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Level of Smartphone Addiction, Sleep Quality and Affecting Factors in University Students: A Cross-Sectional Study

Üniversite Öğrencilerinde Akıllı Telefon Bağımlılığı Düzeyi, Uyku Kalitesi ve Etkileyen Faktörler: Kesitsel Bir Araştırma

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ABSTRACT Objective: This research was conducted to determine the smartphone addiction levels, sleep quality and affecting factors of midwifery students studying at a state university. **Material and Methods:** The population of the cross-sectional study consisted of 296 students attending the midwifery department of a state university in the spring semester of the 2019-2020 academic year. Purposive sampling method was used in this study. All of the students in the population were included in the study and the study was completed with 247 students. The response rate was 83.4%. Data collection tools were as follows: the personal information form, Smartphone Addiction Scale-Short Form (SAS-SF) and tools Pittsburgh Sleep Quality Index (PSQI) were used. **Results:** Their mean age was 20.91±1.42 years. The mean scores the students obtained from the overall SAS-SF and PSQI were 31.57±11.27 (minimum: 10, maximum: 60) and 7.64±2.68 (minimum: 3, maximum: 17) respectively. While the participating students' smartphone addiction was at a moderate level, their sleep quality was at a poor level. There was a positive and significant correlation between Smartphone Addiction and Sleep Quality. **Conclusion:** Trainings and interventional studies can be conducted to reduce the time spent using smartphones and improve sleep quality among university students.

Keywords: Smartphone; addiction; sleep quality; midwifery

ÖZET Amaç: Bu araştırma, bir devlet üniversitesinde öğrenim gören ebelik öğrencilerinin akıllı telefon bağımlılığı düzeylerini, uyku kalitesini ve etkileyen faktörleri belirlemek amacıyla yapılmıştır. **Gereç ve Yöntemler:** Kesitsel türdeki araştırmanın evrenini 2019-2020 eğitim öğretim dönemi bahar yarıyılında bir devlet üniversitesinin ebelik bölümünde okuyan ve derslere devam eden 296 öğrenci oluşturmuştur. Bu araştırmada, amaçlı örnekleme yöntemi kullanılmıştır. Öğrencilerin tamamı araştırma kapsamına alınmış ve 247 öğrenci ile araştırma tamamlanmıştır. Yanıtlılık oranı %83,4'tür. Veri toplama araçları olarak; kişisel bilgi formu, Akıllı Telefon Bağımlılığı Ölçeği-Kısa Form (ATBÖ-KF) ve Pittsburgh Uyku Kalitesi İndeksi (PUKİ) kullanılmıştır. **Bulgular:** Öğrencilerin yaş ortalaması 20,91±1,42'dir. Öğrencilerin ATBÖ-KF ve PUKİ genelinden aldıkları ortalama puanlar sırasıyla 31,57±11,27 (minimum: 10, maksimum: 60) ve 7,64±2,68 (minimum: 3, maksimum: 17) olarak bulunmuştur. Öğrencilerin akıllı telefon bağımlılığının orta düzeyde, uyku kalitelerinin kötü düzeyde olduğu bulunmuştur. Akıllı telefon bağımlılığı ile uyku kalitesi arasında pozitif yönlü anlamlı korelasyon ilişkisi saptanmıştır. **Sonuç:** Üniversite öğrencilerinde akıllı telefon kullanarak geçirilen sürenin azaltılması ve uyku kalitesinin artırılmasına yönelik eğitimler ve girişimsel çalışmalar yapılabilir.

Anahtar Kelimeler: Akıllı telefon; bağımlılık; uyku kalitesi; ebelik

Smartphones offer people several uses by providing many opportunities such as time and place independence, speed, time saving, portability, easy information sharing and increasing participation.[1] According to a regularly published global study in which digital data from hundreds of countries including Türkiye are given, more than two-thirds of the world's population (67.1%) now use a smartphone and the number of its users reached 5.31 billion at the beginning of 2022.[2]

In general, young people are more likely to utilize the latest technology than do other age groups, and smartphone use affects almost all aspects of young people's daily lives.[3] Among young people, college students represent educated, emerging adults who often perceive the smartphone as an important part of their lifestyle and identity.

