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The Evaluation of the Relation Between Smartphone Addiction and Eating Attitudes among Medical Students

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Abstract

Objective: This study aims to evaluate the relationship between smartphone addiction and the demographical characteristics, eating attitudes, and body mass index of medical students.

Methods: The data was obtained through personal questionnaires, the scales regarding eating attitudes and smartphone addiction. The questionnaire and the scales were carried out online among current medical students of Zonguldak Bülent Ecevit University.

Results: Of the participants (n=347), 59.9% were female,40.1% were male. Participants were found to use the internet mostly through their smartphones and they were also found to use their smartphones mostly for messaging and monitoring social media. The scores for the Smartphone Addiction Scale were found to be significantly higher in students who were using their smartphones for social media than those who were not. A weak, positive, and significant relationship was found between the scores of the Smartphone Addiction Scale and Eating Attitudes Test of the students (r=0.135,p=0.12). As a result of the correlation analysis, a very weak, positive and significant relationship was found between Body Mass Index and the age of owning the first smartphone (r=0.113, p=0.036).

Conclusion: We reported a relation between the intentions of using a smartphone and smartphone addiction and another relation between one's age of owning the first smartphone and these individuals' body mass indexes. A difference was observed between those who have abnormal eating attitudes and who have not regarding smartphone addiction scale scores.

Key Words: Smartphone addiction, eating disorder, eating attitude, body mass index, social media, medical students

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INTRODUCTION

Smartphones provide many benefits that make life easier such as easy access to information, social connection, work applications, mobility, ease of carrying, etc. and they have become indispensable in everyday life (1). According to 2021 data from the "Use of Information Technologies in Households" research conducted by the Turkish Statistical Institute, the rate of smartphone use in Turkey has increased gradually over the years, and this rate is 96.7% among the 16-24 age group (2). In addition to the known advantages of smartphones, they can cause some potential harm if used unconsciously or excessively (1). “Smartphone addiction” is when a person does not want to leave their phone and deals with the phone in a way to neglect their responsibilities during daily life and experiences deprivation when they are away from their phone (3).

Having a smartphone is considered an advantage among university students, however, smartphone use was found to be associated with increased insomnia, emotional instability, anxiety, and depression (4). Besides, increasing usage rates among young people aged 16-24 make this age group risky in terms of addiction (5). The studies showed that smartphone addiction has negative effects on energy levels, body weight, eating and exercise habits, and academic performance (6).

Although there are studies in the literature showing the relationship between internet addiction and eating disorders (7-9), the number of studies discussing the relationship between smartphone addiction and eating disorders is limited. Therefore, this study was planned and conducted to reveal the relationship between smartphone addiction and medical students' eating habits and their body mass index.

METHODS

Data collection tools

The study sample consists of 370 participants who filled out the questionnaire including a personal information questionnaire, smartphone addiction scale, and eating attitude test prepared by the researchers, and the participants returned the questionnaires within 2 weeks. Consent was obtained from the participants electronically before the survey. The data of the students, who had missing information in their questionnaires, were not taken into consideration.

Personal Information Questionnaire:

Students were asked to fill out a questionnaire including questions about their age, gender, grade, place of residence during their education period, education level of their parents, height, weight, income level, alcohol and cigarette use, chronic disease status, sleeping hours, features regarding their eating and exercise habits, and their smartphone use habits.

Eating Attitude Test-40 (EAT): EAT is a 40-item self-report scale in which anorexic/bulimic

attitudes and beliefs are graded. A score of 30 and above is the cutting score commonly used to define individuals with anorexia or bulimia (predisposition to an eating disorder) (10). The reliability and validity analysis of EAT for Turkish society were made by Savasir and Erol (1989). The internal consistency coefficient (Cronbach's alpha) and test-retest reliability of the EAT for the Turkish sample were found to be 0.70 and 0.65, respectively (11). EAT showed good internal consistency reliability in our study sample (Cronbach's coefficient α = 0.85).

Smart Phone Addiction Scale (SPAS): It was developed by Known based on Young's articles on internet addiction (12). The scale, whose validity and reliability for university students in Turkey were done by Demirci et al. (2014), is valid and reliable in determining the risk of smartphone addiction. The internal consistency coefficient value (Cronbach's alpha) for the Turkish version of the scale is 0.947. The scale is a self-report scale consisting of 33 items in a 6-point Likert Type Scale. The options in this scale are listed from 1 (absolutely not) to 6 (absolutely yes). No cutting score was specified on the original scale. The higher the score obtained from the scale gets, the higher the risk for addiction becomes. In our study, the Cronbach Alpha coefficient of the scale was calculated as 0.924.

