Analysis of Smart Phone Addiction among Adolescents In Terms Of Various Variables

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ABSTRACT: *The objective of this study was to evaluate smart phone addiction among adolescent individuals in terms of certain variables. Sampling of the research consists of 200 high school students (93 boys, 107 girls) who were studying in Istanbul and between age range of 13-18. This research was carried out with descriptive research model. Smart Phone Addiction Scale for Adolescents, which had been developed by Akın (2007) and is a single dimension measuring instrument consisting of 10 items, was utilized in data collection. Reliability and validity studies of Turkish form of the scale were conducted by Akın, Altundağ, Turan and Akın (2014). Cronbach Alpha internal consistency reliability coefficient was found .88 in the scale. "T test" and variance analysis were used in data evaluation. As a result of this evaluation, it was not found a significant difference between adolescent individuals' smart phone addiction level and their sex, their perception of satisfaction with their own physical appearance, age, parents' attitudes, income level and perception of academic success.*

Keywords: Students: Adolescent, Addiction, Smart Phone Addiction, Behavioral Addiction

INTRODUCTION

Evaluating whether smart phone addiction, which can be defined as uncontrolled use of smart phone that results in neglecting daily activities and constantly checking smart phone, is affected by factors such as adolescent individuals' sex, their perception of satisfaction with their own physical appearance, age, parents' attitudes, income level and perception of academic success.

In present time where addiction is more than a single-dimensional concept, it is substantially difficult to define addiction (Kalkan, 2013). The concept of addiction in literature is dealt in two basic levels as substance addiction and addiction to a certain behavior. According to Köknel (1998), substance addiction is the situation of people's becoming addicted to a particular nutrient, object

or drug. Individual's losing physical and mental balance, failing to fit in the crowd and becoming disturbed as a result of abnormal and regular display of any behavior is defined as behavioral addiction. Technological addictions, internet addiction and smart phone addiction are also included in this category.

Today, computer, internet, cell phone and lastly smart phones have become inseparable parts of daily life. Replacing cell phones that only function for communication, smart phones' usage have gradually increased and they might cause many negative results by affecting interpersonal relations, physical and mental health and general functionality while facilitating our daily life (Demirci, Akgönül, Akpınar, 2015).

According to Turkish Statistical Institution data, the rate of public's possession of desktop/laptop computer was 10.9% in 2004, it became 67.7% in 2014; while rate of possession of cell phone/smart phone was 53.7% in 2004, it reached up to 96.2% in 2014 with an increase of almost 100%. While smart phone sales number in 2010 was 305 million, it was anticipated to reach three billion in 2018.

Mobile phone addiction among adolescents brought a new phrase of phobia into the field of psychology. The anxiety of being deprived of cell phone called "nomophobia" which was derived from English expression "no mobile phobia" negatively affects daily life of the youth who desire to be constantly connected to social networks. King, Valença and Nardi (2010) defined nomophobia as 21st Century's technology-resulted disease. In another study, King, Valença, Silva and Nardi (2013) accepted nomophobia as a modern world disease and stated that the fear of lack of communication through cell phone or internet results in anxiety.

When cell-phone users are examined, especially the youth stands out as the group that overuses. In perspective of the youth, cell phone has many influential qualities. In a research, it was established that teenagers are over-addicted to their cell-phones and display certain addiction indications. Therefore, the youth cannot give up their cell phone addiction in classroom environment as well; they become occupied with their cell phones during class or their cell phones engage their attention. In another study, it is seen that university students daily send-receive text messages between 50-100-150. It was determined that the youngsters in aforesaid group spare daily 5 hours or more on their cell phones (Ünal, Arslan, 2013).

Habits are activities that enrich and facilitate our daily lives. However, if our habits are out of control, drive us into failure in terms of solving our problems or pose a social, psychological and

cognitive danger, it can be said that they have started to turn into addictions (Öztürk, 1997).

Drawing an analogy between mobile phone addiction and obsessive-compulsive disorders, Hollender (1993) defines mobile phone addiction as a disorder that results in a compulsive attitude so as to escape from an urge or anxiety. However, while obsessive-compulsive behaviors are rather displayed to free from anxieties, problematic behaviors such as overuse of internet and mobile phone are displayed for entertainment (el-Guebaly, et al, 2012).

