCTION

Sleep has an important role in maintaining health and well-being of adolescents.¹ Changes in sleep pattern affect adolescents in terms of biopsychosocial factors and if one of these factors gets adversely affected, then so does their sleep.² It is known that factors such as anxiety, stress, and fear have a negative effect on sleep of adolescents.³ Since the physiology of sleep is related to the hormonal system, mood and sleep are interrelated. Moreover, the literature supports that sleep-related problems and psychiatric disorders affect one another.¹⁻⁵ The studies indicated that adolescents frequently suffered from sleep problems during the COVID-19 pandemic.^{6,7} In their study, Zhou et al,⁷ reported that more than half of the adolescents slept less than 7 hours at night, 59.3% had daytime dysfunction and 44.8% of the adolescents with symptoms of anxiety had symptoms of insomnia.

The COVID-19 pandemic has affected the people's lives in many ways. It has disrupted their routines and has threatened their lives, to the point of causing them to suffer from anxiety and phobic reactions.^{8,9} In their web-based study, Kabeoğlu and Gül¹⁰ revealed that the prevalence of mental illnesses such as anxiety and depression increased during the COVID-19 pandemic, and 69.5% of the participants had poor sleep quality.

Within the scope of pandemic measures during the COVID-19 pandemic, people over 65 and under 20 years of age were subjected to lockdown restrictions and schools interrupted their face-to-face education and started distance education in order to reduce the risk of infection. Before the COVID-19 pandemic, the students usually attended their schools between 08.00 and 15.00. At the beginning of the pandemic, the course started at 08.00 in general, however their end time extended by up to 2 hours. In addition, those who were primary responsible persons for the planning, control and evaluation stages of education processes in distance education were students. Especially adolescents have experienced situations such as interruption of face-to-face education, online lessons at home and reducing extracurricular activities during the COVID-19 pandemic. As a result, adolescents acted more flexibly in their sleep patterns due to the restrictions caused by the pandemic. It is thought that one of the factors affecting sleep in adolescents may be COVID-19 phobia.¹⁰ Therefore, pandemic-related sleep disorders need to be evaluated promptly. This study was conducted to determine the correlation between COVID-19 phobia and sleep quality levels of adolescents.

MATERIALS AND METHODS

Study design and participants

This was a descriptive-correlational study. The population was composed of 6676 high school students attending 9th, 10th, 11th and 12th grades of the state high schools, in the city center of Kırşehir. 1568 students studying in private high schools in the city center of Kırşehir and 106 students studying in the Preparatory Class of Kırşehir Social Sciences High School were not included in the study. The sample size was calculated as 351 high school students at the confidence interval of 95% through the sampling method with known population and a number (406) above the sample size deter-

mined by considering the data losses that may occur during the application of the study was accepted as the sample size.¹¹ In the study, stratified sampling method, one of the probabilistic sampling methods, was used in sample selection. High schools offer education with different education methods and conditions in Türkiye. In this study, it is possible to divide the high school into four main layers in terms of the main variable, high school types. The number of students attending Vocational Technical High School was 1818, the number of students attending Anatolian High School was 3268, the number of students attending Science High School was 427 and the number of students attending Imam Hatip High School was 1163. The stratum weight for Vocational Technical High Schools was 0.27, the stratum weight for Anatolian High School was 0.48, the stratum weight for Science High School was 0.06, and the stratum weight for Imam Hatip High School was 0.17. Thus, the sample group consisted of 116 students from Vocational Technical High Schools, 195 from Anatolian High Schools, 25 from Science High School, and 70 from Imam Hatip High School. The students in the strata were selected by simple random sampling method.¹¹ The data were collected by online surveys over messaging platforms such as WhatsApp and Telegram, which were prepared by the counselors together with the students.

Instruments

The data were collected using the "Student Information Form" which was prepared by the researchers in line with the literature review¹⁻¹⁰ as well as "Coronavirus 19 Phobia Scale (CP19-S)" and "Pittsburgh Sleep Quality Index" between 20.01.2021 and 24.02.2021.

