

A COMPARATIVE STUDY ON SOCIAL MEDIA ADDICTION OF HIGH SCHOOL AND UNIVERSITY STUDENTS

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ABSTRACT

For a long time the concept of addiction has been considered within the medical context of consuming certain materials excessively. Lately, it has been used to describe by psychologists some behavioral habits that are outside the normal life of the general population, such as gambling which affect a particular group of individuals. After the Information Revolution, burgeoning developments in digital technologies and corresponding changes in behavioral patterns of users have brought new debates pointing the existence of a new form of addiction which has not been observed before. This form of addiction has generally been called "technology addiction". Considering that social media addiction is probably the most recent kind of technology addiction, the present study was designed based on the six components suggested by Griffiths (2013). Toward the purposes of the study, the "Bergen Facebook Addiction Scale" was adapted to social media addiction and translated into Turkish. After the validation process, it was administered to a total of 700 students; of them 397 were high school students and 303 were university students. The data collection instrument included 18 five-point Likert-type items in six categories, along with five structured items regarding demographics of respondents. The Cronbach's alpha reliability coefficient for the scale was .90. The data were analyzed through both descriptive and inferential statistical techniques. In addition to the findings of the present study, similar research on social media addiction in various countries were examined for comparisons. The results of the study showed that both university students and high school students have a moderate level of addiction to social media. Being a university or high school student does not make any difference on the level of social media addiction. However, significant differences were found regarding gender, duration of use, department at the university, and type of high school. Finally, the results of the study show certain similarities and a few differences with the results of the studies conducted in other countries. Implications of the results are discussed and recommendations are made both for future research and improvement of practices.

KEYWORDS

Social Media, Addiction, Social Media Addiction, Social Networks, Internet, Technology Addiction

1. INTRODUCTION

Traditionally, the concept of addiction is based on a medical model, and it expresses extreme physical or psychological desire and commitment to a physical object. However, researchers argue that addiction should be addressed to cover a broader behavioral domain (Shaffer, 1996, p.462). On this manner, Griffiths (2013) proposed the concept of technology addiction. He has defined technology addiction as the actions which are non-chemical but behavioral, and involve extreme human-machine interaction. Also, technology addiction is defined as a passive behavior like watching TV, playing a video game, and chatting online.

Internet addiction is a special type of technology addiction. The term "Internet addiction", for the first time, was defined by Ivan Goldberg in 1995 as a psychological illness (cited in Kim, 2009). Different notions were used for abusing Internet. Young (1998) named it as "internet addiction", Morahan-Martin and Schumacher (2000) used the term "pathological internet use", Davis, Flett and Besser (2002) labelled it as "problematic internet use" (cited in Caplan, 2002, p.554).

Young (1998) suggests five types of Internet addiction: (a) cyber sexual addiction, (b) cyber relationship addiction to online friendships or affairs, (c) net compulsions to online gambling, auctions or obsessive

trading, (d) information overload to compulsive web surfing or databases searches, and (e) computer addiction to game playing or programming.

When properly used, Internet is an important technology that provides people with vital skills for the 21st century such as information access, problem solving, and self-directed learning. However, when Internet is used unconsciously, it can cause anxiety or fear and negatively affect personal development (Colwell & Kato, 2003; Kerberg, 2005). In addition, excessive use of Internet may have harmful effects on biological, physiological, psychological and social development of the user (Caplan, 2002). In this context, Internet addiction has gradually become a serious problem. Thus, although it was not mentioned in the previous editions, American Psychological Association has added Internet addiction as a mental illness to the fifth edition of the Handbook of Diagnostic and Statistical Manual of Mental Disorders.

In many areas of behavioral addiction, it has been debated that whether some extreme behaviors can really be regarded as addictions or not. Social media addiction, as a type of Internet addiction, has been discussed in this context. Griffiths (2013) made an important contribution to this discussion by suggesting six essential components to describe a behavior as addiction. These six basic components are salience, tolerance, mood modification, relapse, withdrawal, and conflict (Griffiths, 2013, p.121). He states that a behavior can be defined as addiction if it meets these six components.

Around the world, a number of studies have been conducted on whether the Internet and its applications are addictive or not. For example, in a study conducted in China which was attended by 2,620 students, it was identified that 24% of the participants were addicted to social media. One of the notable points here is that students who have developed high scores on addiction have got low scores on time management. In addition, internet-addicted adolescents provided meaningful results in emotional symptoms, problem management, hyperactivity situations and lower social behavior scores (Cao et al, 2007).

