Üçüncü Basamak Bir Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları Polikliniğine Başvuran 11-17 Yaş Arası Adölesanlarda Akıllı Telefon Bağımlılığının Değerlendirilmesi

Assesment of Smartphone Addiction in Adolescents between 11-17 Age Who Admitted to A Tertiary Child and Adolescent Psychiatry Policlinic

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ÖZ

GİRİŞ ve AMAÇ: *Çocuk ve ergen ruh sağlığı ve hastalıkları polikliniğine başvuran adölesanlarda akıllı telefon bağımlılık durumunu değerlendirmek ve akıllı telefon bağımlılık durumunun sosyodemografik özellikler ve akıllı telefon kullanım davranışları ile ilişkisini araştırmaktır.*

YÖNTEM ve GEREÇLER: *Araştırmaya 11-17 yaş arasında 119 adölesan dahil edilmiştir. Adölesanlara sosyo-demografik özelliklerini ve akıllı telefon kullanım davranışlarını irdeleyen bilgi formu ve Akıllı Telefon Bağımlılığı Ölçeği (ATBÖ)'ni içeren anket uygulanmıştır.*

BULGULAR: *Adölesanların yaş ortalaması 14,39±1,90 olup %50,4'ü (n=60) erkek idi. Katılımcıların %53,8'i kendine ait bir akıllı telefonu olduğunu belirtmiştir. Kadın ve erkek cinsiyette akıllı telefonları kullanım amacı açısından anlamlı bir fark saptanmıştır (p<0,0001). Akıllı telefon kullanım süresi bir saat ve daha az, 2-5 saat ve 6 saat ve daha fazla kullananlar olmak üzere üç grup oluşturulmuş ve bu üç grup arasında ATBÖ puanları açısından anlamlı fark tespit edilmiştir (p<0,0001)*

TARTIŞMA ve SONUÇ: *Çocuk ve adölesanların akıllı telefon kullanım süresinin azaltılması için çeşitli sosyal aktivitelere yönlendirilmesi ve ailelerin akıllı telefon bağımlılığı konusunda bilinçlendirilmesi gerekmektedir.*

Anahtar Kelimeler: *akıllı telefon kullanımı, bağımlılık, adölesanlar*

ABSTRACT

INTRODUCTION: *The aim of this study was to evaluate the smartphone addiction status in adolescents who applied to the Child and Adolescent Psychiatry Outpatient Clinic and to investigate the relationship between smartphone addiction and socio-demographic characteristics and smartphone usage behaviors.*

METHODS: *A total of 119 adolescents aged 11-17 years were included in the study. A questionnaire querying socio-demographic characteristics and including Smart Phone Addiction Scale (SAS) was applied to adolescents.*

RESULTS: *The mean age of adolescents was 14.39 ± 1.90 and 50.4% (n = 60) were male. 53.8% of the participants stated that they had a smartphone. There was a significant difference between male and female gender in terms of usage purpose of smartphones (p <0.0001). Three groups were formed according to smartphone usage duration: one hour and less, 2-5 hours and 6 hours and more and a significant difference was found among three groups in terms of SAS scores (p <0.0001).*

DISCUSSION and CONCLUSION: *Children and adolescents should be directed to various social activities in order to decrease the smartphone usage duration and families should be informed about smartphone addiction.*

Keywords: *smartphone usage, addiction, adolescents*

INTRODUCTION

Smartphone usage has gained popularity in the world and in our country especially in the last 10 years and has become an indispensable element of daily life (1). While the number of smartphone users in the world was 2.1 billion in 2016, it is estimated that this number will reach 2.5 billion in 2019 (2). While the rate of availability of mobile phones/smartphones in households was 53.7% in 2004 according to Turkish Statistical Institute data, it has increased to 98.7% in 2018 in Turkey (3).

Smartphones are versatile, multi-purpose and portable tools that allow people use mobile-based applications. It can be used in many areas, such as the use of internet-based applications, communication, information, education, entertainment and even treatment of some chronic diseases (such as diabetes, alcoholism) (1). Smartphone usage leads to an increment in communication with family and friends by using social networks and e-mails, allows people planning time more effectively and productively in daily life and eases access to recreational tools (4). However, extensive spread of smartphone usage in the world brings smartphone addiction. The risk of addiction is particularly important in children and adolescents whose brain structures are still developing (5). Overuse of smartphones can lead to physical disorders such as sleep disorders, dry eye, shoulder and neck pain. It may also be closely related to psychosocial disorders such as stress, depression, anxiety, loneliness, shyness and suicide. It has been reported that smartphone addiction causes negative effects on school success (6,7).