Statistical Analyses: The sample was calculated using the Open Epi program and it was aimed to reach 285 people with an unknown prevalence of 50% and a deviation margin of 5%. The data were evaluated with SPSS 23.0 package program. The compatibility of the numeric variables for the normal distribution was examined by the Kolmogorov-Smirnov test and visual parameters. Descriptive statistics were shown as mean ± standard deviation for those who suit the normal distribution, as median (minimum-maximum) for non-normally distributed data, and as number and percentage for categorical variables. The differences between the categorical variables were examined by the Chi-square test. For the comparison of numerical variables between the groups Mann-Whitney U and Kruskal-Wallis tests were used for non-normally distributed data. Spearman's correlation analysis was used to assessment of the relationship between numerical variables that did not fit the normal distribution. In the study, the cases where the p-value is below 0.05 were evaluated as statistically significant results.

The results were reported by considering the STROBE criteria compliance (14).

RESULTS

Three hundred seventy students (N=1100), who formed the target population of the study, were from Zonguldak Bülent Ecevit University Faculty of Medicine and answered the questionnaire, and 23 participants did not fill the questionnaire completely (n=347). Of the

347 students, 59.9% (n=208) were female and 40.1% (n=139) were male. The mean age of the research group was 21.10±2.01 and the mean body mass index was 22.44±4.20. According to the BMI classification, 64.8% (n=225) of the participants were in the class of normal weight, 13% (n=45) were underweight, and 4% (n=14) were obese. Of the participants, 68.3% (n=237) were in the preclinical term while 31.7% (n=110) were in the clinical term. The data on the sociodemographic characteristics of the students and their families participating in the study are shown in Table 1.

In our study, 90.5% (n=314) of the students used smartphones as a way of accessing the internet, and their mean age of owning a smartphone for the first time was 13.87±1.93. According to the evaluation of the smartphone usage purposes, the purposes were found to be “messaging”, "social media monitoring” and "listening to music” at the rates of 95.1% (n=330), 91.1% (n=316) and 90.2% (n=313), respectively. According to the characteristics of the eating and exercise behaviors of the students, nearly half of them could "sometimes" follow the healthy eating recommendations, and 73.8% (n=156) did not exercise at all or exercised less than 60 minutes a week. The eating attitude test mean score of the participants was determined as 15.21±9.13 and according to the scale score (cutting score is 30 points), 8.9% (n=31) had "abnormal eating attitudes". The data regarding the participants' smartphone use, exercise, and eating habit characteristics and their related scale scores are given in Table 2.

There was a statistically significant difference regarding the relationship between BMI mean values and genders, and the mean BMI of men was higher than that of women ($p<0.001$). In addition, the mean BMI of the participants, who reported that they skipped meals, was found to be statistically significantly higher than that of others ($p=0.045$). Also, the mean BMI of the participants who reported that they did not “follow healthy eating recommendations at all” was found to be statistically significantly higher than that of others ($p=0.002$). In our study, no statistically significant relationship was found between the time that the students spend on weekly exercise and their mean BMI ($p=0.761$). The data regarding the relationship between the participants' mean BMI and gender, exercise, and eating behaviors are shown in Table 3.

Table 1. Sociodemographic characteristics of the students and their families participating in the study

Age	Mean±SD	21.10±2.01	
	Min-Max	18-32	
Body Mass Index	Mean±SD	22.44±4.20	
	Min-Max	16.21-60.84	
		n (number)	**% (Percent)**
Gender			
	female	208	59.9
	male	139	40.1
	total	347	100
Grade			
	Term 1	50	14.4
Preklinic term	Term 2	91	26.2
	Term 3	96	27.7
	Term 4	53	15.3
Clinical term	Term 5	29	8.4
	Term 6	28	8.1
Accommodation			
	family home	44	12.7
	student house/apartment	149	42.9
	youth hostel	154	44.4
Education level of the mother			
	illiterate	2	0.6
	literate	5	1.4
	primary school	97	28.0
	secondary school	34	9.8
	high school	104	30.0
	university/collage	92	26.5
	postgraduate/doctoral	13	3.7
Education level of the father			
	illiterate	1	0.3
	literate	1	0.3
	primary school	41	11.8
	secondary school	46	13.3
	high school	89	25.6
	university/collage	148	42.7
	postgraduate/doctoral	21	6.1
Income level			
	low income	41	11.8
	middle income	287	82.7
	high income	19	5.5
Body Mass Index classification			
	underweight	45	13.0
	normal weight	225	64.8
	over-weight	63	18.2
	obese	14	4.0
Chronic disease status			
	yes	65	18.7
	no	282	81.3
Cigarette use			
	none	265	76.4
	≤1/2 package/day	32	9.2
	1/2-1 package/day	38	11.0
	≥1 package/day	12	3.4
Alcohol use			
	none	270	77.8
	1-7 standard drinks/per week	70	20.2
	≥8 standard drinks/per week	7	2.0