Social network sites are virtual communities where users can create individual or public profiles, interact with friends in real life, and come together with other people based on common interests (Kuss & Griffiths, 2011, p.3529). The first social networking example – Six Degrees - was published in 1997 on a basis that would allow everyone to connect via six-degree distance. In 2004, Facebook was established, which is now considered as the most successful site with about 2 billion users, more than half of the users logging every day.

Nowadays, intensive use social media applications by ordinary users have been increased; and this has raised the concerns for addiction. Surveys consistently show that young people and students benefit most from social networks in the general population (Kuss & Griffiths, 2011). The rapid increase in the use of online networks -mainly on the basis of time spent- has led some researchers to argue that excessive social networking can lead to addiction (Griffiths & Pontes., 2014, p.120; Sussman et al., 2011). Sometimes individuals can have a variety of actions that are potentially addictive, such as using social networks extensively.

Research on social media addiction levels has produced inconclusive results because some are concerned about negative consequences of intensive use, while others have focused on gains through the use of social media. However, latest research showed that greater access to social media brings greater concerns. For many institutions, social media addiction has become a major concern. Davies and Cranston (2008) found that participants (120 managers and practitioners working on youth) were afraid that online social networking would replace other activities and face-to-face social interaction. When participants were asked to identify the risks associated with online social networks, 23% of reported addiction as a source of concern and the others reported exposure to bullying (53%), disclosure of personal information (35%), and sexual assault (22%).

In their study, Koc and Gulyagci (2013) pointed out that Facebook addiction is related to factors such as usage time, social motivations, depression, anxiety, and insomnia. However, they did not find any significant relationships regarding demographic factors. In several studies, researchers found that frequent access to Facebook is associated with clinical manifestations of psychiatric disorders (Rosen et al., 2013), excessive use of social media can disrupt interpersonal relationships and jeopardize the quality of relationships people develop with others (Tokunaga, 2011), and it might reduce self-esteem (Peter & Valkenburg, 2006).

There are many social and psychological factors that affect social media addiction. The role of parents is particularly emphasized by researchers. It has been reported that while the lack of family love (Huang & Leung, 2009) and the conflict between parents and children (Yen, Ko, & Yen, 2007) may lead to dependent behaviors; supportive parental supervision (Lin, Ko, & Wu, 2009) decreases impact on dependent behaviors. Many other variables, such as the need to establish a close relationship, narcissistic behavior, excess of

leisure time, and the limitations of the social environment, may be determinants of social media addiction. At the same time, negative effects on adolescents can sometimes be reflected in course performance and social capital.

In short, social media addiction is an ever-increasing problem in the 21st century. For this reason, a number of studies were conducted in many countries on social media addiction. Each study presents a new outcome, explains reasons and effects of the social media addiction, and presents new ways of solutions. However, the problem is getting bigger every day and public authorities, educators, and parents do not really know how to overcome this challenge. This gap sets the background of the present study.

The main purpose of this study is to identify the social media addiction level of high school and university students based on internally-recognized measures and propose solutions for reducing the degree of the problem. Toward this main purpose, the following research questions were investigated:

- What is the social media addiction level of high school and university students based on internationally-recognized measures?
- Are there significant differences between social media addiction levels of high school and university students in general and in terms of sub-categories of technology addiction?
- Are there significant differences in social media addiction levels of students in terms of gender, school type, department, and duration of daily use?
- Is social media addiction level of Turkish students different from the social media addiction levels of students in other countries?
- What kinds of measures should be taken to reduce social media addiction levels of high school and university students in Turkey?

2. METHODS

2.1 Participants

The literature usually suggests that majority of social media users are teenagers and young adults. In practical terms, high school students are teenagers and university students are young adults. Considering that most of the social media users fall within these two categories, their age groups make them potentially more vulnerable for social media addiction compared to other segments of the population. For this reason, the sample of the present study was chosen from among high school and university students.

The sample of the study consisted of 700 students. Of them, 345 (49%) were female and 355 (51%) were male. Gender distribution was almost equal. As far as their schools are concerned, 397 (57%) of the participants were high school students and 303 (43%) participants were university students. High schools students formed the majority with a difference of 14%. Regarding the amount of time they spend on social media per day, 115 (16%) used social media for less than an hour, 344 (49%) used for 2-3 hours, 145 (21%) used for 4-5 hours, and 96 (14%) used for more than 5 hours. Approximately 85% of students use social media for more than 2 hours per day. High level of a mobile phone ownership (96%) is likely to increase daily use of social media.

