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The Relationship Between Smartphone Use and Postural Disorders: An Investigation on University Students

Akıllı Telefon Kullanımı ve Postür Bozukluğu Arasındaki İlişki: Üniversite Öğrencileri Üzerine Bir İnceleme

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ABSTRACT

The purpose of the present study is to investigate the correlation between students' degrees of smartphone addiction and postural disorders at a sports sciences faculty. The research employs a "relational survey model," selected from survey models, as the study design. The sample group comprises 275 voluntary students enrolled in Bartın University's Faculty of Sports Sciences during the fall semester of the 2024–2025 academic year. A personal information form created by the researchers and the Smartphone Addiction Scale-Short Form (SAS-SF) were among the instruments used to collect data. To assess postural disorders, the study utilized the Posture Screen application, available on iOS and Android platforms, which has demonstrated reliability and validity for this purpose. With the assumption that the data follow a normal distribution, the SPSS 26.0 software package was used to conduct frequency, percentage, t-test, and Pearson correlation analyses. The results of the t-test showed that there was no significant difference between the gender variable and the Smartphone Addiction Scale-Short Form (SAS-SF). The t-test results, however, showed a significant difference between the gender variable and posture measurements in the head-shoulder-chest variables. There was no discernible correlation found between smartphone addiction and assessments of posture. Based on these findings, it is suggested that university students exhibit an average level of smartphone addiction, which may negatively impact postural disorders. In this context, it is recommended university students limit smartphone use and avoid sedentary lifestyles by engaging in physical activities.

Keywords: Smartphone use, postural disorder, university students

ÖZ

Araştırmanın amacı, spor bilimleri fakültesi öğrencilerinin akıllı telefon bağımlılık düzeyleri ile postür bozuklukları arasındaki ilişkiyi incelemektir. Araştırma modeli olarak tarama modelleri arasından "ilişkisel tarama modeli" kullanılmıştır. Araştırma grubunu, 2024-2025 güz yarıyılında Bartın Üniversitesi Spor Bilimleri Fakültesinde öğrenim gören 275 gönüllü öğrenci oluşturmaktadır. Veri toplama aracı olarak, araştırmacılar tarafından hazırlanan kişisel bilgi formu, Akıllı Telefon Bağımlılığı Ölçeği-Kısa Formu (ATBÖ-KF) kullanılmıştır. Postür bozukluklarının belirlenmesi için güvenirlik ve geçerliği bulunan IOS ve Android tabanlı Posture Screen uygulaması kullanılmıştır. Verilerin analizinde normal dağılım oluşturması ön görülmesiyle SPSS 26.0 paket programıyla frekans, yüzde istatistiksel analiz olarak t-testi ve Pearson korelasyon testleri kullanılmıştır. Araştırmanın bulgularında, cinsiyet değişkeni ve ATBÖ arasında t-testi sonuçlarına göre anlamlı farklılık tespit edilmemiştir. Cinsiyet değişkeni ve postür ölçümleri arasında baş-omuz-göğüs değişkenleri arasında t-testi sonuçlarına göre anlamlı farklılık tespit edilmiştir. Akıllı telefon bağımlılığı ile postür ölçümleri arasında anlamlı ilişki tespit edilmemiştir. Bu bilgiler doğrultusunda üniversite öğrencilerinin akıllı telefon bağımlılığının ortalama düzeyde olduğu ve bu durumun postürel bozuklukları olumsuz etkileyebileceği düşünülmektedir. Bu bağlamda üniversite öğrencilerinin, akıllı telefon kullanımın sınırlandırılması ve hareketsiz yaşam biçimden uzaklaşarak fiziksel aktivite içerikli etkinliklere katılım sağlaması gerektiği söylenebilir.

Anahtar Kelimeler: Akıllı telefon kullanımı, postür bozukluğu, üniversite öğrencileri

Note: This study was presented as an oral presentation at the 8th International Academic Sports Research Congress.

