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Araştırma Makalesi

ERKEK VE KADIN ÜNİVERSİTE ÖĞRENCİLERİNDE AKILLI TELEFON BAĞIMLILIĞI İLE UYKU KALİTESİ ARASINDAKİ İLİŞKİ

RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND SLEEP QUALITY IN MALE AND FEMALE UNIVERSITY STUDENTS

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Erkek ve Kadın Üniversite Öğrencilerinde Akıllı Telefon Bağımlılığı ile Uyku Kalitesi Arasındaki İlişki

ÖZ

Bu çalışmada üniversite öğrencilerinde akıllı telefon bağımlılığı ile uyku kalitesi arasındaki ilişkinin belirlenmesi amaçlanmıştır. İlişkisel tarama modeli kullanılarak yapılan araştırmaya 214'ü kadın, 189'u erkek toplam 403 üniversite öğrencisi katılım göstermiştir. Veri toplama araçları olarak; Kişisel Bilgi Formu, Akıllı Telefon Bağımlılığı Ölçeği ve Uyku Kalitesi Ölçeği kullanılmıştır. Normal dağılım gösteren verilerin istatistiksel analizlerinde bağımsız örneklemler T-Testi, Pearson Korelasyon ve doğrusal Regresyon analizi kullanılmıştır. Araştırma bulguları incelendiğinde; akıllı telefon bağımlılığında cinsiyete göre anlamlı farklılık elde edilirken ($p<.05$); uyku kalitesinde ise cinsiyete göre anlamlı farklılık elde edilmemiştir ($p>.05$). Bağımlı değişkenler açısından sonuçlar incelendiğinde, akıllı telefon bağımlılığı ile uyku kalitesi arasında negatif yönde düşük düzeyde anlamlı ilişkiler tespit edilmiştir ($p<.05$). Ayrıca akıllı telefon bağımlılığı, erkek ve kadın üniversite öğrencilerinin uyku kalitesini sırasıyla %7 ve %3 oranında olumsuz yönde etkilemektedir ($p<0,05$). Sonuç olarak, akıllı telefona bağımlı olmanın üniversite öğrencilerinde uyku kalitesini düşürdüğü ve bu sonucun üniversite öğrencilerini olumsuz yönde etkileyeceği düşünülmektedir Ayrıca, zihinsel sağlığın bozulmasının yanı sıra depresyon, kaygı ve izolasyona da yol açabilir

Anahtar Kelimeler: Öğrenci, akıllı telefon bağımlılığı, uyku kalitesi

Relationship Between Smartphone Addiction and Sleep Quality in Male and Female University Students

ABSTRACT

In this study aimed to determine the relationship between smartphone addiction and sleep quality in university students. A total of 403 university students, 214 women, and 189 men, participated in the research conducted using the relational screening model. As data collection tools; Personal Information Form, Smartphone Addiction Scale, and Sleep Quality Scale were used. Independent Samples T-test, Pearson Correlation, and Linear Regression analysis were used in the statistical analysis of normally distributed data. When the research findings were examined; while there was a significant difference in smartphone addiction according to gender ($p<.05$); there was no significant difference in sleep quality according to gender ($p>.05$). When the results were examined in terms of dependent variables, low-level negative and significant relationships were detected between smartphone addiction and sleep quality ($p<.05$). Additionally, smartphone addiction negatively predicts the sleep quality of male and female university students by 7% and 3%, respectively ($p<.05$). As a result, it is thought that being addicted to smartphones reduces the sleep quality of university students and this result will negatively affect university students. It can lead to poor mental health as well as depression, anxiety, and isolation.

