Araştırma Makalesi/ Research Article

EXAMINING THE SLEEP QUALITY AND PATTERNS OF NURSING STUDENTS DURING COVID-19 PANDEMIC

COVID-19 PANDEMİSİ SÜRECİNDE HEMŞİRELİK ÖĞRENCİLERİNİN UYKU KALİTELERİNİN VE UYKU DÜZENLERİNİN İNCELENMESİ

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Abstract

Objective: Poor sleep quality is associated with poor academic performance, accidents, carelessness and aggressive behaviors in students. Sleep quality is an important factor that can affect health and quality of life in nursing students. Evaluating the sleep quality of nursing students during the pandemic process, who will be the most important part of the future health army, is important in terms of increasing their adaptation capacity to critical processes. In this study, it was aimed to examine the sleep quality and patterns of nursing students during the COVID-19 pandemic.

Materials and Methods: In this cross-sectional study, data were collected online from 311 nursing students, who were quarantined at home due to the pandemic, between May 14 and June 14, 2020, by using "The Socio-Demographic Data Form", "The Questionnaire on the Changes in the Sleep Patterns due the COVID-19 Pandemic" and "The Pittsburgh Sleep Quality Index". Data were analyzed using descriptive statistics and frequency distributions. One way ANOVA, student's t-test and multiple linear regression analysis were used to compare groups.

Results: The students' mean age was 21.06 ± 1.96 years, and 257 of them were female. Pittsburgh Sleep Quality Index total mean score was 6.15 ± 3.19. Students stated that their sleep patterns were adversely affected due to the pandemic. According to the multiple linear regression analysis, the variable of "having difficulty falling asleep due to the pandemic" most affected their sleep quality ($\beta=1.491$; $p<0.01$).

Conclusion: During the COVID-19 pandemic, students experienced sleep problems and their sleep quality was negatively affected. It is recommended to support them to increase their sleep quality and to plan relevant interventions.

Keywords: COVID-19; nursing; sleep; sleep quality; students.

Özet

Amaç: Kötü uyku kalitesi, öğrencilerde zayıf akademik performans, kazalar, dikkatsizlik ve saldırgan davranışlarla ilişkilendirilmiştir. Uyku kalitesi özellikle hemşirelik öğrencilerinin sağlığını ve yaşam kalitesini etkileyebilecek önemli bir faktördür. Geleceğin sağlık ordusunun en önemli parçası olacak hemşirelik öğrencilerinin pandemi sürecinde uyku kalitelerinin değerlendirilmesi kritik süreçlere uyum kapasitelerinin artırılması açısından önemlidir. Bu çalışmada hemşirelik öğrencilerinin COVID-19 pandemisi sürecinde uyku kalitelerinin ve düzenlerinin incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Kesitsel türdeki bu çalışmanın verileri, pandemi nedeniyle evlerinde karantinada bulunan 311 öğrenciden 14 Mayıs-14 Haziran 2020 tarihleri arasında online olarak toplanmıştır. Veri toplamada; "Sosyodemografik Veri Toplama Formu", "COVID-19 Pandemisinin Uyku Düzeninde Yarattığı Değişikliklere İlişkin Anket Formu" ve "Pittsburgh Uyku Kalitesi İndeksi" kullanılmıştır. Verilerin analizinde tanımlayıcı istatistikler ve frekans dağılımları, gruplar arası karşılaştırmalarda One Way ANOVA, student t testi ve çoklu lineer regresyon analizi kullanılmıştır.

Bulgular: Öğrencilerin yaş ortalaması 21.06 ± 1.96 yıl, 257'si kadındı. Pittsburgh Uyku Kalitesi İndeki toplam puan ortalaması 6.15 ± 3.19 olarak belirlendi. Öğrenciler pandemi nedeniyle uyku düzenlerinin olumsuz etkilendiğini belirtti. Çoklu Lineer Regresyon analizine göre ölçek toplam puanını en çok etkileyen değişkenin "pandemi nedeniyle uykuya dalmakta zorlanma" olduğu belirlendi ($\beta=1.491$; $p<0.01$).