Table 2. Participants' smartphone use, exercise, and eating habit characteristics and their related scale scores

Age of owning a smartphone for the first time	Mean±SD	13.87±1.93	
	Min-Max	5-24	
Smartphone addiction scale scores	Mean±SD	88.20±24.83	
	Min-Max	33-186	
Eating attitude test scores	Mean±SD	15.21±9.13	
	Min-Max	1-68	
		n (number)	**% (Percent)**
Way of accessing the internet			
	computer	28	8.1
	smartphone	314	90.5
	tablet	5	1.4
Smartphone usage time			
	less than 1 hour	6	1.7
	1-2 hours	41	11.8
	2-4 hours	131	37.8
	4-6 hours	112	32.3
	6-8 hours	43	12.4
	above 8 hours	14	4.0
Smartphone usage purposes			
	messaging	330	95.1
	talking	304	87.6
	playing games	93	26.8
	social media monitoring	316	91.1
	taking photos	237	68.3
	listening to music	313	90.2
	watching videos/movies	253	72.9
	checking email	154	44.4
	stock market tracking	104	30.0
	following news	194	55.9
	shopping	228	65.7
	research/education	252	72.6
Abnormal eating attitudes			
	yes	31	8.9
	no	316	91.1
Healthy eating recommendations			
	not follow at all	29	8.4
	rarely	80	23.1
	sometimes	165	47.6
	often	67	19.3
	always	6	1.7
Weekly exercise (min.)			
	None	120	34.6
	less than 60 min.	136	39.2
	between 61-120 min.	58	16.7
	between 121-240 min.	19	5.5
	Above 240 min.	14	4.0

Table 3. The data regarding the relationship between the participants' mean BMI and gender, exercise, and eating behaviors

		Body Mass Index		p
		Meant±SD	Median (Min-Max)	
Gender				
	Female	20.99±3.00	20.31 (16.21-32.27)	**<0.001***
	Male	24.62±4.77	24.15 (17.31-60.84)	
Skipped meals				
	Yes	23.02±4.77	22.26 (16.41-60.84)	
	No	21.36±3.14	21.21 (16.21-27.77)	**0.045****
	Sometimes	21.92±3.37	21.33 (16.53-29.75)	
Healthy eating recommendations				
	not follow at all	25.34±7.71	23.66 (18.19-60.84)	
	rarely	22.73±3.55	21.96 (16.65-34.32)	
	sometimes	22.30±3.77	21.60 (16.21-38.16)	**0.002****
	often	21.18±3.29	20.41 (16.41-34.26)	
	always	22.53±2.75	23.63 (18.73-25.51)	
Weekly exercise (min.)				
	none	22.30±4.97	21.15 (16.65-60.84)	
	less than 60 min.	22.51±3.88	21.61 (16.94-34.26)	
	between 61-120 min.	22.61±3.74	22.56 (16.41-31.22)	0.761**
	between 121-240 min.	22.15±3.60	23.45 (16.21-27.45)	
	above 240 min.	22.69±2.55	22.95 (18.44-28.41)	

**Mann-Whitney U test, **Kruskal Wallis test*

The participants who use smartphones for "social media monitoring" have statistically significantly higher mean scores on SPAS than those who do not use it for this purpose (p=0.011) according to the relationship between smartphone using purposes and the smartphone addiction scale. For the other purposes (messaging, talking, playing games, taking photos, listening to music, watching videos/movies, checking email, stock market tracking, following the news, shopping, research/education), no statistically significant correlation was found between the use of smartphones and the mean scores of SPAS (p values are 0.426, 0.735, 0.506, 0.367, 0.367, 0.484, 0.713, 0.599, 0.688, 0.177, 0.122, respectively). In addition, no statistically significant relationship was found between the mean scores of the smartphone addiction scale and the education level of the parents, and family income level (p values are 0.188, 0.123, and 0.405 respectively). The data on the relationship of the participants' smartphone addiction scale scores with sociodemographics, descriptive characteristics, and smartphone use for the purpose of social media monitoring are shown in Table 4.