Keywords: Student, smartphone addiction, sleep quality

INTRODUCTION

Nowadays, with the rapid development and widespread use of internet technology and artificial intelligence and the spread of these techniques in mobile communication tools, the mobile phone has begun to be adopted by a wide audience as an important electronic product in daily life all over the world[1-3]. The constant use of smartphones throughout the day, and sometimes throughout the night, is a feature of modern life due to the devices' availability and ease of use[4]. Smartphones are typical touch-screen devices with multiple applications that provide quick access to the Internet and facilitate message transmission and communication, but heavy use of smartphones can cause negative psychological effects[5,6]. Since a smartphone is a powerful portable computer with internet access that can provide real-time information, smartphone addiction seems to have become widespread in workplaces or schools[7]. Although a smartphone has many benefits when used correctly, such as connectivity, increased productivity, quick access to information, and portability, excessive use or addiction to the smartphone can cause many adverse effects on the individual's health and safety such as neck pain, risk of driving, vision problems, poor school performance, depression, and anxiety [8-11].

Sleep quality is an important indicator of health[12,13]. In addition, smartphone addiction is also associated with the person's inability to stay away from the smartphone, frequent checking of the phone, insomnia due to excessive use, and poor sleep quality[14-16]. This addiction can also reduce social interactions, cause neglect in personal life, and sleep problems and deprivation can be an important environmental factor that leads to decreased academic performance and disrupts quality sleep in university students[17,18]. Recent studies have observed that excessive use of smartphones is associated with sleep, daytime activities, and performance disorders involving biorhythm areas among students[19-21]. Longer smartphone screen time has been associated with shorter sleep duration and poor sleep efficiency [15,22]. A previous study by Soni et al., (2017)[23] showed that smartphone dependence has a significant impact on sleep quality. This study presented that poor sleep quality was more evident among heavy smartphone users. Numerous studies have concluded that smartphones have associated with sleep quality [24,25].

Evidence from cross-sectional studies on the association between sleep problems and problematic smartphone use among adults is mixed. For example, Chang and Choi, (2016)[26] reported that problematic smartphone use is associated with deprived sleep quality among male but not female participants. However, Chen et al., (2017)[27] found a significant association between deprived sleep quality and smartphone addiction in male and female medical college students This work utilized cross-group comparison to evaluate gender differences in the relationships between sleep problems and problematic smartphone use. In this context, this study aimed to determine the relationship between smartphone addiction and sleep quality in male and female university students.

MATERIAL AND METHODS

Research design

This cross-sectional and correlational screening model study was conducted among undergraduate students of the 2024 spring semester at Balıkesir University in Turkey.

Research subjects

While the population of the research consists of university students studying at Balıkesir University, the sample consists of a total of 403 students, in different faculties (tourism, economics, engineering, and education, etc.) 214 of whom are female and 189 of whom are male, selected using the convenience sampling method. Yazıcıoğlu and Erdoğan, (2014)[28] reported that for n>1.000.000 people in an unknown universe, the sample size should be 384 participants, taking into account a 95% confidence interval and a 5% margin of error. This result shows that the results obtained from the sample can be generalized to the population. Inclusion criteria were age 20 to 28 years old, being a undergraduate university student, answering surveys completely, not having a diagnosis of a sleep disorder. Individuals who did not meet the inclusion criteria were not included in the study.

Table 1. Descriptive Statistics Results for University Students

Variables	f	%	$\overline{X}_{Age}$
Female	214	53.1	
Male	189	46.9	21.58±2.82
Total	403	100.0	

It was determined that 53.1% (n=214) of the university students who participated in the research were female and 46.9% (n=189) were male. Additionally, the average age of university students was found to be 21.58±2.82 (Table 1).

Data Collection Tools

In the research, data was obtained voluntarily using the online survey method using Google Forms. Personal information form, smartphone addiction scale, and sleep quality scale were used as measurement tools.

Personal information form

Participants were asked for personal information about their age and gender.