Behavioral addictions are disorders that may result in cognitive and behavioral symptoms such as tolerance and withdrawal, which are also encountered in substance abuse. Behavioral addictions are included in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) and internet game disorder is mentioned as a subject that needs to be investigated under this title. Research have reported that smartphone addiction is similar to behavioral addictions and associated to internet gaming disorder (8,9).

The aim of this study was to evaluate the smartphone addiction status in adolescents who applied to the Child and Adolescent Psychiatry Outpatient Clinic and to investigate the relationship between smartphone addiction and socio-demographic characteristics and smartphone usage behaviors. Since there are not adequate studies regarding smartphone addiction in adolescent age group, we have planned to define the smartphone addiction status in adolescents and to shed light on future analytical studies.

METHODS

Type of Study and Participants

This descriptive study was carried out in adolescents aged between 11 and 17 years who applied to a University Medical Faculty Child and Adolescent Psychiatry Outpatient Clinic in January-February 2018. The adolescents were chosen among the consequent cases who applied during the time of study. 37 adolescents were recurrent cases who applied for control examination. 22 patients did not agree to participate, 24 patients were excluded after the exclusion criteria, and a total of 119 volunteers were included in the study.

Exclusion Criteria

Following adolescents were excluded from the study: those who did not use any smartphones even though they used other technological devices such as computers, tablets, those with Mental Retardation and Autism Spectrum Disorder, those who were illiterate, and those who applied for forensic reasons. Patients with Mental Retardation and illiterate were excluded due to the fact that they could not comprehend the content of the questionnaire. Adolescents with Autism Spectrum Disorders were not included because they were unable to communicate. Forensic cases were excluded to prevent delays in the legal procedure.

Measurements

A questionnaire including questions on socio-demographic characteristics and smartphone usage behaviors and Smart Phone Addiction Scale (SAS) was applied to participants. SAS was developed by Kwon et al. and adapted to Turkish by Demirci et al. Turkish validation study is carried out on university students (10,11). We applied this validated version in our study. SAS consists of 33 questions and six points likert response form. The total scores of the scale ranges between 33 and 198 (10). There is no cut-off point for SAS; the higher the score, the higher the risk of smartphone addiction (11).

Statistical analysis

SPSS package program was used to evaluate the data and descriptive statistics were expressed as number and percentage. Whether the SAS scores fits the normal distribution was evaluated with Kolmogorov-Smirnov test. Mann-Whitney U test and Kruskal-Vallis variance analysis were used for the evaluation of intergroup SAS scores. Pearson's chi-square test was applied where the difference was investigated in terms of categorical variables. The statistical significance level was accepted as p <0.05.

Ethical considerations

The study was approved by the local ethics committee. The participants were informed and the consents of the participants and their parents were obtained before the study.

RESULTS

A total of 119 adolescents were included in the study. The mean age of the adolescents was 14.39 ± 1.90 and 50.4% (n = 60) were male. While 42.2% of the adolescents were attending primary or secondary school, the remainder were in high school. Approximately two thirds of mothers and 41.6% of fathers had an education level below high school. When the occupational status of the parents was evaluated, it was found that 95.8% of the fathers were working /retired and 15.9% of the mothers were working /retired. While, approximately two-thirds of participants expressed their families' economic status as "moderate", about one third of participants expressed it as "good or very good". When the family structure of the adolescents was examined, 79.8% had a nuclear family structure and 4.2% had a fragmented family structure. Of the adolescents in this study, 53.8% stated that they own a smartphone. Of the adolescents, 39.5% stated that they use the smartphone for one hour or less per day and approximately one-fifth stated that they use it for 6 hours or more per day (Table 1).

The total mean SAS score of the adolescents was 87.5 ± 31.7. The mean number of siblings of the participants was 2.4 ± 1.1. While about one-third of the study group had a mean grade of 69 and less, 37.3% of them had a mean grade of 85

and above in their lessons. Of the adolescents, 58.8% stated that they had clashed with their families due to the use of smartphones. Of the participants, 33.6% stated that they used smartphone for social media, 22.7% for playing games, 12.6% for doing homework and research, 6.7% for other purposes and 24.4% for multiple purposes. Of the participants, 85.2% of those who used smartphones for gaming purposes were male and 70% of those who used smartphones for social media were female. There was a significant difference between males and females in terms of usage purpose (p <0.0001).

There was no significant difference in the mean SAS scores in terms of sex, age, educational status, parents' educational status, family structure and whether owning smartphone or not. While the median SAS score was the lowest in those who use smartphones for an hour or less, it was highest in those who use smartphones for 6 hours and more. Significant difference was found in SAS scores of three groups using smartphones for one hour and less, 2-5 hours and 6 hours and more (p <0.0001) (Table 2).