In our study, no statistically significant relationship was found between the eating attitude test scores and gender, accommodation, alcohol use, smoking, and using smartphones for social media purposes (p values are 0.484, 0.354, 0.392, 0.119, 0.123, respectively). There was a significant relationship between eating attitude scale scores and chronic disease status (p=0.011). Accordingly, the mean EAT score was higher in those who have chronic diseases than the ones who do not. The data on the relationship between the participants' eating

attitude test scores with sociodemographics, descriptive characteristics, and using the smartphone for social media monitoring are shown in Table 5.

Table 4: The relationship of the participants' smartphone addiction scale scores with sociodemographic, descriptive characteristics, and using the smartphone for social media monitoring

		Smartphone addiction scale scores		p
		Mean±SD	Median (Min-Max)	
Gender				
	Female	88.69±21.97	86.00 (33-170)	0.312*
	Male	87.48±28.66	83.00 (36-186)	
Accomodation				
	family home	88.64±21.01	89.50 (39-134)	0.765**
	student house/apartment	87.79±26.46	84.00 (33-186)	
	youth hostel	88.48±24.35	85.00 (40-170)	
Using smartphones strolling in social media				
	yes	89.06±23.56	86.00 (36-170)	**0.011***
	no	79.45±34.58	70.00 (33-186)	
Alcohol use				
	yes	91.70±25.05	88.00 (36-148)	0.164*
	no	87.21±24.73	84.50 (33-186)	
Cigarette use				
	yes	88.70±26.31	84.00 (36-170)	0.937*
	no	88.05±14.41	85.00 (33-186)	
Chronic disease status				
	yes	91.12±26.34	92.00 (40-155)	0.264*
	no	87.53±24.47	84.00 (33-186)	

**Mann-Whitney U test, **Kruskal Wallis test*

According to the comparison between the age of owning a smartphone for the first time and family income level, students with a low family income level had their smartphones at a statistically significantly later age (p= 0.040). The data on the relationship between the age of the students owning a smartphone for the first time and the body mass index classification and family income level are shown in Table 6.

The mean SPAS score of participants who did not have abnormal eating attitudes was 87.15 (33-186) and the median score of those who had abnormal eating attitudes was 99.00 (58-153). There was a statistically significant difference between the two groups (p=0.038). In addition, a very weak, positive, and significant relationship was found between the SPAS scores of the students and their EAT scores

(r=0.135, p=0.12). As a result of the correlation analysis, there was a very weak, positive, and significant relationship between BMI and the age of the students having a smartphone for the first time (r=0.113, p=0.036). The results of the correlation analysis between the scale scores of the students and the numerical variables are shown in Table 7.

Table 5: The relationship between the participants' eating attitude test scores with sociodemographic, descriptive characteristics, and using the smartphone for the purpose of social media monitoring

		Eating Attitude Test Scores		p
		Mean±SD	Median (Min-Max)	
Gender				
	Female	15.24±9.90	13.00 (1-68)	0.484*
	Male	15.18±7.87	13.00 (2-42)	
Accommodation				
	family home	15.11±11.67	11.50 (2-61)	
	student house/apartment	15.42±8.19	14.00 (2-48)	0.354**
	youth hostel	15.05±9.24	13.00 (1-68)	
Using smartphones while strolling in social media				
	yes	15.13±9.30	13.00 (1-68)	0.123*
	no	16.03±7.22	15.00 (3-36)	
Alcohol use				
	yes	15.39±7.94	14.00 (3-40)	0.392*
	no	15.16±9.46	13.00 (1-68)	
Cigarette use				
	yes	16.29±10.06	15.00 (3-68)	0.119*
	no	14.88±8.82	13.00 (1-61)	
Chronic disease status				
	yes	17.86±10.60	15.00 (2-52)	**0.011***
	no	14.60±8.66	12.00 (1-68)	

*Mann-Whitney U test, **Kruskal Wallis test

Table 6: The relationship between the age of the students owning a smartphone for the first time and the body mass index classification and family income level