University students use their smartphones which provide them with convenience in payment and shopping transactions to socialize in the virtual environ-

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ment, to communicate with their friends and masses, to have fun, to fill their spare time, and to get support for educational activities.[4] The widespread use of smartphones due to the fact that the young generation, including the Z generation and the next generations, was born in a technologically rich environment shows that young people are at risk.[5]

One of the most important problems due to the excessive and problematic use of smartphones is smartphone addiction.[5] There is no clear definition of smartphone addiction in the field of psychiatry, but this type of addiction develops depending on the frequency and duration of use, controllability and purpose of use.[6] Smartphone addiction is not classified as a disorder in the The Diagnostic and Statistical Manual of Mental Disorders (DSM-5). However, it is foreseen that technological dependencies will take place more widely in the next versions of DSM.[7] Smartphone addiction has been defined as excessive use of smartphones causing distress in users' daily life. While the concept of internet addiction was at the forefront previously, this concept has left its place to smartphone addiction today.[8] Deloitte Global Mobile User Survey 2017, provided consumers and companies serving in this field with important data about the point where mobile device usage has come. According to the results obtained from this survey users in Türkiye check their mobile phones an average of 78 times a day, which means that they see a screen approximately once every 13 minutes. While the rate of looking at the phone in the first 15 minutes after waking up in Türkiye is 79%, the same rate is observed at 62% in Europe. Similarly, while the rate of looking at the phone in the last 15 minutes before going to bed is 53% in Europe, the same rate reaches 72% in Türkiye.[9]

Smartphone addiction is considered as a factor that not only threatens users' physical and psychological health but also negatively affects their sleep quality. Sleep quality is defined as the satisfaction of the sleep experience, integrating the aspects of sleep initiation, sleep maintenance, sleep quantity, and refreshment upon the awakening of an individual. According to the National Sleep Foundation, good sleep quality for adults means a person falls asleep in 30 minutes or less, sleeps soundly through the night with no awakening, and drifts back to sleep within 20 minutes if you have awakened. The excessive use of smartphones and tablets in the evening causes difficulty to sleep due to the blue light of smartphones which disrupts the melatonin production involved within the natural rhythms of our body. Thus, sleep quality among individuals who use smartphones during bedtime will be affected. In the literature, in the findings of studies conducted in this area, smartphone addiction is stated as a factor that reduces sleep quality.[10-15]

Thus, it is important to investigate this situation in detail and determine the problems it causes, because the problems caused by smartphone addiction in today's university youth threaten the present and future of society. Accordingly, it is extremely important to determine the current situation in order to determine the effect of smartphone use on sleep quality of midwifery students, who will provide health services to the society after their graduation. Our search for studies in which the relationship between smartphone addiction and sleep quality in university students in Türkiye was investigated demonstrated that the number of such studies was limited.

This research was conducted to contribute to the literature by examining the level of smartphone addiction, sleep quality and contributing factors in midwifery students. Responses were sought to the following questions:

1. What are the smartphone usage levels of midwifery students?

2. What are the socio-demographic characteristics that make a difference on students' smartphone use and sleep quality?

3. What is the relationship between students' smartphone addiction and their sleep quality?

MATERIAL AND METHODS

DESIGN AND METHODS

It is a descriptive study in a cross-sectional survey model. The population of the study consisted of 296 students attending the midwifery department of a state university in eastern Türkiye. The data were collected in the spring term of 2019-2020. All of the students were included in the study and the study was

completed with 247 students. The response rate is 83.4%. Inclusion criteria were as follows, being a citizen of the Republic of Türkiye, being a first, second, third and fourth-year student, and volunteering to participate in the study.

DATA COLLECTION

Data were collected with an online questionnaire between February 2020 and May 2020. A link was sent to the students through the Google Survey (Alphabet, USA) application by the class counselors. In order to increase the response rate, a reminder was also made via e-mail and WhatsApp (WhatsApp Inc., USA) application.

DATA COLLECTION TOOLS

The questionnaire prepared by the researcher consists of the following 3 tools: the personal information form, Smartphone Addiction Scale-Short Form (SAS-SF) and Pittsburgh Sleep Quality Index (PSQI) were used.

Personal information form: The items included in this form question the participants' sociodemographic characteristics such as the age, sex, marital status, department, grade, and mother's and father's education level.

SAS-SF: The form was developed by Kwon et al.[8] The validity and reliability study of the Turkish version of the SAS-SF was conducted by Noyan et al.[16] In their study, the Cronbach's alpha coefficient was 0.867. In this study, the Cronbach's alpha value was 0.903. The SAS-SF consists of 10 items whose responses are rated on a 6-point Likert type scale. The minimum and maximum possible scores to be obtained from the overall SAS-SF are 10 and 60 respectively. The higher the SAS-SF score is the higher the level of the risk of smartphone addiction. The scale has a single factor and no subscales.