Sonuç: Öğrenciler pandemi sürecinde, uyku problemleri yaşamış ve uyku kaliteleri kötü etkilenmiştir. Öğrencilerin uyku kalitelerinin artırılması için desteklenmeleri ve buna yönelik girişimlerin planlanması önerilmektedir.

Anahtar Kelimeler: COVID-19; hemşirelik; uyku; uyku kalitesi; öğrenciler.

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INTRODUCTION

Besides being a medical phenomenon, pandemics are also social phenomena that affect individuals and societies in many ways, causing some problems (1). Sleep problems constitute one of the most important of these reactions (2). There is a close relationship between regular sleep, sleep time and development of infectious diseases in normal healthy people. Some studies have reported that an adequate and regular sleep during the pandemic support people to have milder symptoms in case of being infected (3,4). Therefore, it is important to have regular and quality sleep during the COVID-19 pandemic in order to protect physical and mental health especially during the quarantine process (2,5).

Education process is the leading problem experienced worldwide due to the COVID-19 pandemic. The closure of educational institutions has been one of the first measures taken in Turkey and across the world during the COVID-19 pandemic. Due to the pandemic, online education was started at universities in Turkey on March 26, 2020 (6). Online education, which was initiated quickly to prevent students from falling behind their education, has brought along some problems for both students and academics because some students did not have an access to the Internet, both students and academicians have not experienced online education before, and a number of technical malfunctions has occurred in the online education system (7,8).

In nursing schools with several applied courses, an inability to perform clinical practice, uncertainty in exam and evaluation criteria, and fears about getting sick during the pandemic has increased the level of stress in nursing students (9). It is stated in the literature that stress triggers sleep problems (10). One study conducted during the quarantine applied in Italy due to the COVID-19 pandemic has found that young people suffered deterioration in their sleep quality and had shift in sleep hours, suggesting that impaired sleep quality was associated with increased depression and anxiety (11). Another study conducted during the pandemic in China has reported that the rates of anxiety and depression in young people are quite high, leading to deterioration in sleep quality. The same study has also emphasized that impaired sleep quality can increase suicidality in individuals (12).

In this respect, as nursing students are candidates of the nursing profession, which includes health services with applications for human beings and provides care and treatment services for patients 24 hours a day, 7 days a week, requiring discipline and intense attention, it is important for them to have a complete physical and mental well-being. Therefore, it will be useful to determine the current situation in order to provide enough and quality sleep in nursing students and to examine the factors affect it positively or negatively, in order to identify and eliminate problems in this area. In the literature, although there are several studies about the effects of COVID-19 pandemic on sleep and stress status in nurses, there is a few study on the effect of this pandemic on sleep quality of nursing students (7,14). Therefore, this study, which is considered to contribute to the literature, aims to examine the sleep quality and patterns of nursing students during the COVID-19 pandemic.

MATERIALS AND METHODS

Study Design: This is a cross-sectional study.

Study Population and Sample: The study was carried out in Health Sciences Faculty of a Turkish state university in 2020. The population of this study consisted of nursing students (N=739), while the sample size was calculated to include 253 nursing students who were selected using the sampling method with known population size with a 95% confidence level and a 5% margin of error. Although the number of nursing students corresponding to the calculated sample size was reached in 15 days in online environment, the data collection tool was remained online for 15 more days to ensure the maximum sample size. At the end of 30 days in total, a total of 311 students filled the forms completely (n=311). Verbal consent was obtained from the students to participate in the study.

Data Collection: Data were collected from nursing students who received distance education due to the closure of educational institutions on March 26, 2020 by the Council of Higher Education of the Republic of Turkey because of the COVID-19 pandemic and were quarantined at home due to the pandemic, between May 14, 2020 and June 14, 2020 via Google forms by using a questionnaire including a socio-demographic data collection form, The Questionnaire on the Changes in the Sleep Patterns due the COVID-19 Pandemic, and the Pittsburgh Sleep Quality Index (PSQI).

The Google form link was sent to the students via their corporate student e-mail addresses.

Data Collection Tools:

Socio-demographic data collection form: The form, prepared by the researchers, included questions about the students' age, gender, grade level, economic status perception, cumulative weighted grade point average, and living geographical region in Turkey.