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Introduction

In recent years, the increasing use and addiction to smartphones has emerged as one of the most critical global health issues of our time. Although smartphone usage rates are high across nearly all age groups, studies indicate that this level is even higher among university students compared to other populations (Lepp et al., 2015; Samaha & Hawi, 2016). By 2029, the number of smartphone users, predominantly young individuals, is expected to reach 6.4 billion (O'Dea, 2022; Al-Dhafer et al., 2023; Statista, 2024). According to Olson's (2022) meta-analysis, smartphone addiction is prevalent in China, Saudi Arabia, Malaysia, Brazil, South Korea, the Islamic Republic of Iran Canada, and Turkey. According to data from the Turkish Statistical Institute (TÜİK, 2021), smartphones in Turkey are checked approximately every half hour, with an average of 3 hours spent daily on social media. Another study reported that, between 2018 and 2020, daily smartphone use averaged 3 hours and 35 minutes in the U.S. and France. In Switzerland, it was found that over 50% of young adults use smartphones for at least 2 hours a day, checking their phones more than 20 times daily (Jacquier-Bret & Gorce, 2023).

University students frequently use smartphones for communication, socializing, daily tasks, and entertainment. These devices, with features like high-resolution cameras, easy access to emails and messages, navigation apps, social media platforms, mobile games, portability, lightweight design, and fast data processing capabilities, simplify daily life but also foster addiction among users (Cha & Seo, 2018; Van Deursen et al., 2015). Smartphones, through the online content and applications they offer, can provide diverse leisure time experiences (Zhang & Wu, 2020; Yaşartürk et al., 2022; Kırkbir & Zengin, 2022). Smartphone use is often engaged in during leisure periods and has been shown to generate positive psychological effects on individuals, such as a sense of satisfaction and happiness (Tunç-Çağlayan, 2020; Ayhan & Özel, 2020; Akay et al., 2022). Today, smartphones have become an indispensable part of individuals' daily lives, and it has been observed that the level of addiction to these devices is increasing, particularly among university students (Kuss & Griffiths, 2015). The literature indicates that frequent smartphone use among university students is significantly associated with an increase in neck and upper extremity pain (Hanphitakphong et al., 2021; Cha et al., 2022; Saeed et al., 2024). Moreover, prolonged smartphone use has been reported to contribute to muscle imbalances and certain structural disorders of the spine (Odole et al., 2020; Khan et al., 2024; Lee & Jeon, 2024). Although smartphones offer convenience in various areas of daily life, they are closely associated with a sedentary lifestyle, weight gain, stress, sleep problems, and depression. Furthermore, in cases of addiction, prolonged immobility in a fixed position can lead to muscle fatigue and various musculoskeletal disorders (Lee & Park, 2011; Selvaganapathy et al., 2017; Mustafaoğlu et al., 2021).

During prolonged use of smartphones, users often hold the mobile device below eye level with their head tilted forward, leading to incorrect sitting postures, head, neck and back pain, as well as abnormal alignment and posture disorders (Park et al., 2015; Jung et al., 2016; Alsalam et al., 2019; Lin et. al., 2020) Postural disorders may cause tension, pain and various health problems in the musculoskeletal system as a result of the disruption of the normal anatomical alignment of the body, usually associated with excessive sitting, incorrect sitting positions, incorrect ergonomics, lack of physical activity or long-term use of technological devices. Longterm usage of smartphones, effects the formation of posture disorders such as kyphosis, lordosis, and scoliosis (Wang et al., 2020). Poor posture, especially due to the use of smart mobile devices, can cause the neck to bend forward and spinal diseases such as kyphosis to develop. Therefore, studies have proven that users who integrate smartphone use intensively into their lives often exhibit forward head posture syndrome, causing musculoskeletal discomfort and pain as a result of the head-neck position being bent forward (Park et al., 2015; Daniel et al., 2022; Bomen & Kulkarni, 2022).

By identifying the risk factors for smartphone addiction, this study seeks to add to the body of knowledge about the impact of smartphone use on university students' physical health while also examining the relationship between smartphone use and posture disorders.

Methods

Research Model

The "relational screening model" will be utilized as the research model. This type of model seeks to ascertain whether two or more variables exist and how much they have changed it (Karasar, 2020; Büyüköztürk et al., 2020).