	Age of the Students Owning a Smartphone for the first time		p
	Mean±SD	Median (Min-Max)	
Family income level			
low income	14.59±1.77	14.00 (12-19)	**0.040***
middle income	13.79±1.93	14.00 (5-24)	
high income	13.53±2.14	13.00 (10-19)	
Body mass index classification			
underweight	13.40±1.81	14.00 (5-17)	
normal weight	13.80±1.84	14.00 (9-22)	0.154*
over-weight	14.13±2.30	14.00 (10-24)	
obese	13.93±1.54	14.00 (12-18)	

**Kruskal Wallis test*

Table 7: Correlation analysis between the scale scores of the students and the numerical variables

	BMI	SPAS total score	EAT-40	Sleeping hours
	*r**	*r**	*r**	*r**
BMI	-			
SPAS total score	0.014	-		
EAT-40	0.081	**0.135****	-	
Sleeping hours	-0.014	0.029	-0.091	-
Age of owning a smartphone for the first time	**0.113****	-0.079	0.054	0.062

BMI: Body mass index EAT-40: Eating Attitude Test-40 SPAS: Smart Phone Addiction Scale
*Spearman's correlation coefficient
** $p<0.05$ The significant results of the analysis are shown in bold.

DISCUSSION

Smartphones are tools that have many purposes such as gathering information, communication, education, and entertainment, and have become indispensable in daily life (15). In the studies, it was emphasized that the use of smartphones has become a necessity rather than a preference (16).

In a study conducted by Uzgoren et al. in 2013, 75% of 389 students bought their first smartphone between the ages of 13-16 (17). In our study, the mean age of owning the first smartphone in accordance by this data was found as 13.87±1.93.

In the literature, a positive relationship was shown between smartphone use and some health-endangering behaviors such as smoking, substance, and alcohol use (18). Personality-related characteristics such as low self-esteem and loneliness are predictors of all addictive behaviors (19). However, unlike the literature, no statistically significant difference was found in our study between the students who smoked or used alcohol and those who did not in terms of smartphone addiction scale scores. This may be due to the fact that there are few students smoke and use alcohol compared to the total number of participants. Studies using a larger sample group would give more accurate data on this issue.

According to the research by the Turkish Statistical Institute conducted in 2021, messaging and social media use are at the top of smartphone usage purposes, and this finding is similar to our study finding (2). In the thesis study carried out by Unal in 2015, 56.8% of the students use their smartphones to surf on the internet, and 55.5% follow social media (20). Compared to previous studies, the usage purposes of smartphones have changed to internet-based applications such as social media monitoring and messaging according to more recent studies.

In the comparison of the total SPAS scores regarding the purpose of smartphone use, the students who use their phones to access social media platforms scored significantly higher than those who are not. In a study published in 2015, smartphone communication methods such as messaging and social media monitoring

were associated with higher addiction rates (21). Nowadays, most the students use their smartphones to access the internet and social media platforms, and it is important that the use of smartphones for this purpose might be risky in terms of problematic use

This study showed that the rate of medical school students who had abnormal eating attitudes was 8.9%. Although this is lower than some studies with different demographics, it is still an important ratio. In the study carried out by Buyukgoze-Kavas, which included 269 participants consisting of Turkish university students, 12.3% of the participants were at high risk in terms of eating disorders (22). In their study on the eating attitudes and body image of university students attending the Faculty of Vocational Education of a public university, Akdevelioglu and Gumus found that 5.9% of 577 students had abnormal eating habits (23). This lower rate was explained by the fact that the students come from low-income families and live in non-industrialized cities in Turkey. In a study that evaluated 301 students studying at different universities located in Istanbul and Ankara, which are the most industrialized cities in Turkey, 18.3% showed abnormal eating attitudes which indicates that they are at high risk for eating disorders (24).

In our study, the SPAS score median of participants who had abnormal eating attitudes was higher than that of those who did not have abnormal eating attitudes. Tayhan Kartal and Yabanci Ayhan (2021) found a positive relationship between smartphone addiction and the Eating Attitude Test-40 scores of university students (3). Significant neurocognitive similarities between addiction behavior (e.g., smartphone addiction) and eating disorders (e.g., restrained eating and external eating) have been reported in the literature (25).