PSQI: The PSQI was developed Buysse et al.[17] The Turkish validity and reliability study of the PSQI was performed by Ağargün et al.[18] In their study, the Cronbach's alpha coefficient was 0.80. In this study, the Cronbach's alpha value was 0.82. The PSQI consists of the following seven components. The PSQI consists of the following seven components: subjective sleep quality (component 1), sleep latency (component 2), sleep duration (component 3), habitual sleep efficiency (component 4), sleep disturbance (component 5), sleep medication use (component 6) and daytime dysfunction due to sleepiness (component 7). The sum of the scores obtained from the 7 components yields the total PSQI score ranging between 0 and 21. High values indicate that sleep quality is poor and the level of sleep disturbances is high. A total score of the PSQI greater than five indicates that sleep quality is clinically poor.[18]

DATA ANALYSIS

The evaluation of the data obtained from the research was made with the SPSS package program (IBM 22.0, USA). Data were given as numbers, percentages, and arithmetic mean. Kolmogorov-Smirnov normality test was applied to decide on the analyzes to be applied, and parametric tests were used because it provided the normality assumption of the data. The independent samples t-test, analysis of variance and Pearson test were used in the analysis. Values with $p<0.05$ were considered statistically significant.

ETHICAL ISSUES

In order to carry out the study, approvals were obtained from the dean of the relevant university and the Fırat University Ethics Committee (date: February 4, 2020; no: 03) where the research was to be conducted. The research conforms to the provisions of the Declaration of Helsinki.

RESULTS

In this section, the results obtained from the study data are presented.

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY SAMPLE

Their mean age was 20.91±1.42 years (minimum: 18, maximum: 26). Of them, 32.8% were first year students, 25.9% were second year students, 23.5% were third year students, 17.8% were fourth year students, 53.8% lived in a state or private dormitory, 44.9% had mothers who were literate but not a graduate of any school or primary school graduates, 46.6% had fathers who were junior or senior high school graduates, and 69.6% stated that their income was equal to their expenses (Table 1).

TABLE 1: Socio-demographic characteristics of the students (n=247).

	Number	%
Age (years)		
18-20	106	42.9
21-23	127	51.4
≥24	14	5.7
Year at school		
First	81	32.8
Second	64	25.9
Third	58	23.5
Fourth	44	17.8
Place of residence		
At home with the family	103	41.7
At home with friends	11	4.5
In a dormitory (government or private)	133	53.8
Mother's education level		
Illiterate	67	27.2
Literate but not a graduate of any school or primary school	111	44.9
Junior or senior high school	61	24.7
University	8	3.2
Father's education level		
Illiterate	8	3.2
Literate but not a graduate of any school or primary school	89	36.0
Junior or senior high school	115	46.6
University	35	14.2
Family's income status		
Income less than expenses	57	23.1
Income equal to expenses	172	69.6
Income more than expenses	18	7.3

Of the students, 49.4% had been using mobile phones for 4-6 years, 42.9% spared 3-4 hours a day to use a smartphone, 47.4% used the smartphone in the first 5 minutes after waking up in the morning, 66.4% followed social media, and 76.5% stated that they did all of their daily internet use with their smartphones (Table 2).

SMARTPHONE ADDICTION AND SLEEP QUALITY

The mean scores the students obtained from the overall SAS-SF and PSQI were 31.57±11.27 (minimum: 10, maximum: 60) and 7.64±2.68 (minimum: 3, maximum: 17) respectively. There was not a significant difference between the mean scores they obtained from the SAS-SF according to their age, year at school, place of residence, mother's education level, father's education level and family income ($p>0.05$). On the other hand, the difference between the mean scores they obtained from the PSQI according to their age, year at school and place of residence was significant. The mean scores obtained from the PSQI by the students in the 18-20 age group, first year students and those living with their families were significantly lower ($p<0.05$). However, their mean PSQI scores showed a similar distribution according to the variables such as their parents education level, and the income level of the family ($p>0.05$) (Table 3).

In Table 4, the distribution of the mean scores the students participating in the study obtained from the SAS-SF and PSQI according to their smartphone

TABLE 2: Distribution of smartphone usage-related characteristics of the students participating in the study.