Research Group

The study research group consists of 275 volunteer students (144 female and 131 male, average age 20.9) studying at Bartın University Faculty of Sports Sciences in the 2024-2025 fall semester. Ethics committee approval for this study was obtained from Bartın University (Date: October 9, 2024, Decision No: 1, 12th meeting, Protocol No: 2024-SBB-0781).

Data Collection Tools

The study employed measurements of height, weight, and the index of body mass in addition to a personal information form and a smartphone addiction scale.

Smartphone Addiction Scale-Short Form (SAS-SF)

The Smartphone Addiction Scale-Short Form (SAS-SF) is a 10-item scale developed by Kwon et al. (2013) to assess the risk of smartphone addiction among adolescents. The Turkish adaptation was conducted by Noyan et al. (2015). The scale is rated on a six-point Likert scale, with items scored from 1 to 6, yielding a total score ranging from 10 to 60. Higher scores indicate a higher risk of addiction. In the Korean sample, cutoff scores were specified as 31 males and 33 females. The original version's internal consistency and concurrent validity are supported by a Cronbach's alpha coefficient of 0.91 (Kwon et al., 2013)

Height, Weight, and Body Mass Index (BMI) Measurement

University students' heights were measured using a SECA stadiometer, while their weights were recorded in kilograms using a Premier digital scale. Values of BMI were calculated using the Pollack Formula and recorded in kg/m² (WHO, 2008).

PostureScreen Mobile (Posture Analysis Software)

The “PostureScreen Mobile” software was used to analyze the postures of university students. Photos of participants taken from the front, back, right, and left were recorded on a compatible tablet, and the software analyzed their proximity to ideal posture in centimeters. In this program, an ideal posture is defined as a value of 0, with values deviating from zero indicating poor posture and a zero value representing good posture (Studnicska, 2018; Tokgöz & Aydın, 2022).

Data Analysis

Software called 26.0 (IBM SPSS Corp., Armonk, NY, USA) was used to analyze the data collected for this investigation. To ensure reliable and valid analysis, preliminary data cleaning procedures were conducted, including the examination of missing data, correction of erroneous entries, and identification of outliers (Can, 2020). To assess the assumption of normality, skewness and kurtosis values were examined, with a threshold of ±1 considered acceptable for normal distribution (Büyüköztürk, 2020; Field, 2009). Upon confirming the normality assumption, parametric tests were employed. To test the study’s hypotheses, various analyses were conducted. First, linear correlations between variables were ascertained using Pearson correlation analysis. Connection’s direction and intencity, no matter if it is positive or negative, between two continuous variables are determined as a result of this analysis (Field, 2009). Differences between independent variables were examined using an independent samples t-test additionally. In order to find disparities between the male and female participants in this research study, the t-test—a technique for determining if the mean differences between two groups are statistically significant was utilized. Field (2009) The findings' reliability was assessed using a significance level of $p<.05$. In addition, to evaluate the internal consistency of the scale utilized in the study, the Cronbach's Alpha reliability coefficient was computed.

Results

Accordingly, the normality test of the SAS-SF used in this study was carried out, and the following values were obtained for skewness and kurtosis .267 and .653, respectively. These are within the acceptable range since they fall between ±1. This then means that the skewness and kurtosis distributions of this scale are normal (Field, 2009; Büyüköztürk, 2020). Also, the Cronbach's Alpha of the scale was found to be .901, which signifies very good internal consistency.

Table 1.
Descriptive statistics of students' age, height, weight, and BMI measurements

Variables	Gender	X̄	S	Min.	Max.	Median	Mode
Age	Female	20.66	1.425	18	24	21	21
	Male	21.16	2.018	18	35	21	20
Height	Female	164.75	6.212	150	184	165	160
	Male	177.31	8.031	155	194	177	170
Weight	Female	59.58	10.331	42	100	58	60
	Male	76.77	12.835	45	130	75	70
BMI	Female	21.946	3.625	16.0	37.6	21	20.0
	Male	24.344	3.156	16.6	36.0	24	21.5

BMI= Body Mass Index

The mean values and standard deviations for the study participants' age, height, weight, and Body Mass Index (BMI) are shown in Table 1.