Pittsburgh Sleep Quality Index (PSQI)

This index was developed in 1989 by Buysse et al.¹² to evaluate the sleep quality in psychiatry practice and for clinical studies. The validity and reliability study from our country for this index was conducted by Agargun et al.¹³ who found the Cronbach alpha reliability coefficient to be 0.80. The index evaluates the sleep quality with in the past one month and consists of 19 question- and 7 components. The 19th question involves self report and is about whether the subject has a room mate or spouse. There sponse to this question is not included in the calculation of the PSQI total and component scores. Scoring is there fore conducted with 18 items and 7 components of the index. The score range for each index component is 0 to 3. The answers to the index items vary from "very good" to "very poor". The PSQI score range is 0-21 and a score over 5 indicates poor sleep quality.¹³ The Cronbach alpha coefficient was found to be 0.74 in our study.

Coronavirus 19 Phobia Scale (CP19-S)

Coronavirus 19 Phobia Scale (CP19-S) was developed by Arpacı, Karataş and Baloğlu in 2020¹⁴ and can be applied to individuals between the ages of 12-92 years. The scale consists of 20 items and 4 subscales (psychological, psycho-somatic, social and economic). The total score of the scale varies between 20 and 100, and the high score indicates the high score in the subscales and in the overall corona phobia. The Cronbach's alpha value of the scale is 0.92.¹⁴ In this study, the Cronbach's alpha value of the scale was found to be 0.82.

Ethical considerations

In order to conduct the research, firstly, the necessary permissions were obtained from the Ministry of Health of the Republic of Türkiye, Kırşehir Ahi Evran University Non-Interventional Clinical Trials Ethics Committee (2020-14/105) and the Provincial Directorate of National Education of the Kırşehir Governorship of the Republic of Türkiye. Necessary permissions were obtained by e-mail for the PSQI and CP19-S. Informed consent of the parents and the adolescents participating in the study was taken by an online survey, their consent was obtained and the Declaration of Helsinki was followed in the study.

Statistical analysis

The data of the study were assessed using SPSS (25.0) statistical software. Descriptive statistics and frequency were provided in the data assessment. Shapiro-Wilk normality test was performed to determine the normal distribution of the data. The data were determined to exhibit no normal distribution, and Mann-Whitney U test was used for the comparison of two independent groups, Kruskal-Wallis test and All pairwise multiple comparison (Bonferroni) test were used for the comparison of more than two independent groups. Spearman Correlation analysis was used to examine the correlation between the scales. The statistical significance level was accepted as $p < 0.05$.

RESULTS

It was found that the mean age of the adolescents was 15.73 ± 1.25 years, 57.4% were female and 33.5% were 10th graders. 48% of the adolescents were Anatolian High School students. When the academic achievement status of the adolescents was examined, it was found that 4.4% had poor academic success. The mothers of 97.3% of the adolescents were alive, the fathers of 97.0% were alive, the mothers of 23.6% were university graduates or above, and the fathers of 36.0% were university graduates or above. 40.2% of the adolescents had two siblings. 77.3% of the adolescents had a nuclear family, and 50.7% had a family income equal to their expenses.

The scale mean scores of the adolescents were 46.97 ± 13.59 for CP19-S and 5.97 ± 3.53 for PSQI. 49.5% of the adolescents had a PSQI mean score above five (Table 1).

No statistically significant difference was found between the adolescents' high school, grade and academic achievement and their CP19-S total scores ($p > 0.05$). It was found that the PSQI total scores of the adolescents attending Vocational and Technical Anatolian High School were lower than the scores of the adolescents attending other high schools ($p = 0.011$). The PSQI total scores of the adolescents who expressed their academic achievement as poor were high ($p = 0.003$). The grades of the adolescents did not affect the PSQI mean scores ($p > 0.05$). PSQI total scores and CP19-S total scores of the female adolescents were higher and the difference between them was statistically significant ($p = 0.001$) (Table 2).

Status of a friend to be infected with COVID-19 did not affect the CP19-S mean score ($p > 0.05$). The adolescents having a friend infected with COVID-19 had higher PSQI scores than those who did not ($p = 0.001$). The adolescents' status of being infected with COVID-19, having a family member infected with COVID-19 and losing their relatives due to COVID-19 did not affect the PSQI and CP19-S mean scores ($p > 0.05$). PSQI and CP19-S mean scores of the adolescents who felt stressed due to COVID-19 and thought that nothing would be the same due to COVID-19 were higher and statistically significant compared to the other groups ($p = 0.001$) (Table 3).

