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Extended Abstract

Investigating Mobile Phone Addiction in High School Students*

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Abstract

This study intends to reveal the relationships between high school students' mobile phone addiction and their levels of self-esteem and loneliness. The general survey method has been applied in the research. The study group consists of 502 volunteer students studying in five high schools in Samsun's provincial center during the 2017-2018 academic year. Of the students participating in the study, 272 are female and 230 are male. The study data have been collected using the Mobile Phone Addiction Scale, the Rosenberg Self-Esteem Scale, the UCLA Loneliness Scale, and a personal information form. The Kolmogorov-Smirnov test has been used to test whether the data obtained in the study have normal distribution. The t-test has been used for independent groups in order to reveal the differentiating circumstances of cell phone addiction according to gender, and correlation analysis has been conducted to determine whether a relationship exists between cell phone addiction and their levels of loneliness and self-esteem. Additionally, Cohen's d value has also been calculated to determine the effect size. The results of the study reveal students' levels of mobile phone addiction to differ significantly in terms of gender, no significant relationship to exist between mobile phone addiction and loneliness, and a significant relationship to exist between self-esteem and mobile phone addiction. In the direction of the obtained results, evaluating individuals' self-esteem levels in the context of guidance and psychological counseling services for preventing and treating mobile phone addiction in secondary education institutions is thought to play an important role.

Keywords

Mobile phone addiction • Self-Esteem • Loneliness • High school students • Addiction

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Although mobile phones are a very useful tool, their uncontrolled, inappropriate, or excessive use may cause social, behavioral, and emotional problems in adolescents, as well as addiction to mobile phones (Chóliz, 2010, 2012). Mobile phone addiction is considered to be an impulse control disorder similar to pathological gambling but excluding drunkenness (Leung, 2008). When reviewing the literature related to mobile phone addiction, several studies are seen to have been conducted on determining the relationship of mobile phone addiction with demographic variables such as gender and age; mental health variables such as aggression, depression, and anxiety (Ha, Chin, Park, Ryu, & Yu, 2008; Kim et al., 2015); and shyness (Casey, 2012; Park, 2005).

On the other hand, other researchers have suggested loneliness to be a variable associated with mobile phone addiction (Hjenaabadi, 2016; Naderi & Haghshenas, 2009, etc.). Loneliness can be defined as the undesirable experience individuals have when perceiving a conflict between the desired and achieved patterns in their social surroundings (Bhardwaj & Ashok, 2015). Studies examining the relationships between mobile phone addiction and loneliness have indicated a positive relationship between these two variables (Aktaş & Yılmaz, 2017; Beranuy, Oberst, Carbonell & Chamarro, 2009; Reid & Reid, 2007).

Previous studies have also demonstrated self-esteem to be an important variable related to mobile phone addiction in adolescents (Ha et al., 2008; Niemz, Griffiths, & Banyard, 2005). Self-esteem is definable as an individual's attitudes and beliefs about one's own worth, value, and importance, as well as a personal evaluation of one's concept of self (Coopersmith, 1981). The accessibility mobile phone users have to social networking sites at any time allows adolescents' self-esteem levels to be affected (Hong, Chiu & Huang, 2012). Previous studies have reported that mobile phone addiction may predict low self-esteem in adolescents (Yang, Yen, Ko, Cheng & Yen, 2010; Walsh, White, Cox & Young, 2011).

When examining studies about mobile phone addiction in Turkey and other countries, most of the studies are seen to have been conducted with university students and similar variables to have been investigated in these studies (see Akın & Divanoğlu, 2009; Bağcı & Çoklar, 2017; Kutlu & Pamuk, 2017; Pamuk & Atlı, 2016; Tekin, 2012). A limited number of studies have been conducted on high school students (Deniz, 2014; Şata & Karip, 2017). Therefore, more studies over different samples are needed to better understand mobile phone addiction. In this direction, this study aims to reveal the significance of the relationship between high school students' levels of mobile phone addiction and their levels of loneliness and self-esteem.

Method

This research was carried out over 502 students randomly selected from five high schools (three state and two private schools) in Samsun during the 2017-2018 academic

year. Of the students, 54.18% are female and 45.82% are male. Of the participants, 20.12% are freshmen, 33.07% are sophomores, 31. 68% are junior, and 15.13% are seniors. The Mobile Phone Addiction Scale, the UCLA Loneliness Scale, the Rosenberg Self-Esteem Scale, and a personal information form prepared by the researcher have been used in the study to collect the data. The *t*-test has been used to analyze the data, which has been interpreted according to Cohen's *d* value (1992). Pearson's correlation coefficient has been used to calculate correlations between the study variables. The data have been analyzed using SPSS software, with the significance level tested at $p < .05$.