Table 2.
Mean and standard deviation values for postural variables

Variables	X̄	S	Variables	X̄	S
Head	—	—	Lateral Angulations Right	1.312	1.74
Anterior Translations	0.289	1.271	Posterior Translations	0.283	0.253
Anterior Angulations	1.78	2.088	Posterior Angulations	0.327	0.876
Lateral Translations Right	1.495	0.969	Lateral Translations Left	2.725	1.514
Lateral Angulations Right	10.55	6.057	Lateral Angulations Left	6.204	3.384
Posterior Translations	0.465	0.348	**Chest**	—	—
Posterior Angulations	0.472	1.178	Anterior Translations	0.41	0.312
Lateral Translations Left	1.035	0.782	Posterior Translations	0.354	0.303

The study participants' head, shoulder, and chest postural measurements' mean values and standard deviations are shown in Table 2. There are indications of postural misalignment among the participants, as the table shows variations in the mean values from the optimal postural angle of 0 degrees.

Table 3.
Results of the t-test conducted between the smartphone addiction scale-short form (SAS-SF) and gender

Variables	Groups	N	X̄	S	sd	t	*p*
SAS-SF	Female	144	32.556	1.119	273	-.541	.589
	Male	131	33.313	1.201			

SAS-SF= Smartphone Addiction Scale-Short Form

To ascertain whether the SAS-SF scores of male and female students differed significantly, the independent samples t-test was used. Table 3 indicates that there is no significant gender difference in the SAS-SF scores (t(273) = -.541, p>.05).

Table 4.
T-test results between posture measurements and gender

Variables	Groups	n	X̄	S	sd	t	p
Head							
1= Anterior Translations	Female Male	144 131	.196 .39	.192 1.829	273	-1.268	.206
2= Anterior Angulations	Female Male	144 131	1.932 1.614	2.106 2.063	273	1.261	.208
3= Lateral Translations Right	Female Male	144 131	1.098 1.932	.696 1.038	224.093	-7.742	.000**
4= Lateral Angulations Right	Female Male	144 131	8.319 13.003	5.407 5.795	273	-6.933	.000**
5= Posterior Translations	Female Male	144 131	.386 .551	.318 .36	273	-4.021	.000**
6= Posterior Angulations	Female Male	144 131	.362 .592	1.015 1.327	242.693	-1.604	.110
7= Lateral Translations Left	Female Male	144 131	.772 1.325	.542 .896	209.736	-6.126	.000**
8= Lateral Angulations Left	Female Male	144 131	6.085 8.532	4.711 5.512	273	-3.968	.000**
Shoulder							
9= Anterior Translations	Female Male	144 131	.252 .366	.215 .299	234.527	-3.582	.000**
10= Anterior Angulations	Female Male	144 131	.608 .44	1.251 1.088	272.450	1.189	.235
11= Lateral Translations Right	Female Male	144 131	.635 .787	.489 .511	273	-2.520	.012*
12= Lateral Angulations Right	Female Male	144 131	1.45 1.16	1.79 1.676	273	1.387	.167
13= Posterior Translations	Female Male	144 131	.263 .305	.231 .275	273	-1.357	.176
14= Posterior Angulations	Female Male	144 131	.322 .331	.883 .872	273	-.084	.933
15= Lateral Translations Left	Female Male	144 131	2.133 3.375	1.147 1.604	233.246	-7.323	.000**
16= Lateral Angulations Left	Female Male	144 131	5.374 7.117	3.057 3.5	259.446	-4.379	.000**
Chest							
17= Anterior Translations	Female Male	144 131	.339 .488	.271 .336	249.894	-4.042	.000**
18= Posterior Translations	Female Male	144 131	.29 .426	.238 .35	225.926	-3.739	.000**