According to the Spearman Correlation analysis, weak correlations were found between both the total scores of the scales and the subscales of the scales. There was a weak, positive and significant correlation between the adolescents' PSQI total score, the PSQI Day Dysfunction and PSQI Sleep disturbance, Coronavirus 19 Phobia Scale (CP19-S) Total Score and its subscales ($p < 0.05$). A weak, positive and significant correlation was found between PSQI Habitual Sleep Efficiency subscale and Coronavirus 19 Phobia Scale (CP19-S) Total Score, CP19-S Psycho-somatic Subscale and CP19-S Economic Subscale ($p < 0.05$). A weak, positive and signifi-

Table 1. CP19-S and PSQI Scale Total Scores of Adolescents (n=406)

Scales	Mean \pm SD	Median (Q1-Q3)
CP19-S	46.97\pm13.59	46(20-95)
Psychological subscale	17.24 \pm 5.37	17(6-30)
Psycho-somatic subscale	9.18 \pm 3.50	9(5-24)
Social subscale	12.73 \pm 4.30	12(5-25)
Economic subscale	7.81 \pm 2.84	8(4-19)
PSQI	5.97\pm3.53	5(0-18)
Subjective sleep quality	1.23 \pm 0.82	1(0-3)
Sleep latency	1.25 \pm 0.91	1(0-3)
Sleep duration	0.60 \pm 0.89	0(0-3)
Sleep efficiency	0.57 \pm 0.94	0(0-3)
Sleep disturbance	1.25 \pm 0.67	1(0-3)
Sleep medication	0.10 \pm 0.47	0(0-3)
Daily sleep dysfunction	0.94 \pm 0.96	1(0-3)
PSQI	Number	Percentage (%)
≤ 5	205	50.5
> 5	201	49.5
Total	406	100.0

CP19-S: Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, SD:Standart Deviation

Table 2. CP19-S and PSQI Scores by Sociodemographic Characteristics of Adolescents (n=406)

Variables	Total CP19-S		Total PSQI	
	Mean±SD	Median (Q ₁ -Q ₃)	Mean±SD	Median (Q ₁ -Q ₃)
Sex				
Female	49.91±13.07	48(21-95)	6.85±3.67	6(0-18)
Male	43.00±13.29	42(20-77)	4.77±2.94	4(0-13)
Mann Whitley U	U=14425.500	p=0.001	U=13338.500	p=0.001
Grade				
9. grade	45.27±13.85	45(20-92)	5.61±3.37	6(0-16)
10. grade	47.38±12.59	47(22-92)	6.05±3.35	5(0-14)
11. grade	49.21±14.24	48(20-95)	6.60±4.14	6(0-18)
12. grade	46.44±14.09	46(20-72)	5.62±3.23	5(1-13)
Kruskal Wallis H	KW=5.052	p=0.168	KW=2.973	p=0.396
High school				
Anatolian High School	46.10±13.94	45(20-95)	6.41±3.64	6(0-18)
Vocational and Technical Anatolian High School	46.56±14.18	47(20-79)	5.09±3.27	5(0-17)*
Anatolian Imam Hatip highscool	49.58±11.50	50.5(22-78)	6.10±3.51	6(0-16)
Science High School	48.32±13.06	45(24-76)	6.20±3.22	6(1-16)
Kruskal Wallis H	KW=5.854	p=0.119	KW=11.175	p=0.011
Academic success				
Very good	47.08±15.32	47(20-92)	5.33±3.59	5(0-15)
Good	46.60±12.62	46(20-78)	5.45±3.20	5(0-17)
Middle	47.09±13.98	46(20-95)	6.48±3.75	6(0-18)
Poor	48.72±13.34	50(24-66)	7.72±2.78	6(5-13)*
Kruskal Wallis H	KW=0.873	p=0.832	KW=13.678	p=0.003

CP19-S: Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, SD:Standart Deviation, *:Significant Value

Table 3. CP19-S and PSQI Scores According to Some Experiences of Adolescents Regarding COVID-19 (n=406)