In a study conducted by Zorbaz and Dost (2014), it was revealed that problematic internet and smart-phone use of male students were higher than female students. With the idea that anything that is exciting is also addictive, Griffiths argues that use of smart phone and internet creates addiction because of the excitement it creates (Griffiths, 2003).

Türkle (1995) asserts that many of the study group members of the psychoanalytic study, which was performed in order to assess honesty of smart phone and internet users, hid their real identity, created online identities and acted according to those identities. It is also possible to explain mobile phone addiction with behavioral learning theory, another attitude. (Zorbaz, Dost, 2014). According to behavioral approach, if a behavior is followed by satisfaction and content (positive reinforcer) and helps escaping from a negative attitude such as distress and stress (negative reinforcer), individual increasingly repeats that behavior later so as to take pleasure or elude from negativity. In this aspect, mobile phone usage both delivers delight to individuals and distracts them from anxiety and pressure. This reinforcement situation is anticipated to result in mobile phone addiction (Cüceloğlu, 1993). According to Jacobs' (1998) general theory of addiction, while negative early childhood experiences, high or low stimulations and low self-esteem result in negative emotions, they also impair person's homeostatic

balance; therefore, these people apply addictive behaviors so as to get rid of such negative emotions and to make homeostatic balance.

It was observed that individuals who overuse their mobile phones have low self-esteem and these people aim to increase their self-esteem by frequent use of mobile phone. As a result of researches based on mobile phone and internet addiction, it can be stated that social skill problems and low self-esteem are main problems of internet and smart phone addiction (Kring, Johnson, Davison and Neale, 2008).

Another study suggested that individuals who use cell phones excessively have problems in checking time while talking, and thus they have difficulty in time management which results in impairment of their balance. While discussions on whether over-use of cell phone has reached clinical levels, it was proved that these people display guilt, sensitivity and depression (Bianchi, Philips, 2005).

Moreover, because of their failure in interpersonal relationships, these people generally display low self-esteem which is frequently seen in addictive behaviors. This situation is proved by the fact that there is a great number of studies about addiction which reveal low self-esteem of addicted people. For instance, similar behaviors such as depression, low self-esteem, hyper-sensitivity, guilt and hopelessness were observed in a young group of internet addicts in a study concerning internet addiction (Kwon, Kim, Cho and Yang 2013).

In a study conducted in Taiwan, social extroversion and anxiety had positive effects on smart phone usage. However, it was proved that self-esteem have a negative effect on smart phone addiction (Hong, Chiu and Huang, 2012).

In this study, the objective was to reveal whether participant individuals' smart-phone addiction changes depending on their sex, their perception of satisfaction with their own physical appearance, age, parents' attitudes, income level and perception of academic success.

RESEARCH METHOD

Research Model

This study was prepared in accordance with descriptive research model. All types of researches that aim to identify the relation and/or level of relation between two or more variables are defined as descriptive research model (Karasar, 2004).

Population and Sampling

Population of the research consists of teenagers between 13-18 ages. However, the research was conducted on the sampling group consisting of 200 high school students studying in Istanbul, 93 of them being male and 107 of them being female.

Data Collection

The information and data used in the research were collected through two measuring instruments which are personal information form and Adolescents Smart Phone Addiction Scale.

Personal Information Form was prepared by the researchers in order to determine socio-demographic characteristics of the participants. In this form are contained questions aiming to determine participants' age, sex, perception of physical appearance, income level, academic success level and parent attitude.

Adolescents' Smart Phone Addiction Scale is a single dimension measuring instrument of 10 items. The scale has a 5-point likert-type grading system. As a result of confirmatory factor analysis applied for structural validity of the scale, it was seen that it displayed coherence in single dimension as in original form. (x2= 56. 92, sd= 31, RMSEA=, 052, NFI=, 96, NNFI=, 97, IFI=, 98, RFI=, 94, CFI=, 98, GFI=, 96 and SRMR=, 052). Cronbach Alpha internal consistency reliability coefficient was found .88 in the scale. Corrected item-test correlations of the scale were aligned between ,43 and ,76.

Data Analysis

"T-test" was utilized in the analysis of the data obtained from the scales applied to participants so

as to determine whether there was a significant difference between their smart-phone addiction levels and sex and perception of physical appearance. Descriptive statistics and variance analysis were used so as to determine whether there was a difference between participants' smart phone addiction level and their age, income level, academic success level and parent's behaviors.