***p<.001; *p<.05*

Table 4 examines whether there are significant differences in head, shoulder, and chestposture measurements based on gender using an independent samples t-test. In the analyses conducted on the head region regarding genders, significant differences were observed in some measurements. In the Lateral Translations Right measurement, it was found that males (X̄=1.932) had higher average scores than females (X̄=1.098), and this difference was statistically significant (t(224.093)=-7.742, *p*<.001). Similarly, in the Lateral Angulations Right measurement, males' averages (X̄=13.003) were significantly higher than females' averages (X̄=8.319) (t(273)=-6.933, *p*<.001). In the Posterior Translations measurement, males' average scores (X̄=.551) also showed a significant difference compared to females (X̄=.386) (t(273)=-4.021, *p*<.001). Significant differences in favor of females were observed in the Lateral Translations Left and Lateral Angulations Left measurements, where males' averages (X̄=1.325 and X̄=8.532) were higher than females' averages (X̄=.772 and X̄=6.085) (t(209.736)=-6.126, *p*<.001; t(273)=-3.968, *p*<.001).

In the analysis of the shoulder region, significant differences were found in some measurements between male and female students. In the Anterior Translationsmeasurement, it was found that males had higher average scores ($\bar{X}$=.366) compared to females ($\bar{X}$=.252), and this difference was statistically significant (t(234.527)=-3.582, *p*<.001). Additionally, in the Lateral Translations Right measurement, males' averages ($\bar{X}$=.787) were significantly higher than females' averages ($\bar{X}$=.635) (t(273)=-2.520, *p*<.05). Significant differences in favor of females were also found in the Lateral Translations Left and Lateral Angulations Left measurements, where males' average scores ($\bar{X}$=3.375 and $\bar{X}$=7.117) were significantly higher than females' averages ($\bar{X}$=2.133 and $\bar{X}$=5.374) (t(233.246)=-7.323, *p*<.001; t(259.446)=-4.379, *p*<.001).

In the analysis of the chest region, the Anterior Translations measurement showed that males had higher average scores ($\bar{X}$=.488) than females ($\bar{X}$=.339), and this difference was statistically significant (t(249.894)=-4.042, *p*<.001). Similarly, in the Posterior Translations measurement, it was found that males had significantly higher average scores ($\bar{X}$=.426) than females ($\bar{X}$=.29) (t(225.926)=-3.739, *p*<.001).

Table 5.

Correlation values between posture measurements and Smartphone Addiction Scale-Short Form

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Head																			
1= Anterior Translations	1																		
2= Anterior Angulations	-.039	1																	
3= Lateral Translations Right	.022	-.085	1																
4= Lateral Angulations Right	.015	-.138*	.906**	1															
5= Posterior Translations	.150*	.115	.103	-.024	1														
6= Posterior Angulations	-.005	.190**	-.060	-.107	.124*	1													
7= Lateral Translations Left	.049	-.107	.494**	.465**	.031	-.186**	1												
8= Lateral Angulations Left	.017	-.101	.369**	.428**	-.041	-.184**	.918**	1											
Shoulder																			
9= Anterior Translations	.094	-.015	.126*	.082	.102	.152*	.138*	.070	1										
10= Anterior Angulations	.002	.059	-.027	-.077	.142*	.136*	-.055	-.078	-.105	1									
11= Lateral Translations Right	-.002	-.023	.020	-.024	-.021	.055	.003	-.050	.009	.070	1								
12= Lateral Angulations Right	-.059	-.039	-.152*	-.156**	-.070	.013	-.082	-.084	.006	.037	.867**	1							
13= Posterior Translations	.133*	.096	.050	-.005	.129*	.105	-.043	-.114	.053	.096	.045	-.014	1						
14= Posterior Angulations	-.021	.004	-.020	-.030	.131*	.101	-.032	-.011	-.160**	.179**	-.073	-.076	.210**	1					
15= Lateral Translations Left	-.086	-.115	.148*	.066	.194**	.084	.018	-.092	.122*	-.033	.147*	.012	-.001	-.034	1				
16= Lateral Angulations Left	-.106	-.142*	-.011	-.025	.083	.065	-.057	-.111	.046	-.060	.085	.039	-.056	-.038	.898**	1			
Chest																			
17= Anterior Translations	-.026	-.017	.132*	.127*	.183**	.078	.060	.032	.147*	-.018	-.034	-.106	-.005	.045	.146*	.086	1		
18= Posterior Translations	-.045	.047	.111	.095	.023	.067	.041	.006	.095	-.057	.065	.008	.282**	.060	.198**	.151*	.063	1	
19= Smartphone Addiction Scale	-.032	-.062	-.014	-.010	.022	.063	.067	.057	.017	.016	-.094	-.066	.094	.102	-.010	.045	-.071	.107	1

**$p<.001$; *$p<.05$

The findings of the correlation between the Smartphone Addiction Scale (SAS-SF) and the measurements of students' head, shoulders, and chest posture are shown in Table 5. Upon examining the results, no significant relationship was found between SAS-SF and the posture measurements.