Smartphone addiction scale

In order to determine the participants' risk of smartphone addiction, the Smartphone Addiction Scale, developed by Kwon et al., (2013)[29] and adapted to the Turkish language by Noyan et al., (2015)[30], was used. The Turkish version of the smartphone addiction scale is one-dimensional and consists of 10 items. Scale ratings range from 1 to 6 (Strongly Disagree and Strongly Agree). The total score of the scale varies between 10 and 60. As the score from the scale increases, the risk of smartphone addiction also increases. The Cronbach alpha value of the scale developed for university students was found to be 0.867. In this study, Cronbach's alpha value for sports science students was found to be 0.908. This result shows that the smartphone addiction scale is also reliable for our university students. The total scores obtained by the participants from the smartphone addiction scale were classified. Classification was made using the formula: Highest score (60) - Lowest score (10) / Classification counts (5). Accordingly, the scores obtained on the smartphone addiction scale were classified as follows: i) 10-20 points = Very Low level; ii)>20-30 points= Low level;iii) >30-40 points= Moderately ;iv) >40-50 points = Highly; vi) >50-60 points = Very High level

Sleep quality scale

It was developed by Meijer and Van den Wittenboer, (2004)[31] and adapted to the Turkish language by Önder et al., (2016)[32]. The scale is a one-dimensional, Likert-type measurement tool consisting of 7 items. The Cronbach Alpha internal consistency coefficient of the scale was determined as 0.72. The 1st, 2nd, 3rd, 4th, and 7th items in the scale are reversed and the total score is obtained. A high score indicates good sleep quality. In this study, the Cronbach Alpha value of the scale was determined as 0.77.

Ethical approval

This research was ethically approved by the Health Sciences Non-invasive Research Ethics Committee of Balıkesir University with the decision dated 15.05.2024 and numbered 2024/66.

Data analysis

As a result of the normality test of the data obtained, it was determined that the skewness and kurtosis values of the data varied between -2, …, +2. These obtained values show that the data is suitable for normal distribution (George and Mallery, 2019)[(28)]. Independent Samples T-test, Pearson Correlation, and Linear Regression analyses were used in the statistical analysis of the data. The confidence interval was chosen as 95% and significance was accepted as p< .05.

RESULTS

Table 2. Comparison of University Students' Smartphone Addiction and Sleep Quality Levels by Gender

Variables	Gender	n	$\overline{X}$	S.D.	t	p
Smartphone Addiction	Female	214	33.17	10.52	3.644	.001
	Male	189	29.34	10.53		
Sleep Quality	Female	214	13.72	2.76	-.888	.375
	Male	189	13.97	2.97		

**p<. 001

While a significant difference was detected in the smartphone addiction levels of university students according to their gender (p< .05); It was determined that there was no significant difference in their sleep quality according to their gender (p> .05; Table 2).

Table 3. The Relationship Between University Students' Smartphone Addiction and Sleep Quality

Variables		Sleep Quality
Smartphone Addiction	r	-.236
	p	.001**

**p<. 001

A negative, low-significant relationship (r= -.236; p= .001) was detected between university students' smartphone addiction and their sleep quality (Table 3).

Table 4. The Effect of Male University Students' Smartphone Addiction Levels on Their Sleep Quality

Independent Variable	β	t	p	F	Adj. R^2
(Constant)		26.278	.001**	15.361	.07
Smartphone Addiction	-.276	-3.919	.001**		
Dependent Variable: Sleep Quality					Method: Enter

**p<. 001

As a result of the linear regression analysis, it was seen that the regression model was statistically significant. When the t-test results regarding the significance of the regression coefficients were examined, it was determined that smartphone addiction (β=-.276; t=-3.919; p=.001) had a significant negative predictive power of 7% on sleep quality for male university students (Table 4).

Table 5. The Effect of Female University Students' Smartphone Addiction Levels on Their Sleep Quality

Independent Variable	β	t	p	F	Adj. R^2
(Constant)		24.976	.001**	7.974	.03
Smartphone Addiction	-.190	-2.824	.005**		
Dependent Variable: Sleep Quality					Method: Enter

**p<. 001

As a result of the linear regression analysis, it was seen that the regression model was statistically significant. When the t-test results regarding the significance of the regression coefficients were examined, it was determined that smartphone addiction (β= -.190; t= -2.824; p= .001) had a significant negative predictive power of 3% on sleep quality for female students (Table 5).