Survey form for the changes in sleep patterns caused by the COVID-19 pandemic: The form, prepared by the researchers in line with the literature (2,15,16), included eight statements about the possible problems in sleep patterns of the students.

Pittsburgh Sleep Quality Index (PSQI): The PSQI was developed by Buysse et al. (1989) (17) and adapted into Turkish by Ağargün et al. (1996) (18). The PSQI is a 19-item self-report scale that assesses sleep quality and disorder over the past month. It consists of 24 questions, including 19 self-report questions and 5 questions to be answered by the spouse or roommate. The 18 questions scored in the scale consist of 7 components: Subjective Sleep Quality, Sleep Latency, Sleep Duration, Habitual Sleep Efficiency, Sleep Disturbances, Use of Sleep Medication, and Daytime Dysfunction. Each component is scored between 0-3. Total scores from the seven components gives a total score of the scale. Total score ranges from 0 to 21. A total score greater than 5 indicates "poor sleep quality", whereas a total score of 5 or below is considered as "good sleep quality". The internal consistency coefficient of the Turkish version of the scale was reported as 0.80.

Statistical Analysis: In the study, descriptive statistics and frequency distributions of the data were obtained. The assumptions of normality and homogeneity of variances were evaluated using Kolmogorov-Smirnov and Levene's tests, respectively, in order to determine the statistical analyzes to be used for data analysis. Parametric tests were used to analyze the data with normal distribution. One Way ANOVA and Student's t test were used for comparisons between groups. A Stepwise Multiple Linear Regression analysis was performed to determine to what extent independent variables affected the PSQI total score. The reliability analysis of the scale was performed and the Cronbach's alpha value of the scale was calculated. A p value less than 0.05 ($p < 0.05$) was considered statistically significant.

Ethics Committee Approval: For conducting the study, an ethical approval dated May 13, 2020 and numbered 2020-8/8 was obtained from the Ethics Committee in Clinical Research of the Faculty of Medicine where the study was conducted, and a study permission dated April 29, 2020 from the Republic of Turkey Ministry of Health Scientific Research Committee.

BULGULAR

Table 1 presents the results regarding the students' socio-demographic characteristics. The mean age of the students was 21.06±1.96 years, 257 of them (82.6%) were female, 76 (24.4%) were first grade students, 14 (4.5%) had a cumulative weighted grade point average between 1.00-1.99, 46 (14.8%) had a good perception of economic status, 185 (59.5%) lived in the Marmara Region, and 306 (98.4%) reported to follow the developments related to the COVID-19 pandemic.

Tablo 1. Distribution of the Students' Socio-Demographic Characteristics (n=311)

Characteristics		n	%
Age	21.06 ± 1.96	(X ± SD)	
Gender			
Female		257	82.6
Male		54	17.4
Grade Level			
1st grade		76	24.4
2nd grade		67	21.5
3rd grade		95	30.5
4th grade		73	23.5
Cumulative Weighted Grade Point Average			
1.00-1.99		14	4.5
2.00-2.99		155	49.8
3.00-4.00		142	45.7
Perceived Economic Status			
Good		46	14.8
Middle		249	80.1
Poor		16	5.1
Living Geographical Regions			
Marmara Region		185	59.5
Aegean Region		28	9.0
Mediterranean Region		12	3.9
Central Anatolia Region		21	6.8
Black Sea Region		16	5.1
Eastern Anatolia Region		20	6.4
Southeastern Anatolia Region		20	6.4
Abroad		9	2.9
Do you follow the developments associated with the COVID-19 pandemic?			
Yes		306	98.4
No		5	1.6
Total		311	100.0

Table 2 presents the distribution of the students' responses to the statements regarding the changes in sleep patterns due to the Covid-19 pandemic. Due to the pandemic, 54% of the students experienced deterioration in their sleep patterns, 31.8% had difficulty falling asleep, 17.4% woke up frequently at nights, 36% could not rest no matter how long they slept, 14.1% had nightmares, 30.2% could not do their pre-sleep habits, 27% had difficulty staying asleep, and 41.5% had poor sleep quality.