Additionally, it was observed that there are low, medium, and high levels of positive and negative relationships between the head, shoulder, and chest posture measurements at the p<.05 and p<.01 levels (Field, 2009).

Discussion

There was no discernible variation in the participants' overall mean scores on the smartphone addiction scale based on their gender. Güngör & Koçak's (2020) study on university students' smartphone addiction and academic procrastination behavior did not find any significant differences based on gender. Similarly, Kuyucu (2017) did not find any gender-related differences in his research on smartphone addiction and use among youth. In his study on the life satisfaction and smartphone addiction of adolescents, Bostan & Kalyon (2024) did not find any significant gender differences. Gezgin et al. (2017) also stated in their study that gender does not affect on smartphone addiction which has reached the conclusion that smartphone addiction can be seen at similar levels between genders and that the integration of technology into social life will cause similar addiction tendencies in both genders. Demirci et al. (2015) and Chen et al. (2020) stated that especially the intensive use of digital platforms by both genders can lead to addiction tendencies at similar levels regardless of gender. Kwon et al. (2013) and Cocoradă et al. (2018) reveal that, rather than gender, smartphone addiction can be associated more with other variables such as usage habits, personality traits and social environment. Similar to our research, no significant difference was identified based on the gender variable in the studies that were reviewed in the literature. (Bianchi & Phillips, 2005; Noyan et al., 2015; Liu et al., 2016; Minaz & Çetinkaya Bozkurt, 2017; Alkın, 2018; Çuhadar et al., 2020). In contrast, Göymen & Ayaş (2019) and Çakır & Oğuz (2017) found a significant difference according to gender, stating that the above case varied according to the purposes of women's smartphone use and was higher in their favor. In this respect, studies in the literature show that gender may not be a determining factor in smartphone addiction. In particular, the fast-increasing accessibility and widespread use of digital technologies would support such addictive tendencies being similarly observed across all groups, regardless of any demographic factors. Particularly, the fast-increasing accessibility and wide use of digital technologies support that such addiction tendencies may be similarly observed in all groups, irrespective of any demographic variables.

Based on the results of the t-test, gender and the head-shoulder-chest (posture) variables were shown to differ significantly. University students' neck flexion angles when standing, sitting without arm support, and sitting with arm support did not differ significantly, according to a 2019 study by Alfaitouri et al. that looked at the impact of smartphone use on neck flexion angle. However, it was found that men had higher neck flexion angles than women. Similarly, in a study by Adesola et al. (2020), which examined smartphone use and posture disorders among 200 male and 200 female students, no significant differences were found statistically between smartphone use and posture disorders. In a study by Chen (2024) examining the impact of smartphone use on different postural positions by gender, it was found that women place more strain on their neck and shoulder muscles throughout the day compared to men, contributing to increased discomfort in these areas. In another study, young female users were found to have greater cervical lordosis depth and lumbar lordosis depth averages during smartphone use compared to men (Barczyk-Pawelec, 2024). Additionally, in a different study involving 15 women and 15 men, the physical effects of smartphone use in three different postures (standing, supported sitting, unsupported sitting) were examined, and it was found that women exhibited greater cervical erector spinae muscle activity compared to men while using smartphones in a standing position (Chen & Chan, 2024). This is believed to lead to more pain and musculoskeletal issues in the lumbar and cervical regions. In a study by Kim et al. (2013) involving 18 healthy smartphone users, it was found that exposure to smartphones for 300 seconds or more could lead to changes in cervical and lumbar spine posture and proprioception in women, with negative effects. In Cochrane's (2019) research, the short-term effects of smartphone use on university students were examined, and it was highlighted that smartphone use had significant negative effects on shoulder protraction, thoracic kyphosis, lateral neck flexion, and pelvic obliquity, particularly among female students. In a similar vein, Lee et al. (2016) observed that using a smartphone when standing and for brief periods of time reduced the neck flexion angle when compared to sitting posture. They also hypothesized that future physical issues could result from higher smartphone use. In contrast, Betsch et al. (2021) discovered that thoracic kyphosis, body tilt, and lumbar lordosis increased when standing and walking while using smartphones. They also noted that texting with one or two hands caused an increase in spinal rotation. Based on the time spent using smartphones, university students exhibited significantly more head-down posture (more than 30 degrees) when using their smartphones compared to when they were not using them. In keeping with research that indicates gender does not play a role in the development of postural disorders, it can be said that factors like raising people's ergonomic awareness, encouraging good posture, and promoting physical activity in daily life are important in preventing and treating these disorders.