Table 1. Socio-demographic characteristics of participants			
Socio-demographic characteristics		**Number (n=119)**	**Percentage (%)**
Sex	Female	59	49.6
	Male	60	50.4
Age	11	10	8.4
	12	17	14.3
	13	9	7.6
	14	21	17.6
	15	25	21.0
	16	16	13.4
	17	21	17.6
Educational status	Primary/secondary school	49	42.2
	High school	70	57.8
Mothers' educational status	Illiterate/literate	7	5.9
	Primary/secondary school	69	57.9
	High school	30	25.2
	University	13	10.9
Fathers' educational status	Illiterate/literate	6	5.1
	Primary/secondary school	43	36.5
	High school	36	30.5
	University	33	28.0
Mothers' Occupation	Not working	100	84.0
	Working/retired	19	15.9
Fathers' Occupation	Not working	5	4.2
	Working/retired	113	95.8
Economic status perception	Good/very good	36	31.1
	Moderate	72	62.1
	Bad/very bad	8	6.9
Family structure	Nuclear family	95	79.8
	Extended family	19	16.0
	Fragmented family	5	4.2
Owning a smartphone	Yes	64	53.8
	No	55	46.2
Frequency of smartphone usage	Less than one hour	47	39.5
	Between 2-5 hours	50	42.0
	More than 6 hours	22	18.5

Table 2. Distribution of SAS scores according to socio-demographic characteristics of adolescents				
Socio-demographic characteristics		**SAS score**		
		Mean±SD	**Median (Min-Max)**	**p**
Sex	Female	85.7±29.1	86.0 (33.0-151.0)	0.934
	Male	89.4±34.3	83.0 (33.0-167.0)	
Age	11-14	86.9±29.5	83.0 (33.0-166.0)	0.790
	15-17	88.1±33.9	85.5 (33.0-167.0)	
Educational status	Primary/secondary school	86.1±29.0	83.0 (33.0-161.0)	0.744
	High school	89.7±33.4	86.0 (33.0-167.0)	
Mothers' educational status	Illiterate/literate	87.5±40.7	88.0 (36.0-143.0)	0.520
	Primary/secondary school	90.4±32.9	86.0 (33.0-167.0)	
	High school / University	82.9±28.5	81.0 (33.0-166.0)	
Fathers' educational status	Illiterate/literate	85.5±35.5	89.5 (36.0-142.0)	0.824
	Primary/secondary school	85.0±30.6	81.0 (33.0-167.0)	
	High school / University	88.2±31.5	86.0 (33.0-166.0)	
Economic status perception	Good/very good	84.0±27.3	83.5 (33.0-161.0)	0.152
	Moderate	85.6±31.6	81.0 (33.0-166.0)	
	Bad/very bad	114.5±41.3	110.0 (57.0-167.0)	
Family structure	Nuclear family	84.7±31.2	81.0 (33.0-166.0)	0.076
	Extended family	94.3±27.3	87.0 (36.0-146.0)	
	Fragmented family	116.0±45.0	91.0 (71.0-167.0)	
Owning a smartphone	Yes	91.8±29.5	87.0 (36.0-166.0)	0.061
	No	82.5±33.7	77.0 (33.0-167.0)	
Frequency of smartphone usage	Less than one hour	75.4±27.3	76.5 (33.0-151.0)	**0.0001**
	Between 2-5 hours	86.3±28.9	84.0 (33.0-167.0)	
	More than 6 hours	116.3±29.9	115.0 (62.0-166.0)	

DISCUSSION

Adaptation of adolescents to smartphone technology is better than adults. However adolescence is a period in which brain development is sensitive to addiction and thus adolescents have high risk for dependence (12). The fact that more than half of the adolescents in our study had their own smartphone gives clues about the increasing spread of smartphone usage at early ages and necessitates various measures for the healthy development of this age group. The mean score of SAS in our study was 87.5. In the study conducted by Demirci et al. on university students in 2015, the mean score of the SAS was determined as 75.76 (13). Haug et al. found that the level of smartphone addiction was higher in adolescents than in young adults (1). In our study, the reason for the higher mean scores of the SAS might be the result of the fact that the smartphone addiction behavior in adolescents is higher than in young adults.

In the study conducted by Aker et al. on university students, no significant difference was found between the age of the participants and the level of smartphone addiction (14). However, in a study conducted in individuals over the age of 18 years, it was stated that age is inversely related to smartphone dependence (15). Demirci et al. found that a younger age increased the risk of smartphone addiction (13). When we examined the studies covering the adolescent age group, one study found that adolescents who were 12 years old had a higher risk of addiction than those aged 10 and 11 years (5). In another study conducted on adolescents, no difference was found between healthy and smartphone addict groups in terms of age (8). In our study, we did not find any significant relationship between age and addiction level. Studies in adults cover a wider range of age and different generations, however studies regarding adolescents naturally have a narrower age range. Therefore, we conclude that, while in studies comparing adolescents and adults, addictive behaviors are more commonly seen in adolescent age group than in adults, age is a less significant factor when comparing adolescents with each other.