DISCUSSION

In this study, while a significant difference was detected in the smartphone addiction levels of the students according to gender, no significant difference was detected in the sleep quality levels according to gender. In this study, while a significant difference was detected in the smartphone addiction levels of the students according to gender, no significant difference was detected in the sleep quality levels according to gender. When smartphone addiction levels between genders were examined, it was found that it was 33.17±10.52 for female students and 29.34±10.53 for male students. This result showed that female students had higher levels of smartphone addiction than male students (Table 2).

Some of studies indicated that females have higher levels of dependence and using smartphones than males[33-35]. In another study, they determined the prevalence of smartphone addiction as 33.33% in women and 46.15% in men[36]. It has been reported that the prevalence of smartphone addiction increases with age. While it has been found that this is due to the increasing number of adolescents and that women spend more time using smartphones than men[29,37] some studies emphasize the opposite[38,39]. As smartphones become a necessity, some researchers have reported gender differences in smartphone addiction across different student populations, but these differences are inconsistent[40,41].

In our study, a low-level negative significant relationship (r=-.236; p=.000) was detected between students' smartphone addiction and their sleep quality (Table 3).

Stanković et al., (2021)[11] found a negative relationship between smartphone use and anxiety, stress, and sleep quality in medical students. Various studies reported that melatonin production decreases when exposed to electromagnetic fields, especially in the evening, and it was hypothesized that the decrease in melatonin causes a deterioration in sleep quality[42,43]. Hysing et al., (2015)[44] found that the use of electronic devices both during the day and before bedtime causes an increased risk of short sleep duration, long sleep onset latency, and sleep deficiency.

Many electronic media devices actually expose the individual to bright light[45] and may interfere with sleep due to delaying the circadian rhythm after dark[46]. It is known that exposure to electromagnetic fields in the evening affects physiological factors such as sleep quality and melatonin rhythm, possibly by affecting the pineal gland, and also causes changes in cerebral blood flow and brain electrical activity[42]. Additionally, a study reported that long-term phone use may cause physical discomfort and headaches, which may negatively affect sleep[45]. This study results showed that the t-test results regarding the significance of the regression coefficients were examined, and it was determined that smartphone addiction (β=-.276; t=-3.919; p=.001) had a significant negative predictive power of 7% on sleep quality for male students (Table 4). In addition, female students showed that smartphone addiction (β=-.276; t=-3.919; p=.001) had a significant negative predictive power of 3% on sleep quality (Table 5). Some studies have confirmed women's predisposition to sleep problems in various populations, including college students, young adults, and adults[47,48]. In contrast study have found a significantly higher risk of poor sleep quality in men compared to female students[49]. Kurugodiyavar et al., (2018)[17] concluded that smartphone addiction in medical students significantly affects sleep quality and that men, especially, are at higher risk of having poor sleep quality due to excessive smartphone use.

Contrary to literature in this study, although the smartphone addiction average of female students was higher than that of males, the sleep quality score of female students was lower. The results of our study reveal that the reason for the decrease in sleep quality in university students was smartphone addiction, similar to previous studies in the literature[19,27,50]. Excessive phone use can cause anxiety and depression[51,52], and it has also been reported that using the phone late at night can reduce sleep quality[52].

CONCLUSION

Our study found that smartphone addiction is one of the risk factors of poor sleep quality. It is well understood that excessive smartphone use causes a vicious cycle of poor sleep quality and poor mental health. We also think that excessive smartphone use can lead to depression and/or anxiety, which can lead to sleep problems. Preventive strategies that focus on limiting excessive smartphone use should be offered to students so that smartphones can be prevented from interfering with sleep quality and thus negatively affecting mental health.

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