Variables	Total CP19-S		Total PSQI	
	Mean±SD	Median (Q ₁ -Q ₃)	Mean±SD	Median (Q ₁ -Q ₃)
Have you been infected with COVID-19?				
Yes	44.37±16.76	44(20-92)	5.97±3.46	6(1-15)
No	47.25±13.19	46(20-95)	5.96±3.54	5(0-18)
Mann Whitley U	U=6368.500	p= 0.177	U=10726.500	p= 0.149
Having a family member infected with COVID-19				
Yes	47.60±14.02	47(20-92)	6.31±3.48	6(0-16)
No	46.75±13.46	46(20-95)	5.85±3.54	5(0-18)
Mann Whitley U	U=14765.000	p=0.471	U=14198.500	p=0.201
Having a friend infected with COVID-19				
Yes	47.77±14.72	46(20-95)	6.67±3.67	6(0-16)
No	45.94±11.95	46(20-78)	5.07±3.13	5(0-18)
Mann Whitley U	U= 19377.500	p=0.436	U= 14930.000	p=0.001*
Losing their relatives due to COVID-19				
Yes	48.74±14.28	48(20-95)	7.15±4.31	6(0-16)
No	46.78±13.52	46(20-92)	5.84±3.42	5(0-18)
Mann Whitley U	U= 6566.00	p=0.397	U=5933.000	p=0.078
Feeling Stressed by COVID-19				
Yes	51.01±12.87	50(20-95)	6.55±3.68	6(0-18)
No	40.06±11.92	40(20-77)	4.97±3.02	5(0-16)
Mann Whitley U	U=10103.000	p<0.001**	U=14375.000	p=0.001*
Thought that nothing would be the same due to COVID-19				
Yes	50.24±13.84	49.5(20-95)	6.60±6.67	6(0-18)
No	41.72±11.38	42(20-70)	4.96±3.04	5(0-16)
Mann Whitley U	U=12485.000	p<0.001**	U=14247.000	p=0.001*

CP19-S: Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, SD:Standart Deviation, **:p<0.001, *: p=0.001

cant correlation was found between PSQI Sleep duration and Coronavirus 19 Phobia Scale (CP19-S) Total Score, CP19-S Psychological Subscale and CP19-S Psychosomatic Subscale (p<0.05). A weak, positive, and significant correlation was found between PSQI Sleep Latency

and the Coronavirus 19 Phobia Scale (CP19-S) Total Score and its Psychological and Social Subscales (p<0.05). The correlation between PSQI Subjective Sleep Quality and Coronavirus 19 Phobia Scale (CP19-S) Total Score, CP19-S Psychological Subscale and CP19-S

Table 4. Correlation Between Adolescents' PSQI and CP19-S Scores

	PSQI Subjective sleep quality	PSQI Sleep latency	PSQI Sleep duration	PSQI Sleep efficiency	PSQI Sleep disturbance	PSQI Sleep medication	PSQI Daily sleep dysfunction	CP19-S Psychological subscale	CP19-S Psychosomatic subscale	CP19-S Social subscale	CP19-S Economic subscale	CP19-S Total Points	PUKİ Total Points
PSQI Subjective sleep quality	1	0.447**	0.360**	0.081	0.499**	0.129**	0.499**	0.100*	0.160**	0.089	0.079	0.121*	0.718**
PSQI Sleep latency		1	0.244**	0.084	0.394**	0.049	0.361**	0.156**	0.096	0.115*	0.057	0.137**	0.635**
PSQI Sleep duration			1	0.419**	0.291**	0.145**	0.332**	0.130**	0.105*	0.083	0.086	0.117*	0.660**
PSQI Sleep efficiency				1	0.065	0.041	0.042	0.071	0.152**	0.063	0.123*	0.118*	0.402**
PSQI Sleep disturbance					1	0.188	0.394	0.152	0.002	0.206	0.013	0.018	<0.001
PSQI Sleep medication						1	0.497**	0.253**	0.258**	0.183**	0.193**	0.271**	0.668**
PSQI Daily sleep dysfunction							1	0.006	0.0896	0.007	0.095	0.037	0.259**
CP19-S Psychological subscale								1	0.219**	0.558**	0.480**	0.885**	0.220**
CP19-S Psychosomatic subscale									1	0.583**	0.653**	0.786**	0.234**
CP19-S Social subscale										1	0.559**	0.877**	0.160**
CP19-S Economic subscale											1	0.726**	0.156**
CP19-S Total Points												1	0.229**
PUKİ Total Points													1

CP19-S:Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, Spearman Correlation Analysis was performed. **The correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level

Psycho-somatic Subscale were weak, positive, and significant ($p < 0.05$) (Table 4).