The composition of the high school sub-sample is generally similar to that of the total sample, partly due to the fact that it formed the majority. Within the high school sub-sample, 48% were female and 52% were male; 48% were in Anatolian High School and 52% were in Science High School; 84% use social media for more than 2 hours a day; and 96% have their own mobile phone.

The composition of the university sub-sample is a little bit different. Within this group, 46% were female and 54% were male; 11% were from Journalism, 24% were from Public Relations and Advertising, 55% were from Communication Design and Management, and 10% were from Cinema and Television; 87% use social media for more than 2 hours a day; and finally 99% owned a mobile phone.

2.2 Instrumentation

A Likert-type scale was used to collect data in this study. The scale consisted of two parts. In the first part, participants' personal information regarding their gender, school, department, duration of daily use, and

ownership of mobile phone were asked through structured items. In the second part “Bergen Facebook Addiction Scale” (BFAS), which was developed by Andreassen, Torsheim, Brunborg, and Pallesen (2014), was used to collect data about social media addiction of the participants. The fact that BFAS has been used in many international studies has allowed researchers to compare the results of the present study with the results of similar studies in other countries.

The validation process of the scale has taken place in several phases. First, all the 18 items in BFAS were translated into Turkish. Because the original scale was about Facebook addiction, the items were adapted to social media addiction. Secondly, language experts and social media specialists reviewed the translated version of the scale. Third, following several minor revisions, the draft was pilot-tested with 25 high school and 25 university students. A few revisions regarding the wording of the items were made. Finally, based on the obtained data, Cronbach Alpha reliability coefficient of the scale was calculated as .89 (highly reliable).

The participants' mean scores were used to determine both how intensely each of the symptoms of addiction is experienced by individuals, and the level of social media addiction they experience. Having a total of 18 five-point items, mean scores up to 20 (1.00-1.15 over 5 points) were used to describe a natural use, 21-39 (1.16- 2.21 over 5 points) mild addiction, 40-69 (2.22-3.87 over 5 points) moderate addiction, and 70-90 (3.88-5.00 over 5 points) severe addiction.

BFAS has been used to collect data in a number of countries and each study set the cut-off values for different levels of addiction. De Cook et al. (2014) in Belgium used the mean score of 2.00, Wang et al. (2015) in China used 3.00, and Jaffri (2015) in Bhutan used 4.00 as the critical score differentiating non-addicted and addicted users. On the other hand, Salem et al. (2016) in Egypt used the following score ranges to differentiate addiction levels: 0-20 (natural use), 20-39 (mild addiction), 40-69 (moderate addiction), and 70-90 (severe addiction). The present study assumed that these four layers may serve as better indicators of addiction levels compared to a rigid dichotomous split as non-addicted and addicted.

2.3 Procedures

Data collection procedures were generally similar in both sub-samples. After obtaining necessary permissions from the selected schools, the researchers provided elaborated information to onsite instructors to administer the scale. While gathering data from high school students, the principal and a guidance teacher collaborated with the researchers. They administered the scale to their students as a part of guidance and counseling activities in the school. It took approximately four weeks in March 2017 to complete data collection in the high school. In the university setting, two professors administered the scale to communication students in compulsory courses. The administration of the scale to university students also took about four weeks during April 2017. All the students were informed about details of the study, participation was voluntary, and no rewards were given to the respondents for their attendance.

3. FINDINGS

3.1 Gender

There were 18 items on the scale and possible responses for each item ranged from 1 to 5. Therefore, the minimum possible score was 18 and the maximum possible score was 90. Table 1 shows descriptive statistics with regard to gender.

Table 1. Results of t-test Regarding Gender Effects for All Participants

Addiction Scores	Male (n=355)				Female (n=345)				General (n=700)		
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	p
	2.35	0.73	1.0	5.0	2.54	0.80	1.0	5.0	2.44	0.76	.001

The mean addiction score of the total sample is at the moderate level ($M=2,44$). This figure is neither too high nor too low but it deserves some attention. There was a meaningful difference between total addiction scores of the participants according to their genders. As seen in Table 2, the mean score of female students ($M=2,54$) is higher than the mean score of male students ($M=2,35$). The difference between these two scores is significant ($p<.001$). It is possible to say that female students are more addicted on social media than male students.