	Number	%
Duration of smartphone usage (years)		
1-3	57	23.1
4-6	122	49.4
≥7	68	27.5
Time allocated to smartphone use per day (hours)		
≤2	58	23.5
3-4	106	42.9
5-6	50	20.2
≥7	33	13.4
Time of the first use of smartphone after waking up in the morning		
Within the first 5 minutes	117	47.4
Within the first half hour	81	32.8
Within 30-60 minutes	27	10.9
After 60 minutes	22	8.9
Purpose of using the smartphone*		
Following social media	164	22.0
Messaging	121	16.2
Talking	91	12.2
Listening to music	95	12.8
Playing games	25	3.4
Watching videos	88	11.8
Surfing the internet	36	4.8
Reading news	59	7.9
Reading e-mails	10	1.3
Downloading movie-music	56	7.5
The rate of daily internet usage met by smartphone		
One-third	16	6.5
Two-thirds	42	17.0
All	189	76.5

*Multiple answers were given. "N" exceeds the sample size.

TABLE 3: Distribution of the mean scores the students participating in the study obtained from the SAS-SF and PSQI according to their demographic characteristics.

	SAS-SF		PSQI	
	$\bar{X}$±SD	p value	$\bar{X}$±SD	p value
Age (years)				
18-20	31.98±10.34	F=1.878	6.78±2.77*	F=8.391
21-23	31.85±11.73	p=0.155	8.32±2.39	p=0.000*
≥24	25.92±12.97		9.50±1.87	
Year at school				
First	28.80±10.82	F=2.478	6.33±2.62*	F=7.998
Second	33.03±10.93	p=0.062	8.15±2.81	p=0.000*
Third	32.93±10.71		8.53±2.22	
Fourth	32.77±12.66		8.51±2.19	
Place of residence				
At home with the family	31.02±11.24	F=2.450	7.04±2.69	F=4.131
At home with friends	25.09±14.00	p=0.088	9.14±2.67	p=0.018*
In a dormitory	32.53±10.93		8.09±2.57	
Mother's education level				
Illiterate	31.04±11.61	F=0.071	7.71±2.64	F=3.176
Literate but not a graduate of any school	31.83±10.56	p=0.975	8.11±2.84	p=0.056
Junior or senior high school	31.63±11.99		7.97±2.28	
University	31.87±14.18		7.28±2.05	
Father's education level				
Illiterate	40.75±8.41		7.25±2.98	
Literate but not a graduate of any school	32.07±11.31	F=2.337	7.67±2.50	F=0.332
Junior or senior high school	30.36±11.61	p=0.074	7.48±2.86	p=0.802
University	32.17±9.77		8.07±2.62	
Family's income status				
Income less than expenses	33.42±12.31	F=1.497	7.62±2.40	F=0.038
Income equal to expenses	31.28±10.92	p=0.226	7.67±2.80	p=0.935
Income more than expenses	28.50±10.82		7.33±2.50	

SAS-SF: Smartphone Addiction Scale-Short Form; PSQI: Pittsburgh Sleep Quality Index; SD: Standard deviation.
* Group that makes a difference.

usage-related characteristics is given. Their mean SAS-SF scores differed significantly according to the duration of smartphone use, the time allocated to smartphone use in a day, time of the first use of the smartphone after waking up in the morning, and the rate of daily internet use by the smartphone ($p<0.05$). However, there were no differences between their mean PSQI scores according to their smartphone usage characteristics ($p>0.05$).

RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND SLEEP QUALITY

A positive and significant correlation was found between the PSQI total score and SAS-SF scores of the participants in the research group (Table 5).

DISCUSSION

This study was conducted to determine the smartphone addiction levels of midwifery students studying at the university and its correlation with their sleep quality. In this section, the research data are discussed with the relevant literature.

In our study, all of the students used mobile phones, and about half of them had been using mobile phones for an average of 5 years. The results obtained in other studies conducted with university students in Türkiye are consistent with our results.[1,19] In a study conducted in Malaysia, the majority of the participants reported that they had been using mobile phones for more than 5 years.[3]

TABLE 4: Distribution of the mean scores the students participating in the study obtained from the SAS-SF and PSQI according to their smartphone usage characteristics.