Upon reviewing the literature, our findings align with several studies suggesting that smartphone use can have adverse effects on posture, while also conflicting with some findings in the literature (Lee, 2016; Han et al., 2019). Similar to our work, another study compared dependent and non-dependent smartphone user groups in terms of joint position perception, neck range of motion (ROM), head posture, and muscle endurance. According to the study's findings, no significant differences were found between the groups in terms of flexor muscle endurance, joint position error, shoulder angle, and sagittal head angle (Torkamani et al., 2023). In addition, it is emphasized that the relationship between smartphone addiction and posture disorders is not clear and that posture disorders should be examined in a broader context (Arooj et al., 2022). Although there is no direct relationship between smartphone use and posture disorder, as stated by Kuo et al. in 2019, a relationship does exist with musculoskeletal pain. Kim & Kim, 2015 stated that either no correlation existed at all or was an extremely low one in relation to smartphone addiction and its influence upon posture disorders. However, other research has also shown that the severity of musculoskeletal complaints is correlated with the length of time spent using a smartphone (Jung et al., 2016). According to Xie et al. (2021) research, postural disorders and neck and shoulder pain both rise with the amount of time spent using smartphones. In another study that investigated the smartphone addiction and posture disorders in the cervical area of adolescents, head anteriorization was increased during the use of smartphones in the lateral view and a relationship was observed between the smartphone addiction and head anteriorization (Fontenele et al., 2024). As a similar perspective, Alabdulwahab et al. (2017) emphasized that longterm usage of smartphones can lead to posture disorders, especially in the neck area.

Conclusion and Recommendation

Regarding this, it might be said that smartphone addiction does not directly affect posture; or the disorders of posture may be influenced by many different factors rather than smartphone addiction. It is also not concluded that smartphone addiction alone can be directly associated with disorders of posture or that it contributes to posture disorders. Objections can be raised that besides addiction to smartphones, the level of physical activity, conditions of ergonomics, and genetic predisposition may also play an important role in disorders of posture. More specifically, it can be elaborated that to protect and cure the postural problems of people, they have to consider a number of elements like the pattern of doing ergonomic practices, the pattern of doing physical activity, or using technology.

Etik Komite Onayı: Bu çalışma için etik komite onayı Bartın Üniversitesi'nden (Tarih: 09 Ekim 2024, Karar No: 1, 12 numaralı toplantı, Protokol No: 2024-SBB-0781) alınmıştır.
Hasta Onamı: Çalışmaya katılan tüm katılımcılardan sözlü onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir; F.Y., R.A., A.G.; Tasarım; F.Y., R.A., A.G.; Denetleme-; F.Y., A.G.; Kaynaklar; F.Y., R.A.; Veri Toplanması ve/veya İşlemesi; R.A., A.G.; Analiz ve/ veya Yorum; F.Y., R.A., A.G.; Literatür Taraması; F.Y., A.G.; Yazıyı Yazan; F.Y., R.A., A.G.; Eleştirel İnceleme; F.Y., R.A., A.G
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Informed Consent: Verbal consent was obtained from all the participants.
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