Table 2. Distribution of the Students' Responses to the Statements Regarding the Changes in Sleep Patterns due to the Covid-19 Pandemic (n=311)

Distribution of the Students' Responses to the Statements Regarding the Changes in Sleep Patterns due to the Covid-19 Pandemic	Number of Students (%)					
	Yes		No		Undecided	
	n	%	n	%	n	%
My sleep patterns have been negatively affected by the pandemic	168	54.0	122	39.2	21	6.8
I have difficulty falling asleep due to the pandemic	99	31.8	187	60.1	25	8.0
I often wake up at night due to the pandemic	54	17.4	239	76.8	18	5.8
No matter how long I sleep, I cannot feel rested due to the pandemic	112	36.0	174	55.9	25	8.0
I have nightmares due to the pandemic	44	14.1	256	82.3	11	3.5
I cannot do my pre-sleep habits due to the pandemic	94	30.2	204	65.6	13	4.2
I have difficulty staying asleep due to the pandemic	84	27.0	214	68.8	13	4.2
I cannot get quality sleep due to the pandemic	129	41.5	167	53.7	15	4.8

Table 3 compares the students' PSQI total mean scores by their responses to the statements regarding the changes in sleep patterns due to the COVID-19 pandemic. The students' PSQI total mean score was 6.15 ± 3.19 (poor sleep quality). According to the statistical evaluation of the students' PSQI total mean scores according to their responses to the statements regarding the changes in sleep patterns due to the COVID-19 pandemic, those whose sleep patterns were adversely affected due to the pandemic, those who had difficulty falling asleep due to the pandemic, those who often wake up at night due to the pandemic, those who could not rest due to the pandemic no matter how long they sleep, those who had nightmares due to the pandemic, those who could not do pre-sleep habits due to the pandemic, those who difficulty staying asleep due to the pandemic, and those could not get quality sleep due to the pandemic obtained higher PSQI total mean scores and the difference was found to be statistically significant. (p <0.001).

Table 3: Comparison of the Students' PSQI Total Mean Scores by Their Responses to the Statements Regarding the Changes in Sleep Patterns due to the COVID-19 Pandemic (n=311)

Statements Regarding the Changes in Sleep Patterns due to the COVID-19 Pandemic	PSQI Mean ($\bar{X}\pm SD$)	Statistical Analysis (F;p)	Multiple Comparison
My sleep patterns have been negatively affected by the pandemic Yes (1) No (2) Undecided (3)	7.47±3.33 4.45±2.17 5.47±2.01	39.93; .000*	(1-2); p< .001 (1-3); p< .01
I have difficulty falling asleep due to the pandemic Yes (1) No (2) Undecided (3)	8.29±3.52 4.89±2.27 7.12±2.96	49.86; .000*	(1-2); p< .001 (2-3); p< .01
I often wake up at night due to the pandemic Yes (1) No (2) Undecided (3)	8.87±3.21 5.44±2.78 7.38±3.64	32.07; .000*	(1-2); p< .001 (2-3); p< .05

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Tablo 3:Devamı

No matter how long I sleep, I cannot feel rested due to the pandemic			
Yes (1)	7.70±3.13	25.52; **.000***	(1-2); p< .001
No (2)	5.13±2.76		
Undecided (3)	6.28±3.56		
I have nightmares due to the pandemic			
Yes (1)	8.22±3.83	15.83; .000*	(1-2); p< .001
No (2)	5.70±2.91		(2-3); p< .05
Undecided (3)	7.36±2.61		
I cannot do my pre-sleep habits due to the pandemic			
Yes (1)	7.61±3.91	15.76; .000*	(1-2); p< .001
No (2)	5.48±2.56		
Undecided (3)	6.15±3.02		
I have difficulty staying asleep due to the pandemic			
Yes (1)	8.33±3.56		(1-2); p< .001
No (2)	5.13±2.41	45.00; .000*	(2-3); p< .001
Undecided (3)	7.84±3.50		
I cannot get quality sleep due to the pandemic			
Yes (1)	7.67±3.32	34.80; .000*	(1-2); p<.001
No (2)	4.88±2.50		(2-3); p< .01
Undecided (3)	6.20±2.93		
Total	6.15±3.19	-	-

Table 4 presents the results of multiple linear regression analysis of the variables affecting PSQI total score. According to the model formed as a result of the multiple linear regression analysis that was performed using the students' responses to the statements regarding the changes in sleep patterns due to the COVID-19 pandemic, the variable of "having difficulty falling asleep due to the pandemic" most affected the PSQI total score. A one-unit increase in "having difficulty falling asleep due to the pandemic" increased the PSQI total score by 1.49 points (p <0.05; Table 5).