In our study, adolescents at high school showed more addictive behavior than adolescents at primary or secondary school, but the difference was not significant. In the study conducted by Kim et al.,smartphone addiction was found to be more frequent in adolescents in 14-16 age group than in those who are in 10-13 and 17-19 age group (6). In the adolescent age group, accurate assessment of the level of smartphone addiction in terms of age and level of education necessitates researches that have more comprehensive and generalizable sampling.

In our study, there was no difference in terms of male and female gender in smartphone addiction. Although some studies (13,16,17,18) stated that females attach more importance to social interactions and therefore smartphone addiction in females are more common than in males, there are several others studies that are concordant to our study (5,6,10,14,19). It was found that females mostly use smartphones for social media, message and e-mail writing purposes. However, if high performance games could be played on a smartphone, it is stated that being a male could be a risk factor for addiction (1,8). In our study, the lack of significance in difference between males and females was thought to be due to 22.7% of adolescents using smartphones for gaming purposes, 85.2% of the gamers being males and and playing games is a risk factor for addictive behavior for male gender. There are limited number of studies investigating the effect of gender on the level of smartphone addiction in adolescent age group and there is a need for more research.

The duration of smartphone usage is one of the best indicators of addictive behavior and we found a significant relationship between the time spent on the smartphone and the level of addiction in this study, which was in accordance with the literature. In a study conducted in Taiwan, despite the smartphone addict group spent more time for smartphones, than the healthy group, the difference was not found significant (19). In a study conducted on adolescents and young adults in Switzerland, it was determined that the level of addiction was higher in those who had a longer period of smartphone usage (1). In the study conducted by Lee et al., the duration of daily smartphone usage was found to be significantly higher in the group showing addictive behaviors (8).

In the study conducted by Kim et al., there was no relationship between smartphone addiction and monthly income level, but it was found that there was a higher probability of being dependent on smartphones in those living in double-income families (6). In a study conducted on university

students, it was stated that the young people whose families had high monthly income were more prone to overuse of smartphones and could show more addictive behavior (20). In our study, when the level of smartphone addiction was evaluated in terms of economic status, no difference was found. However, the median value of the SAS was found to be higher in the adolescents who expressed their economic status as bad. This may be due to the fact that children who live in socioeconomically disadvantaged families have not developed sufficient awareness of smartphone addiction. However, poor socioeconomic status may not require developing smartphone addiction behavior alone. It should be taken into consideration that there may be various environmental, cultural and psychological factors that accompany the poor socioeconomic status and affect the addiction behavior, and more detailed studies should be conducted to examine their interaction.

In many studies, it has been reported that using social media and playing games pose a risk for smartphone addiction (1,19,21). In our study, no difference was found in terms of addiction level among the users of social media, games, homework, research and other purposes. However, the majority of adolescents in our study use the smartphone for social media and gaming purposes. Studies in larger research groups may be more decisive in this regard. In a study conducted by Liu et al., smartphone addiction level was found to be higher in people who used smartphones mainly for gaming purposes (19). In another study investigating risk factors for smartphone addiction, two groups including a healthy and a smartphone addict individuals were compared and unlike many studies, usage purposes such as social media, gaming and internet were not different between the two groups, however smartphone addiction was significantly higher in the group using smartphones for online chat (8).

Limitations of the study

There are a limited number of studies evaluating the smartphone addiction status in terms of socio-demographic features in the adolescent age group. Our study contributes to the literature in this respect. However, some limitations should be considered when interpreting the study. Firstly, descriptive design of the study reduce the generalizability of the

findings and cause difficulties in evaluating the effects of some socio-demographic characteristics on smartphone addiction. Secondly, since the data of the study is collected through a questionnaire, it is possible that memory factors may affect the results.

CONCLUSION

Higher duration of smartphone usage was found to increase the smartphone addiction status in this study. Therefore, it should be considered by parents and educators to reduce the duration of smartphone use in children and adolescents. To shorten this period, children and adolescents should be directed to various social activities and families should be made aware of smartphone addiction. Although there was no statistically significant difference between adolescents with and without a smartphone, participants with a smartphone had a higher SAS score than the other group. Therefore, the necessity of having a smart phone for adolescents should be discussed and at least various restrictions should be imposed on the use of smart phones. In addition, sociodemographic characteristics affecting the level of addiction in the adolescent period and the factors affecting them should be evaluated in more detailed and more inclusive groups.

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