FINDINGS

Table 1: Comparison of Adolescents' Smart Phone Addiction Levels basing on Their Sex

Variable	Sex	N	Ave.	Ss	T	Sd	P
Smartphone addiction	Male	93	21.63	9.87	-,777	198	,438
	Female	107	22.71	9.69			

Results of "t-test", which was conducted in an attempt to examine **differences concerning male and female participants** in terms of smart phone addiction level, are presented in Table 1. According to this situation, the difference between men and women's smart phone addiction level was not found statistically significant (p>.05). Hence, it can be observed in the table that the averages between sexes are quite similar; average of women is 22,71 while it is 21,63 among men.

Table 2: Comparison of Adolescents' Smart Phone Addiction Levels basing on Their Perception of Satisfaction with their own Physical Appearances

Variable	Satisfaction with Perception of Physical Appearance	N	Ave.	Ss	T	Sd	P
Smartphone addiction	Yes	141	21.91	9.50	-,676	198	,500
	No	59	22.93	10.42			

Table 3 presents results of "t-test", which was conducted in an attempt to examine the differences concerning participants who were and were not content with their physical appearance in terms of smart phone addiction. While average values of individuals who were content with their physical situation were 21,91, averages of those who were not were 22,93. It was not found a statistically significant difference between participants' smart phone addiction and their physical satisfaction (p>.05).

Table 3: Descriptive Statistics concerning Adolescents' Smart Phone Addiction Levels in terms of their Ages

Age	N	Average	Std. Deviation
13-14	54	23.54	9.87
15-16	86	21.60	9.74
17-18	60	21.88	9.75
Total	200	22.21	9.76

Results of variance analysis, which was carried out in an attempt to establish significant differences between participants' smart phone addiction levels in terms of age ranges, are presented in Table 3 and 4.

Table 4: Variance Analysis aiming at Comparison of Adolescents' Smart Phone Addiction Levels in terms of their Ages

Variance Source	Squares Total	Sd	Squares Average	F	p
Intergroup	133.013	2	66.506		
Intra-group	18832.167	197	95.595	,696	,500
Total	18965.180	199			

Table 4 displays smart phone addiction average score and standard deviation values of participants between age ranges of 13-14, 15-16 and 17-18. Considering these values, it is seen that scores of 13-14 age range are higher than others. However, in the variance analysis (Table 4), which was performed so as to determine whether the difference between smart phone addiction scores were statistically significant, it was observed that there was not a statistically significant difference (F_{2-197}= ,696, p> .05).

Table 5: Descriptive Statistics concerning Adolescents' Smart Phone Addiction Levels in terms of their Parents' Attitudes

Parental Attitudes	N	Average	Std. Deviation
Indifferent	10	24.60	11.28
Democratic	30	20.43	8.77
Authoritative	34	23.53	11.03
Protective	126	22.09	9.53
Total	200	22.21	9.76

Table 5 presents descriptive statistics of average and standard deviation found in the analyses, which were performed so as to determine whether participants' level of smart phone addiction was affected by their parents' attitude; Table 6 presents variance analysis results. In this situation, it can be stated that children of "indifferent" and "authoritative" parents have more addiction compared to others (Table 5).

Table 6: Variance Analysis aiming at Comparison of Adolescents' Smart Phone Addiction Levels in terms of their Parents' Attitudes

Variance Source	Squares Total	Sd	Squares Average	F	p
Intergroup	212.903	3	70.968		
Intra-group	18752.277	196	95.675	,742	,528
Total	18965.180	199			

It was not found a statistically significant difference between participants' smart phone addiction and their

parents' attitudes (F3-196= ,742, p> .05).

Table 7: Descriptive Statistics concerning Adolescents' Smart Phone Addiction Levels in terms of their Income Level

Income Status	N	Average	Std. Deviation
Insufficient	27	24.70	11.30
Medium Level	44	21.00	9.56
High	129	22.10	9.47
Total	27	22.21	9.76

When Table 7, which includes descriptive statistics of analyses results which were carried out about whether **income level** of participants affected their smart phone addiction, was examined, it was observed that addiction of participants, whose income status is "inadequate" and "medium level" are higher than those with "high" level of income.