When considering the high school students, there are gender differences on some dimensions of social media addiction. There is no significant differences between male and female students when we look at the dimensions of salience ($M=2,50$ vs. $M=2,63$; $p=.163$), tolerance ($M=2,67$ vs. $M=2,80$; $p=.214$), relapse ($M=2,34$ vs. $M=2,51$; $p=.138$), and conflict ($M=2,30$ vs. $M=2,42$; $p=.216$). There is, however, a significant gender effect on mood modification ($M=2,26$ vs. $M=2,61$; $p<.005$) and withdrawal ($M=2,35$ vs. $M=2,66$; $p<.008$) dimensions. Mean scores of female high school students regarding the dimensions of both mood modification ($M=2,61$) and withdrawal ($M=2,66$) were significantly higher than the mean scores of male students ($M=2,26$ for mood modification; $M=2,35$ for withdrawal). Yet both male participants ($M=2,39$) and female participants ($M=2,61$) appear to have moderate addiction levels so that the overall level of addiction of participants was moderate ($M=2,51$).

Findings for university students has some similarities as well as differences. There was no statistically significant differences between male and female participants in terms of salience ($M=2,48$ vs. $M=2,58$; $p=.335$), tolerance ($M=2,68$ vs. $M=2,89$; $p=.095$), relapse ($M=1,74$ vs. $M=1,94$; $p=.090$), withdrawal ($M=2,60$ vs. $M=2,58$ $p=.899$), and conflict ($M=2,01$ vs. $M=2,11$; $p=.411$). When the mean scores of mood modification with regard to gender are compared, the mean score of female students is statistically higher than the mean score of male students ($M=2,15$ vs. $M=2,58$; $p<.001$). In this case, it is possible to say that female students are more addicted in terms of mood modification so they experience more emotional changes in their interactions.

3.2 School Type

Table 2 presents the findings regarding the addiction levels of high school and university students. As seen in the table, the mean addiction score of high school students ($M=2,51$) is higher than the mean addiction score of university students ($M=2,36$). The difference between the mean score of high school students and the mean score of university students was statistically significant ($p<.013$). Therefore, it can be said that high school students are more addicted to social media compared to university students.

Table 2. Results of t-test for Comparisons of High School and University Students

Addiction Scores	University (n=303)				High School (n=397)				General (n=700)		
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	p
	2.36	0.76	1.00	5.00	2.51	0.77	1.00	5.00	2.43	0.76	.013

As mentioned before, the high school sub-sample included two types of high schools: Anatolian High School and Science High School. Further analyses showed that there was no significant difference between high school types with regard to salience ($M=2,55$ vs. $M=2,58$; $p=.707$), tolerance ($M=2,79$ vs. $M=2,68$; $p=.311$), mood modification ($M=2,44$ vs. $M=2,44$; $p=.989$), relapse ($M=2,40$ vs. $M=2,46$; $p=.623$), conflict ($M=2,35$ vs. $M=2,37$; $p=.875$). There was a meaningful difference only in the withdrawal dimension ($M=2,39$ vs. $M=2,64$; $p<.034$). Thus, it is possible to say that Anatolian high school students who started to the school with relatively low entry scores and who are less successful in the process than Science high school students, who have better entry scores and higher academic performance during the courses experience more difficulties to leave social media when they wanted.

Department-based differences were examined for university students. There was a statistically significant departmental effect regarding the withdrawal dimension only. According to the outcomes of the follow-up test, students in the Journalism Department had lower addiction scores than their counterparts in the Department of Public Relations and Advertising ($p<.004$) and the Department of Communication Design and Management ($p<.020$). No significant differences were found in other dimensions of addiction.

3.3 Duration of Daily Use

As indicated before, approximately 85% of students use social media for more than 2 hours per day. Situation is almost the same for high school and university students. Therefore, the impact of frequent or longer use of social media on addictive behaviors were examined. The results of ANOVA are exhibited in Table 3. It is clearly seen in table that duration of use (amount of daily time) has a significant impact on social media addiction ($p < .000$).

Table 3. ANOVA Results for Durations of Use

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	92,982	3	30,994	66,197	,000
Within Groups	325,870	696	,468		
Total	418,851	699			

After ANOVA test, multiple comparisons were made for varying amount of daily time spent on social media (ranging from less than an hour to more than five hours per day). All comparisons produced significant results ($p < .000$). The biggest difference was observed between the minimum amount of time to maximum amount of time (mean difference was 1,21/5,00). It means, when the time spent for the use of social media increases, the level of addiction also increases. Stated alternatively, the lesser the time, lower the addiction on social media. Further analyses showed that more exposure to social media increase the level of addiction in all dimensions.