DISCUSSION

In this study conducted to determine the COVID-19 phobia and sleep quality levels of adolescents and the correlation between them, it was found that the sleep quality of adolescents attending Vocational and Technical Anatolian High School was better than that of adolescents attending other high schools. It is thought that the adolescents attending Vocational and Technical Anatolian High School may have less anxiety compared to the adolescents attending other high schools since they also have vocational education and, therefore, their sleep quality was not affected much. In the study, the sleep quality of adolescents who perceived their academic achievement as poor was found to be low. In a study, it was stated that poor sleep quality was correlated with adolescents' academic achievement.¹⁵ It is thought that poor sleep quality may negatively affect academic achievement and poor academic achievement may adversely affect sleep quality by increasing the anxiety level of adolescents.

In the study, the sleep quality of female adolescents was found to be lower and their COVID-19 phobias were at a higher level. In the literature, it is seen that the sleep quality of female adolescents is lower and their anxiety levels are higher.^{6,9,16,17} It has been demonstrated that the biological and psychological factors contribute to the differences between genders; because it is known that girls are more sensitive to stress hormones and threats, are less likely to use adaptive coping methods, and are more likely to make more negative evaluations in emergencies.¹⁸ Accordingly, it is thought that female adolescents are psychologically more affected by COVID-19 and have higher phobia levels about the COVID-19 pandemic. The sleep quality of adolescents with female gender may be poor in itself and the reason for poor sleep quality may also be associated with the level of phobia they experience about COVID-19.

The results of the study revealed that when adolescents themselves, their family member or one of their friends were infected with COVID-19 or lost their relatives due to COVID-19 this did not affect their COVID-19 phobia. In the literature, the presence of family members or friends affected by COVID-19 was found to be associated with the anxiety and depression levels of adolescents.^{8,19} This was thought to be due to the fact that adolescents were concerned about the health of their loved ones.⁸ In the study, it was observed that the COVID-19 phobia was not high in adolescents who were infected with COVID-19 or a family member or a friend of whom was infected with COVID-19 or who lost a loved one due to COVID-19. This is thought to be due to the fact that adolescents who did not experience any infection or loss were also worried about COVID-19 because of what they saw and heard on social media and television and they had COVID-19 phobia.

When adolescents themselves or one of their family members were infected with COVID-19 or they lost their relatives due to COVID-19, this did not affect their sleep quality, but when one of their friends was infected with COVID-19, this negatively affected their sleep quality. It is known that adolescents pull away from their parents and feel intimacy towards their friends during

adolescence.²⁰ Considering the developmental period characteristics, it was thought that adolescents develop family independence and have the strong friendship relations during this period, therefore, when one of their friends was infected with COVID-19, their sleep quality was negatively affected.

According to the study, the sleep quality of adolescents who felt stressed due to COVID-19 was low and their COVID-19 phobia level was high. In the study by Schwartzveark,²¹ it was found that there is a correlation between adolescents' stress and mental health during the pandemic. Factors such as anxiety, stress, and fear negatively affect sleep quality in adolescents.³ Since it is known that there is a correlation between stress and sleep quality, it is thought that adolescents who feel stressed due to COVID-19 have low sleep quality and high phobia levels.

In the study, the adolescents who thought that nothing would be the same due to the pandemic had high COVID-19 phobias and low sleep quality. During the pandemic, numerous changes that adolescents did not even consider to happen before the pandemic such as imposing various restrictions, economic difficulties for countries, and schools interrupting face-to-face education occurred. In addition to these sudden changes, there is also an uncertainty caused by the pandemic period. For this reason, adolescents may think that nothing will be the same as before, and they may worry that they will continue to experience the things they do not want to experience, and this may cause an increase in the COVID-19 phobia of adolescents and a decrease in their sleep quality.