Table 8: Variance Analysis Table aiming at Comparison of Adolescents' Smart Phone Addiction Levels in terms of their Income Status

Variance Source	Squares Total	Sd	Squares Average	F	p
Intergroup	233.860	2	116.930		
Intra-group	18731.320	197	95.083	1.230	,295
Total	18965.180	199			

When Table 8 was examined, it was not found a statistically significant difference between participants' smart phone addiction averages and their income status (F2-197= 1,230, p> .05).

Table 9: Descriptive Statistics concerning Adolescents' Smart Phone Addiction Levels in terms of their Perception of Academic Success

Academic Success	N	Average	Std. Deviation
Insufficient	40	21.90	10.93
Medium Level	80	22.56	9.72
High	80	22.01	9.30
Total	200	22.21	9.76

Table 9 and Table 10 display results of the analyses, which were performed so as to establish significant difference among participants' perception of **academic success** in terms of their smart phone addiction level. It was established that students with low academic success level have high level of smart phone addiction.

Table 10: Variance Analysis aiming at Comparison of Adolescents' Smart Phone Addiction Levels in terms of their Perception of Academic Success

Variance Source	Squares Total	Sd	Squares Average	F	p
Intergroup	16.905	2	8.453		
Intra-group	18948.275	197	96.184	,088	,916
Total	18965.180	199			

When table 10 was examined, it was found there was not a difference between smart phone addiction of participants who have a different "perception of academic success" (F_{2-197}= ,088, p> .05).

DISCUSSION, RESULT AND RECOMMENDATIONS

The aim of this research was to analyze smart phone addiction level of adolescents in terms of several variables.

The difference between smart phone addiction levels was not found statistically significant in terms of participants' sexes (p>.05). Hence, it can be observed in the table that the averages between sexes are quite similar; average of women is 22,71 while it is 21,63 among men. In review of the body of literature, it was found that there was not a significant difference in terms of relation of sex with smart phone addiction of university students (Süler, 2016). It was not found a significant difference in terms of sex in the validity and reliability study conducted by Noyan and oth. in 2015 on university students by means of a short version of smart phone addiction scale (Noyan and oth., 2015). In Chóliz's study in 2012 with adolescents, it was observed that mobile phone addiction points of women were higher; furthermore, women had problems with their families due to overuse of mobile phone (Chóliz, 2012). These studies are supportive of our study findings.

While average values of individuals who were content with their physical situation were 21,91, averages of those who were not were 22,93. It was not found a statistically significant difference between participants' smart phone addiction and their physical satisfaction (p>.05). When the body of literature was reviewed, it was not found any study analyzing the level of physical satisfaction level and smart phone addiction. It is imaginable that there are other variables affecting adolescents' level of smart phone addiction.

It was not found a statistically significant difference between participants' smart phone addiction and their ages. When point averages of participants were reviewed, it was found that points of 13-14 age group were higher than point averages of participants in 15-16 and 17-18 age groups. There are certain studies in the body of literature but our sampling group in the study displays difference.

It was not found a statistically significant difference between participants' smart phone addiction level and their parents' attitudes (p>.05). In terms of this result, parents' authoritative, democratic, indifferent or protective behaviors do not affect their children's smart phone addiction levels.

It was not found a statistically significant difference between participants' smart phone addiction averages and their income status (p> .05). In review of the body of literature, it was found that there was not a significant difference in terms of the relation between university students' income level and their smart phone addiction (Süler, 2016). In the study conducted by Koivusilta and oth.in 2007, it was revealed that participants with low socio-economic level used their mobile phones more than those with high levels (Koivusilta and oth., 2007). These studies show parallelism with our findings.

As a result, it was not found a statistically significant difference between participants' smart phone addiction level and their perception of academic success (p>.05). In the study of Lepp, Barkley and Karpinski in 2014, it was established that there was a negative relation between mobile phone usage and academic performance (Lepp and oth., 2014). According to this study, smart phone addiction levels do not differentiate basing on whether adolescents' perception of academic success is inadequate, average or high.

It was observed that smart phone addiction in adolescents was not affected by their sexes, perception of satisfaction with physical appearance, ages, parents' attitudes, income levels and perceptions of academic success.

Within this scope, it is recommendable to conduct this study on larger sampling groups. Moreover, effect of adolescents' self-confidence level on smart phone addiction can be researched. While the effect of self-confidence level on smart phone addiction is researched, participants' sexes, perception of satisfaction with their physical appearances, ages, parents' attitudes, income status and perception of academic success can be dealt as variables and these variables' effect on results can be evaluated.

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