Results

Table 1 presents in detail the descriptive data of the students' scores from the Mobile Phone Addiction Scale, the UCLA Loneliness Scale, and the Rosenberg Self-Esteem Scale.

Table 1
Descriptive statistics for the Mobile Phone Addiction, UCLA Loneliness, and Rosenberg Self-Esteem Scales

	n	$\overline{X}$	***SD***	Skewness	Kurtosis
Mobile Phone Addiction	502	40.41	15.61	.145	-.415
UCLA Loneliness	502	46.58	10.91	.610	-.106
Rosenberg Self-Esteem	502	24.36	5.84	-.249	-.478

As shown in Table 1, students' mean mobile phone addiction score is 40.41 (*SD* = 15.61), mean loneliness score is 46.58 (*SD* = 10.91), and mean self-esteem score is 24.36 (*SD* = 5.84). According to these results, the participants of the current study can be said to tend to exhibit a moderate level of mobile phone addiction, loneliness, and self-esteem. In addition, two methods were applied to test whether or not the data has normal distribution. First, the skewness and kurtosis values were calculated. If these values are between -1 and +1, the data is assumed to have normal distribution (Tabachnick & Fidell, 2013). The skewness values of the variables in this study (mobile phone addiction, loneliness, and self-esteem) vary from .249 to .610, and the kurtosis values range from -.106 to -.478. The Kolmogorov-Smirnov Test was performed next due to the recommendation that this test be used with sample sizes larger than 50. Significance levels greater than .05 are assumed to have normal distribution (Büyüköztürk, 2010). Because the sample size is 502 in this study, the Kolmogorov-Smirnov test was carried out and the level of significance was found to be greater than .05. Therefore, the data in this study are accepted as being normally distributed.

Whether or not the data obtained from the Mobile Phone Addiction Scale has normal distribution was first examined in order to determine whether students' mobile phone addiction levels differ significantly according to gender. The results are given in Table 2.

Table 2
Examining the Assumption for Normal Distribution of Mobile Phone Addiction Scores in Terms of Gender

	Gender	*n*	$\overline{X}$	*SD*	Skewness	Kurtosis
Mobile Phone Addiction	Female	272	43.97	15.38	.104	-.330
	Male	230	36.19	14.86	.177	-.562

As seen in Table 2, the skewness values for female and male students' mobile phone addiction scores are .104 and .107, respectively; their kurtosis values are -.330 and -.552, respectively. In addition, the level of significance obtained from the Kolmogorov-Smirnov Test is greater than 0.05. Therefore, the data obtained from the Mobile Phone Addiction Scale is accepted as having normal distribution in terms of gender.

The results of the independent sample *t*-test, which was applied to compare the mean mobile phone addiction scores of students according to gender, are presented in Table 3.

Table 3
Independent Sample t*-Test Results for Mobile Phone Addiction by Gender*

Variable	*n*	$\overline{X}$	*SD*	*t*	Cohen *d*
Female	272	43.96	15.37	5.73	.51
Male	230	36.19	14.85		

$p < .01$

When examining Table 3, a statistically significant difference can be seen to exist between the mean mobile phone addiction scores of students according to gender ($t_{(500)} = 5.73$; $p < .01$). Female students' mean score (= 43.96) is significantly higher than the male students' (= 36.19). In addition, the effect size of the difference between male and female students' means has been calculated using Cohen's *d* value. The effect size has been calculated as medium ($d = .51$).

The Pearson correlation coefficient has been performed to examine the correlations of mobile phone addiction with students' levels of loneliness and self-esteem. The results are given in Table 4.

Table 4
Inter-Correlations of the Study Variables

	Mobile Phone Addiction Scale	UCLA Loneliness Scale	Rosenberg Self-Esteem Scale
Mobile Phone Addiction Scale	-	-.012	-.182*
UCLA Loneliness Scale		-	-.481*
Rosenberg Self-Esteem Scale			-

*$p < .01$

A correlation coefficient range of $.00 < r < .30$ deems the strength of the relationship between variables to be low, a range of $.30 < r < .70$ can be described as moderate, and a range of $.70 < r < 1.00$ can be described as strong (Büyüköztürk, 2010). Therefore, a significant, negative, low correlation can be said to exist between mobile phone addiction and self-esteem ($r = -.182$, $p < .01$). On the other hand, a significant, negative,

moderate correlation has been found for high school students' levels of self-esteem and loneliness levels (r = -.481, p < .01). In other words, the results indicate low self-esteem to increase both mobile phone addiction and loneliness. However, no significant association was found for loneliness levels with mobile phone addiction (p > .05).