In the study, it was found that the adolescents' sleep quality was low and COVID-19 phobia levels were moderate, and a correlation was found between adolescents' COVID-19 phobia and sleep quality. It was found that COVID-19 phobia increased the likelihood of daytime dysfunction, caused deviations in habitual sleep efficiency, and affected sleep duration, sleep latency, and subjective sleep quality. The somatic and economic effects of COVID-19 affected adolescents' habitual sleep efficiency, its psychological and somatic effects affected their sleep duration and subjective sleep quality, and its psychological and social effects affected their sleep onset latency.

While factors such as anxiety, stress, and fear negatively affect sleep quality in adolescents, sleep problems also cause anxiety.³ The COVID-19 pandemic can negatively affect adolescents psychosocially and cause mental health problems such as anxiety, sleep problems, panic attacks, anxiety, and self-harm.^{4,5,7,16,17,22}

CONCLUSION

Pittsburgh Sleep Quality total mean score of the adolescents was 5.97 ± 3.53 and their Coronavirus 19 Phobia total mean score was 46.97 ± 13.59 . 49.5% of the adolescents had poor sleep quality and moderate COVID-19 phobia. It was found that there was a correlation between adolescents' sleep quality and COVID-19 phobia. There were positive correlations according to both the total scores of the scales and the subscale scores. Planning and implementing trainings by creating psychosocial support programs to reduce COVID-19 phobias for adolescents who feel under stress and have high

COVID-19 phobias, keeping and following a sleep diary for adolescents who do not have regular sleep hours, keeping and following a sleep diary, school health nurses doing sports/exercise School health nurses are responsible for creating and implementing a regular exercise plan for adolescents who do not do it, for nurses to provide trainings for families and adolescents to develop healthy sleep habits for adequate and quality sleep in studies related to public health, because school is one of the places where adolescents are most frequented, and because of sleep quality of adolescents and COVID- Observing students at school in terms of 19 phobias, collaborating with students' families and teachers, interviewing students with poor sleep quality or experiencing COVID-19 phobia, providing training to both students and their families in order to improve their sleep quality and reduce their COVID-19 phobias, It is recommended to contribute to the literature by conducting qualitative research on phobia of -19 and the evaluation of sleep quality.

Ethics Committee Approval: In order to conduct the research, firstly, the necessary permissions were obtained from the Ministry of Health of the Republic of Türkiye, Kırşehir Ahi Evran University Non-Interventional Clinical Trials Ethics Committee (2020-14/105) and the Provincial Directorate of National Education of the Kırşehir Governorship of the Republic of Türkiye.

Informed Consent: Informed consent of the parents and the adolescents participating in the study was taken by an online survey, their consent was obtained and the Declaration of Helsinki was followed in the study.