Pro-anorexia ("pro-ana") and pro-bulimia ("pro-mia") websites are online communities whose members in general do not consider eating disorders to be serious mental disorders that require treatment. These communities define eating disorders as a positive condition, such as lifestyle choice, or as a condition in which a person should freely choose whether to recover or not despite possible life-threatening consequences (26). Considering these situations, ease of access to the internet and smartphone applications may cause adolescents to be exposed to harmful websites and contents although they may provide access to accurate information about eating disorders. In a study, girls between the ages of 13 and 17 demonstrate a higher urge to be slim and perceive their appearance as worse after visiting anorexia-related websites (27). For these reasons, the frequency and purpose of internet and smartphone use, especially among the young population, are critical because they make them prone to eating disorders although not at an addiction level.

In an earlier study, internet addiction was associated with BMI regardless of eating attitude (28). In another study published very recently in our country, SPAS scores had a positive relationship with BMI and EAT scores (3). In our study, no relationship was found between BMI and SPAS scores. Thus, intensive smartphone use may not always be associated with overweight or obesity due to being mobile during smartphone use and that it made it easy to use applications related to health, nutrition, and exercise.

In a study conducted in China with 1199 high school and university students, women with internet addiction were reported to have significantly higher eating attitude test scores than those who did not have an addiction (7). In a study that examines the relationship between smartphone addiction and eating attitudes (1), the researchers did not find a significant relationship between the two variables, and another study (3) demonstrated a significant positive relationship between smartphone addiction scores and the EAT scores. In our research, a very weak relationship was found between smartphone addiction and eating attitude. Being able to access the internet from anywhere with smartphones causes the young population, who cares about their physical appearance, to communicate more easily with their peers, therefore, in the social media environment, it can lead to results such as disordered eating or eating disorders due to the effort to be slim to look “more beautiful”.

The use of digital technology was associated with physical inactivity, obesity, and sleep problems in preschool and school-age children (29). We have not found any other studies in the literature that investigate the relationship between the age of the students owning a smartphone for the first time and BMI. However, in our study, a weak, positive relationship was found between the age of owning a smartphone for the first time and BMI. Accordingly, it was found that those who owned smartphones at a younger age had lower BMI values than those who owned smartphones at a later age. In addition, in our study, it was found that students with a low family income level have smartphones for the first time at a later age. In light of this data, it made us think that the BMI values of the participants with higher age of owning their first smartphone were higher in participants with low family income, due to the reasons such as uniform nutrition, carbohydrate-based diet, etc. Besides, although there is no statistically significant relationship between body mass index classification and the age of owning their first smartphone, the participants in the “underweight” class were found to have a smartphone at an earlier age. It suggested that those who have a smartphone at an earlier age may have lower BMI values due to the reasons such as their way of perceiving the body and

they associate beauty with being slim as they are exposed to the influence of social media before their self-perception is developed.

For the future, researchers are advised to investigate how personal characteristics affect smartphone addiction symptoms, and how these symptoms may affect social and occupational functioning and mental and physical health.

Limitations

It should be taken into consideration that there are some limitations to this study when interpreting the findings. Firstly, our study is a cross-sectional study and does not show cause-effect relationships. Our biggest limitation was the delivery of the survey questions to the participants online and there was no face-to-face evaluation opportunity. Since the study data were obtained from medical school students, the results cannot be generalized to all individuals. In addition, our other limitations were that the data of the participants' anthropometric measurements were based on their own reports and there was no psychiatric evaluation regarding their characteristics of smartphone addiction and eating attitudes.

CONCLUSION

We reported a relation between the intentions of using a smartphone and smartphone addiction and another relation between one's age of owning the first smartphone and these individuals' body mass indexes. A difference was observed between those who have abnormal eating attitudes and who have not regarding smartphone addiction scale scores. Previous studies have shown that smartphone addiction can cause potential health-related risks. Identifying the factors that cause and/or maintain eating disorder symptoms can enable the development of targeted intervention programs in today's world where smartphone applications are widely used and internet access is easy. In addition, awareness-raising campaigns may be launched by the authorities and government agencies to ensure that excessive and inappropriate use of smartphones is avoided. Mass media can be used to raise general awareness about the negative effects of smartphone use on human health and behavior, in particular, its dangerous consequences (body perception, desire to be slim, the concept of beauty, etc.) for the adolescent and young adult population.

Ethics Committee Approval: The study complies with the Declaration of Helsinki and was approved by Zonguldak Bülent Ecevit University Clinical Studies Ethical Committee on Dec 15, 2021 with an approval number of 2021/24.

Author Contributions:

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