Discussion and Suggestions

In terms of gender, the results indicate female students' mobile phone addiction levels to be significantly higher than male students' with a medium-level effect size. The literature has studies supporting this result (Billieux, Linden, & Rochat, 2008; Leung, 2008; Pugh, 2017). Weiser (2000) also stated the majority of research on mobile phone use indicates females to tend to exhibit more mobile phone addiction than males. However, other research in recent years has shown no significant difference to exist in the mean mobile phone addiction scores for males and females (Akın & Divanoğlu, 2009; Bhardwaj & Ashok 2015; Deniz, Yıldırım, & Çobanyıldız, 2014; Kuss et al., 2018; Mert & Özdemir, 2018). When reviewed, previous studies have been conducted over wide age ranges, including high school students and university students. On the other hand, one should note that, while mobile phone addiction has been examined in some studies (like in this study), other studies have examined smartphone addiction. The differences in results are thought to be associated with both these factors and cultural differences. Therefore, more studies are needed to generalize the results.

When analyzing the results in terms of loneliness, no significant relationship has been found between students' loneliness levels and mobile phone addiction. When examining the related literature, earlier studies both in Turkey and in other countries are observed to have suggested a positive relationship to exist between loneliness and mobile phone addiction (e.g., Beranuy et al., 2009; Casey, 2012; Park, 2005; Şar, 2013; Yalçın, 2015). In other words, as loneliness levels increases, mobile phone addiction also increases. People who are lonely are more likely to have inadequate social functioning. These individuals may not want to talk to others face-to-face, tending to communicate using mobile phones, short messaging services, or the social networking applications on their mobile devices (Bian & Leung, 2015). Therefore, individuals who feel lonely may tend to use their mobile phones more for dealing with their loneliness. However, one of the major issues that teachers and parents are seen to mostly complain about in recent times is adolescents' mobile phone use. Some schools are observed to have certain precautions for preventing in-school mobile phone use, such as locking them in cabinets in class and forbidding their use during school hours. Many parents are also seen mentioning being unable to prevent their adolescent children's mobile phone overuse. In addition, the fact that adolescents mention their mobile phones as "my source of life" or "my lifeblood" is remarkable. Nowadays, mobile phones have several functions and uses accompanying

the technological developments, such as playing online games, taking photos and videos, sending messages, reading news, and searching for information. Therefore, mobile phones are considered to have become an everyday item, devices widely used not just by adolescents who feel lonely but also by other adolescents. Accordingly, the finding that indicates no significant correlation between loneliness and mobile phone addiction may be considered as an expected result. Further studies are thought beneficial for better describing the relationship between these variables.

The finding of the correlation between self-esteem and mobile phone addiction is consistent with previous studies investigating the relationship between these two variables (Ha et al., 2008; Leung, 2008; Niemz, Griffiths & Banyard, 2005; Wang et al., 2017). According to these studies, mobile phone addiction levels increase as self-esteem decreases. Individuals with low self-esteem are more likely to use their mobile phones inappropriately (Bianchi & Phillips, 2005). These individuals tend to seek trust more in their social environments and, due to a lack of trust, use mobile phones as an alternative form of communication, one they can use without the need for face-to-face communication. These people may also develop higher self-esteem from and perceive more social support through short message services, various dating applications, and more (Niemz, Griffiths, & Banyard, 2005). Thus, they may repeat these behaviors and become addicted to mobile phones (Pugh, 2017).

The findings of this study indicate self-esteem to be an important variable in preventing and treating mobile phone addiction. For this reason, mental health professionals working in school settings are thought able to provide individual and group counseling activities that focus on improving self-esteem both for students and their families. In addition, field experts may develop interventions to help students acquire self-discipline for using mobile phone appropriately. Meanwhile, a limited number of variables have been investigated in this study. Further studies may examine various variables that may relate to mobile phone addiction (e.g., anxiety, academic achievement, communication skills, and parents' education levels). In addition, this research has been conducted over high school students with moderate mobile phone addiction. Future studies may be conducted on high school students with high mobile phone addiction or different age groups.

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