	SAS-SF		PSQI	
	X̄±SD	p value	X̄±SD	p value
Duration of smartphone usage (years)				
1-3	28.19±10.09	F=3.839	7.08±2.21	F=1.196
4-6	33.14±11.02	p=0.023*	7.68±2.58	p=0.305
≥7	31.58±12.15		8.02±3.17	
Time allocated to smartphone use per day (hours)				
≤2	24.29±10.31	F=23.189	7.08±2.95	F=1.195
3-4	31.33±9.50	p=0.000*	7.56±2.79	p=0.314
5-6	33.34±9.05		7.88±2.17	
≥7	42.45±11.92		8.45±2.60	
Time of the first use of smartphone after waking up in the morning				
Within the first 5 minutes	35.97±11.01	F=17.989	7.68±2.53	F=0.641
Within the first half hour	30.13±10.04	p=0.000*	7.82±2.47	p=0.590
Within 30-60 minutes	23.88±8.47		6.71±3.51	
After 60 minutes	22.90±8.62		7.69±3.49	
The rate of daily internet usage met by smartphone				
One-third	21.25±9.57	F=8.366	7.90±2.58	F=0.456
Two-thirds	30.40±12.33	p=0.000*	7.23±2.52	p=0.635
All	32.70±10.73		7.72±2.75	

SAS-SF: Smartphone Addiction Scale-Short Form; PSQI: Pittsburgh Sleep Quality Index; SD: Standard deviation.
* Group that makes a difference.

In the present study, time allocated to smartphone use per day by the participants was mostly within the range of 3-4 hours. The results of other studies conducted in Türkiye indicated that time allocated to smartphone use per day was similar to that allocated in our study.[1,4,5,20]

About half of the students participating in the study stated that they use a smartphone within the first five minutes after waking up in the morning. The results of Deveci's studies are consistent with our results.[21]

According to their responses to questions about their smartphone usage purposes, social media took the first place. According to the results of studies conducted by Özcan, Güngör and Koçak, Sağır and Eraslan in Türkiye, phones were mostly used to benefit from social networks.[19,22,23] However, since social media is not life itself, the negative effects of smartphones come to the forefront. Thus, within this respect, while smartphones create a virtual social space, they can distance individuals from the actual social environment.[4]

In our study, three-quarters of the participants stated that they used the internet completely through their smartphones. According to a worldwide study, 92.6% of internet access in the world is achieved by phones. In Türkiye, internet traffic from mobile devices rank first (74.8%), which is compatible with our study data.[24] According to the data released by the Turkish Statistical Institute in 2019, the rate of phone and internet usage in Türkiye was 98.7%. Similar results were obtained in other studies conducted in Türkiye.[21,22] Data on the internet usage in Europe demonstrated that 8 out of every 10 people connect to the internet via a smartphone.[25] It also paves the way for the risky smartphone usage behaviors of students who will be healthcare professionals in the future.

In addition to providing many conveniences, excessive use of smartphones for purposes other than

TABLE 5: Relationship between the mean scores the participants obtained from the SAS-SF and PSQI.

	SAS-SF
PSQI	r=0.240
	p=0.003

p<0.05; r: Pearson test; SAS-SF: Smartphone Addiction Scale-Short Form; PSQI: Pittsburgh Sleep Quality Index.

their intended use can bring about negative consequences such as smartphone addiction, especially for young users.[26] The smartphone addiction of the participants in the present study was at a moderate level, and the mean scores they obtained from the SAS-SF showed a similar distribution according to the variables such as age, year at school, place of residence, mother's and fathers education level, and family income status. Similarly, in Yılmaz et al. study conducted with nursing students, their SAS-SF scores did not vary significantly according to variables such as age and place of residence, but varied according to the class variable.[27] In the study of Güngör and Koçak, no relationship was found between age and class variable and smartphone addiction.[23] However, the results of Kuyucu's study were different because they determined that as age increased, the level of smartphone addiction decreased.[6] In Kumcağız et al. study, the education level of the parents and the place of residence led to a significant difference on smartphone addiction levels.[5] In Aygar's study, the income of the family and parents' education level did not make a significant difference on smartphone addiction levels.[28]

In our study, a significant difference was found between the mean scores the participants obtained from the SAS-SF in terms of "the duration of having a smartphone" variable, and the students who had a smartphone for 1-2 years obtained significantly lower scores. In Aygar's study, as the duration of owning a smartphone increased so did the frequency of smartphone addiction.[28] In the study of Gezgin, it was reported that there is a positive relationship between smartphone addiction and the duration of owning a smartphone.[29]

In our study, a significant difference was found between the mean scores the participants obtained from the SAS-SF in terms of "the time allocated to smartphone use in a day" variable. In a study conducted with nursing students, SAS-SF scores increased significantly as the duration of daily smartphone use increased.[27] In Güngör and Koçak's, Günal and Pekçetin's studies, it was determined that the level of addiction increased as time allocated to the daily smartphone usage increased.[20,23] These results suggest that the tendency to experience addiction increased as the use of smartphones increased.