Table 4. Results of Multiple Linear Regression Analysis of Variables Affecting PSQI Total Score (n=311)

Modal	Unstandardized		Standardized	t	p	VIF
	β	SE	β			
Constant	4.436	0.230		19.271	.000*	
I have difficulty falling asleep due to the pandemic	1.491	0.429	0.218	3.475	.001**	1.712
My sleep patterns have been negatively affected by the pandemic	1.382	0.387	0.216	3.569	.000*	1596
I often wake up at night due to the pandemic	1.409	0.471	0.167	2.989	.003**	1367
I cannot do my pre-sleep habits due to the pandemic	0.837	0.359	0.121	2.331	.020***	1166
adjusted R^2= 0.241; R^2= .298; Durbin Watson= 1.906; F=8.366						

*p<0.001. **p < 0.01. ***p < 0.05.

DISCUSSION

The COVID-19 pandemic affected educational methods and practices (online courses, teleconferences, digital open books, online exams and interaction in virtual environments), and the academic activities of students who did not access these opportunities for various reasons or could not adapt to this education system were negatively affected; It has caused health problems such as stress, anxiety, and sleep disorders. In the literature, it has been stated that stress and anxiety experienced during the COVID-19 pandemic is a factor that negatively affects sleep quality (7,8,10). In this study, the students' PSQI total mean score was 6.15±3.19 (Table 3).

This results suggests that they had poor sleep quality. Although studies on the sleep quality of nursing students during the pandemic period are very limited, it has been reported that the sleep quality of nursing students was negatively affected during this period (7,14). The results of our study are similar to the literature. It is thought that this result may be related to the stress experienced by the students in this process. In different studies with nursing students and university students, it has been reported that students' stress levels are high during the pandemic period (2,10,13,19–21). In the literature, it has been reported that university students studying in different departments have poor sleep quality during the COVID-19 pandemic (22-25).

In this study, those whose sleep patterns were adversely affected due to the pandemic (54%), those who had difficulty falling asleep due to the pandemic (31.8%), those who often wake up at night due to the pandemic (17.4%), those who could not rest due to the pandemic no matter how long they sleep (36%), those who had nightmares due to the pandemic (14.1%), those who could not do pre-sleep habits due to the pandemic (30.2%), those who difficulty staying asleep due to the pandemic (27%), and those could not get quality sleep due to the pandemic (41.5%) obtained higher PSQI total mean scores (Table 3). In addition, the multiple linear regression analysis revealed that the variable of "difficulty falling asleep due to the pandemic" most affected the PSQI total score. Accordingly, one-unit increase in having difficulty falling asleep due to the pandemic increased the PSQI total score by 1.49 points

(Table 4). This study determined that the students had sleep problems during the pandemic, negatively affecting their sleep quality. Being quarantined at home, getting away from social life, uncertainty, and changes in daily life routines can cause some sleep problems, which may increase existing stress and anxiety levels, similarly, lead to negative changes in sleep habits (10). In addition, nursing education, which consists of theoretical and clinical teaching, could not be carried out as planned due to the constraints during the pandemic period. While the theoretical courses were compensated with online education, the inability to perform clinical applications has created deficiencies in clinical knowledge and skills.

CONCLUSION

This study found that the students had sleep problems during the COVID-19 pandemic, negatively affecting their sleep quality. In order to ensure regular and quality sleep in nursing students, it is recommended that students acquire positive health behaviors during the pandemic and support and informative initiatives should be undertaken to ensure the continuity of these behaviors. Other studies with larger samples are also recommended to examine the long-term consequences of the pandemic.

Limitations:

The study was conducted with nursing students from a single university. Therefore, the fact that the study findings cannot be generalized to the whole population is the limitation of the study.

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