This is due to the fact that the correlation coefficients among dimensions of social media addiction are all positive and significant. The lowest correlation is between salience and mood modification ($r = .287$), while the highest correlation is between relapse and conflict ($r = .609$). The correlations among dimensions of social media addiction are at medium or high levels. When separate calculations were made for high school and university students, the general situation was similar for both groups. The lowest correlation was is between salience and mood modification ($r = .231$ for high school and $r = .296$ for university students), while the highest correlation is between relapse and conflict ($r = .600$ for high school students and $r = .595$ for university students).

4. CONCLUSIONS AND RECOMMENDATIONS

Students in the present study reported a moderate level of social media addiction. This suggests that if the right steps are taken, it will be possible in the future to overcome this type of addiction in Turkey. Gender played a significant role in this regard. It appears that female students are more addicted on social media than male students. When considering high school students, there are gender differences on the dimensions of mood modification and withdrawal but other differences are not statistically significant. Findings for university students have some similarities as well as differences. There was no significant differences between male and female university students in terms of salience tolerance, relapse, withdrawal, and conflict. However, the gender difference for mood modification was significant, females being more addicted. Gender was found as an important factor affecting social media addiction by Steggink (2015) in the Netherlands and by Monacis et al. (2017) in Italy. On the other hand, there is no relationship between gender and social media addiction on the results of Wang et al. (2015) in China, Jafarkarimi et al. (2016) in Malaysia, and Blachnio et al. (2016) in Poland. This leads to a cross-cultural interpretation of the fact that gender has an impact on social media in some countries. Therefore, each culture should be assessed in a deeper way within its own specific conditions.

It is found that social media addiction level of high school students is significantly higher than social media addiction level of university students. It can be claimed that the factors such as characteristics of age group, educational status, and intensified text-anxiety (even stress and depression) regarding the university entrance exam that the Turkish high school students confront may be effective. This result is supported by

Zaffari's (2015) and Wang's (2015) studies revealing that that social media addiction is related to depression and anxiety of users; that is, as the levels of depression and anxiety increase, the users become more inclined towards social media addiction. Thus, it may be helpful for researchers to seek elaborate information on this issue.

Anatolian high school students stay more on social media than Science high school students. Science high school students have a more demanding curriculum, and students who study in these schools concentrate more on their courses; it is probably effective in low addiction scores. Similarly, when we look at the departmental effects on social media addiction, academic department in which students pursue an undergraduate degree has an impact on salience and withdrawal but not on other dimensions. Indeed, according to Zaffari et al. (2015) study on Pakistani students, there is a negative relationship between academic performance and Facebook addiction. It will be useful for researchers to investigate this issue further in the future studies.

The present study determined that both the majority of high school students (84%) and that of university students (87%) use social media for at least two hours a day. However, as the duration of social media use increases, the level of addiction (together with all dimensions) increases. This situation can be explained with the increase in daily time spent on social media and the increase of the connection with the virtual life that the individual has established there. The addiction study of Jaffarkarimi et al. (2016) on students in Malaysia also shows that time of use is an important variable affecting addiction.

The comparison of the social media addiction level of students in Turkey with different countries will be helpful in identifying where Turkey stands. In a study conducted by Salem et al. (2016) in Egypt and Kuwait, participants' addiction levels were reported as 49.5 over 90 on average. In addition, the studies in Belgium and Germany show that addiction in these countries is not yet fully developed. According to Idubor's work in Nigeria, there is a high social media addiction among students in this country (Idubor, 2015). Finally, according to the study by Zhang et al. (2008) comparing the addiction level of young people in USA and China, 14% of students were heavily addicted to the Internet, 64% were slightly addicted, and 22% were not addicted. Among the U.S. respondents, 4% were heavily addicted to the Internet, 23% were slightly addicted, and 73% were not addicted. These figures show that social media addiction is a phenomenon that varies from country to country. Turkey places somewhere in the middle with moderately disturbing signs. This can be explained by variables such as countries' cultures, education systems, social structures, practical opportunities, and the relationship with technology. It would be useful to carry out research that compare cross-cultural social media addiction so that the causes of this situation can be better understood.

As a final remark, the use of social media is increasing at a very rapid pace in Turkey as the case in many other countries. This situation brings the risk of social media addiction, especially among young people. In order to proceed further in a healthy manner, effective measures should be taken in social, political, cultural, and educational contexts. Pertinent actions should focus particularly on improving legal regulations, educational opportunities, public awareness, psychological services, media consciousness, technological skills, parental guidance, and individual attentiveness.

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