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REFERENCES

1. Bruce ES, Lunt L, McDonagh JE. Sleep in adolescents and young adults. *Clinical Medicine* 2017; 17 (5):424-428. doi:10.7861/clinmedicine.17-5-424.
2. Tekcan P, Çalışkan Z, Koca Öz S. Sleep quality and related factors in Turkish high school adolescents. *J Pediatr Nurs*. 2020; 55:120-125. doi:10.1016/j.pedn.2020.07.020.
3. Narmandakh A, Roest AM, de Jonge P, Oldehinkel AJ. The bidirectional association between sleep problems and anxiety symptoms in adolescents: a Trails report. *Sleep Med*. 2020; 67:39-46. doi:10.1016/j.sleep.2019.10.018.
4. Ding X, Yao J. Peer education intervention on adolescents' anxiety, depression, and sleep disorder during the COVID-19 pandemic. *Psychiatr Danub*. 2020; 32(3-4):527-535. doi:10.24869/psyd.2020.527.
5. Zhang C, Yang L, Liu S, Ma S, Wang Y, Cai Z, et al. Survey of insomnia and related social psychological factors among medical staff involved in the 2019 novel coronavirus disease outbreak. *Front Psychiatry*. 2020;11:306. doi:10.3389/fpsy.2020.00306
6. Ravens-Sieberer U, Kaman A, Erhart M, Devine J, Schlack R, Otto C. Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany. *Eur Child Adolesc Psychiatry*. 2021; 31(6):879-889. doi:10.1007/s00787-021-01726-5.
7. Zhou SJ, Wang LL, Yang R, Yang XJ, Zhang LG, Guo ZC, et al. Sleep problems among Chinese adolescents and young adults during the coronavirus-2019 pandemic. *Sleep Med*. 2020b; 74: 39-47. doi: 10.1016/j.sleep.2020.06.001
8. Duan L, Zhu G. Psychological interventions for people affected by the COVID-19 epidemic. *The lancet psychiatry* 2020; 7(4):300-302. doi:10.1016/S2215-0366(20)30073-0
9. Qi H, Liu R, Chen X, Yuan XF, Li YQ, Huang HH, et al. Prevalence of anxiety and associated factors for Chinese adolescents during the COVID-19 outbreak. *Psychiatry Clin Neurosci*. 2020;74(10): 555-557. doi: 10.1111/pcn.13102.
10. Kabeoğlu V, Gül G. Investigation of sleep quality and associated social psychological factors during the COVID-19 outbreak. *Journal of Turkish Sleep Medicine*. 2021;2:97-104. doi:10.4274/jtms.galenos.2021.53244.
11. Esin MN. Örnekleme. İçinde: Erdoğan S, Nahcivan N, Esin MN (eds). Hemşirelikte araştırma süreci, uygulama ve kritik. İstanbul, Nobel Tıp Kitapevi, 2014.
12. Buysse DJ, Reynolds CF, Monk TH. The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Res*. 1989;28:193-213.
13. Agargun MY, Kara H, Anlar O. The validity and

- reliability of the Pittsburgh Sleep Quality Index. *Turkish Journal of Psychiatry* 1996;7:107-11.
14. Arpacı I, Karataş K, Baloğlu M. The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and Individual Differences* 2020;164, 110108. doi:10.1016/j.paid.2020.110108.
 15. Demir G, Tokur Kesgin M. Lise öğrencilerinde gündüz uyku durumu ve ilişkili risk etmenleri. *Journal of Turkish Sleep Medicine*. 2020; 3:181-188. doi:10.4274/jtsm.galenos.2020.69875
 16. Akgül G, Ergin DA. Adolescents' and parents' anxiety during COVID-19: is there a role of cyberchondria and emotion regulation through the internet? *Current Psychology*. 2021; 40:4750-4759. doi:10.1007/s12144-020-01229-7.
 17. Meherali S, Punjani N, Louie-Poon S, Abdul Rahim K, Das JK, Salam RA, et al. Mental health of children and adolescents amidst CoViD-19 and past pandemics: A rapid systematic review. *Int. J. Environ. Res. Public Health*. 2021; 18(7):3432. doi:10.3390/ijerph18073432.
 18. Verma R, Balhara YPS, Gupta CS. Gender differences in stress response: Role of developmental and biological determinants. *Industrial Psychiatry Journal* 2011; 20(1):4-10. doi:10.4103/0972-6748.98407.
 19. Panda PK, Gupta J, Chowdhury SR, Kumar R, Meena AK, Madaan P, et al. Psychological and behavioral impact of lock down and quarantine measures for COVID-19 pandemic on children, adolescents and caregivers: a systematic review and meta-analysis. *J Trop Pediatr*. 2021;67(1). doi:10.1093/tropej/fmaa122.
 20. Şahin Ş, Özçelik ÇÇ. Adolescence and socializing. *Cumhuriyet Nurs J*. 2016; 5(1):42-49.
 21. Schwartz KD, Exner-Cortens D, McMorris CA, Makarenko E, Arnold P, Van Bavel M, et al. COVID-19 and student well-being: stress and mental health during return-to-school. *Canadian Journal of School Psychology*. 2021; 36(2): 166-185. doi:10.1177%2F08295735211001653.
 22. Qi M, Zhou SJ, Guo ZC, Zhang LG, Min HJ, Li XM, et al. The effect of social support on mental health in Chinese adolescents during the outbreak of COVID-19. *J Adolesc Health*. 2020; 67(4): 514-518. doi:10.1016/j.jadohealth.2020.07.001.