In our study, students' SAS-SF mean scores differed significantly according to their daily internet usage rates from smart phones. Of the students, those who made all of their daily internet use from their smartphones obtained the highest scores from the SAS-SF. One of the most basic elements underlying smartphone addiction is being able to connect to the internet via a smartphone. Thanks to the advantage of being mobile, the smartphone provides ease of access to the internet from anywhere, a factor leading to an increase in addiction. As the access to the Internet increases, so does addiction to smartphones. In other words, internet addiction was also reflected on smartphones, which increased smartphone addiction.[6]

In our study, the SAS-SF mean scores of the students who checked their phones in the first 5 minutes after waking up in the morning were found to be significantly higher than the other groups. In their study, Montag et al. reported that smartphone addiction levels of those who checked their smartphones in the first 5 minutes after waking up in the morning were higher, which is consistent with our results.[30]

It is very important to maintain midwifery students' physical and mental well-being at the highest level because they will provide health services after graduation. It is possible for midwifery students to have a clear mind and attention due to their profession and responsibility, only if they acquire a healthy sleep habit.[31] In our study, the participants' sleep quality was poor, and those in the 18-20 age group, studying in the first grade and living at home with their families obtained significantly lower mean scores from the PSQI. Unlike our results, in Ergün et al. studies, the 1st grade students obtained the highest scores from the PSQI.[31] In Ekenler and Altınel's and Özcan's studies, the participants' PSQI scores did not differ according to their year at school.[32,33]

In our study, of the participants, those who lived with their families obtained significantly lower scores from the PSQI. The results of Özcan's, Ergin et al. and Kolcu et al. studies are consistent with our results.[15,33,34] Appropriate physical conditions of the home environment and the adoption of a more organized lifestyle by the students living with their parents may have contributed to this result. However, in

Ergün et al. study, the mean PSQI scores did not differ according to the student's place of residence.[31]

In our study, the education level of the parents and the income of the family did not affect the PSQI score averages. The mean scores the participants obtained from the PSQI did not differ according to the income level of the family in Ekenler and Altınel's study conducted with nursing students, and according to the education level of the parents in Ergin et al. and Özcan's studies.[32-34]

In our study, the participants' smartphone usage characteristics did not affect their mean PSQI scores. In Özcan's study, while the participants whose sleep quality was poor allocated much more time to daily smartphone usage than did the other participants, their daily internet use via a smartphone did not affect their sleep quality.[22] In their study, Kocamaz et al. determined that the sleep quality deteriorated with the increase in the duration of smartphone use.[14] In a prospective cohort study in China, a significant association was determined between poor sleep quality and having a mobile phone for more than four years and using a smartphone for more than five hours a day.[10] In a study conducted in India, a moderate positive relationship was determined between mobile phone addiction and sleep quality.[35] These results obtained from international and national studies, which are different from our study findings, indicate that some features of smartphone use (for example, time allocated to phone use) play a role in the etiology of sleep problems in university students.

A positive and significant correlation was found between the PSQI total score and SAS-SF scores of the participants of this study. The results of Kocamaz et al. Kolcu et al. studies are consistent with our study results.[14,15] In studies conducted in Taiwan by Wang et al., in Malaysia by Rathakrishnan et al., and in India by Kumar et al., smartphone addiction was associated with poor sleep quality.[11-13] Our study results are compatible with those in the literature.

LIMITATIONS OF THE STUDY

The present study has a number of limitations. Data were collected using a self-report tool and the university student population surveyed was small. Therefore, the results obtained from the present study are applicable only to the students surveyed and they cannot be generalized to all midwifery students. The other limitation of the study is that the data were obtained from a single university and the questionnaire form was used as a measurement tool.

CONCLUSION

The results of this study demonstrated that the relationship between some demographic and smartphone usage-related characteristics of the participants affected their smartphone addiction and sleep quality. Thus, it is expected that the results of this study will provide guidance for researchers studying on this issue. On the other hand, when the use of smartphones is not properly controlled, it can become a very critical problem in society. Thus, midwives of the future who are role models for the society and who will guide the society should be careful about the use of phones. Smartphone addiction can negatively affect many aspects of individuals' lives especially their sleep quality. It can decrease students' academic success, adversely affect their performance in the fields of application, and lead to application errors, which in turn can adversely affect the quality of patient care and safety. Therefore, necessary measures should be taken and training should be given to students to gain regular sleep habit.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

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