Self-Esteem, Daily Internet Use and Social Media Addiction as Predictors of Depression among Turkish Adolescents

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Abstract

In this study, direct and indirect effects of self-esteem, daily internet use and social media addiction to depression levels of adolescents have been investigated by testing a model. This descriptive study was conducted with 1130 students aged between 12 and 18 who are enrolled at different schools in southern region of Aegean. In order to collect data, "Children's Depression Inventory", "Rosenberg Self-esteem Scale" and "Social Media Addiction Scale" have been used. In order to test the hypotheses Pearson's correlation and structural equation modeling were performed. The findings revealed that self-esteem and social media addiction predict %20 of the daily internet use. Furthermore, while depression was associated with self-esteem and daily internet use directly, social media addiction was affecting depression indirectly. Tested model was able to predict %28 of the depression among adolescents.

Keywords: depression, self-esteem, daily internet use, social media addiction, structural equation modeling

1. Introduction

Depression is one of the major health problems among modern society. Research conducted by World Health Organization (WHO) in 2016 revealed that depression is affecting approximately 350 million people from all around the World. Different from general mood change and short term emotional reactions against daily struggles, depression becomes a very dangerous and serious health problem especially when intense depressive feelings and symptoms are shown for extended period of time. It is a common and serious psychological disorder and affects individuals' daily routine activities and abilities such as thinking, feeling, sleeping, eating, working and studying (NIMH, 2016). Duran (1999) defined depression as a syndrome that includes symptoms of retardation and fuzziness in speech and movement; worthlessness, pettiness, weakness and reluctance; pessimistic emotions, thoughts and psychological states.

Depression is a mental illness that also affects adolescents prevalently. While depressive symptoms can be seen among children uncommonly, beginning from early stage of adolescence, symptoms are escalating acutely (Fleming & Offord, 1990). Major depressive illnesses are usually commencing in adolescence and because of their chronic and repetitive character there is a high probability of iteration in adulthood (Jacob et al., 2008). Kim-Cohen et al. (2003) reported that 75% of the adults that are going through major depressive disorder have experienced their first depressive episode in childhood or adolescence.

It was reported that 2.8 million American adolescents who are between ages of 12 to 17 have gone through at least one major depressive episode in 2014. This was the 11.4% of the total population of age of 12-17 adolescents. In recent years, these numbers have been going up regularly (Abuse, 2014). Depression has been seen among Turkish adolescents as well. A study conducted by Eskin et al. (2008) has shown that among high school students, 61.5% of the participants were having mental health problems. In other research, Toros et al. (2005) conducted a study with the students aged between 10 and 20; findings revealed that 12.5% of the participants had high levels of depression.

There is number of psychical, social and psychological factors thought to be effective on depression. One of them is self-esteem which expresses the individuals' respect towards themselves. Self-esteem is self-appreciation and self-approval which originated from self-assessment (Yavuzer, 2003; as cited in Sarıkaya, 2015). Individuals who are lack of self-liking and seeing themselves lower than actually who they are, feel and perceive themselves inadequate against their surroundings. They tend to be more sensitive against criticism and rather focus on how people see them. As a result of this, they avoid taking risks, they usually demonstrate self-enclosed behavior and they feel alone and left-off (Rosenberg & Owens, 2001; as cited in Sowislo & Orth, 2013).

Vulnerability model is one of the models that was developed to define the relationship between depression and self-esteem. According to this model, lower self-esteem is a serious risk factor for future depression (Orth, Robins ve Roberts, 2008). Individuals with low self-esteem usually are in a need for constant approval from their friends and loved ones in order to feel valuable and precious. This situation is lifting the probability of being rejected by their close friends and consequently the probability of being depressed (Joiner, Alfano & Metalsky, 1992). In many research, relationship between depression and low self-esteem have been revealed (Burwell & Shirk, 2006; Conti, Adams & Kisler, 2014; Erözkan, 2009; Eskin et al., 2008; Kernis et al., 1998; Li et al., 2015; Lin, 2015; Orth et al., 2008; Orth et al., 2014; Orth et al.,2016; Steiger, Fend & Allemand, 2015; Wouters et al., 2013).

For individuals who are having difficulties in expressing themselves, feeling alone and left-off, it may be

thought that since virtual platforms such as internet and social media allow individuals to be anonymous by disguising their identity, they can act as a person they are not and express themselves more comfortably (Kurtalan, 2008). In a recent study, it was reported that, over 7.3 million people are living in the world, 3.4 million of them are using internet and 2.3 million of them are active social media users. These results show that number of internet and active social media users were up 10% compared to 2015 results (Chaffey, 2016).

Statistics suggest that majority of internet users are also social media users. Social media enable individuals to communicate with one another through internet. It also contains communion platforms such as Facebook, Twitter and YouTube that provides availability to online interactions (Corbeil & Corbeil, 2011). Using social media platforms such as Facebook and Twitter have become widespread among adolescents. According to recent study conducted with American students aged between 13 and 17, while 90% of them were social media users, 75% of them were using social networking sites and nearly 35% of them were logging in to their social media profiles several times a day (Rideout, 2012). As a result of their study with the students aged between 13 and 19, Kırık et al. (2015) also reported that social media was effective on students' lives and social media use and addiction levels were increasing among adolescents.

Social media is the most commonly used platform on the internet and it is becoming rapidly the most important communication and interaction tool. Number of users of social networking platforms is growing in accordance with the increasing use of internet (Çam & İşbulan, 2012). However, although social media enables individuals to interact with a wide range of people, these superficial and artificial interactions stay inadequate for replacing the face-to-face communications. Excessive use of internet and social networking platforms could weaken the connections between individuals and their families, friends and loved ones. As a result of that, individuals may feel lonelier and depressed (Pantic, 2014; Yellowless & Marks, 2007).

When the literature reviewed, number of research regarding subjects of depression, self-esteem, excessive internet use and social media addiction have been noticed. As a result of their study with adolescents and teenagers aged between 15 and 21, Orth et al. (2008) concluded that low self-esteem was causing depression. This finding supports the vulnerability model that suggests lower self-esteem is significant predictor of depression. Another finding that supports this model was found by Kernis et al. (1998). According to this study, unstable self-esteem causes vulnerable feelings of self-worthiness and this leads to depressive symptoms. In other study, Erözkan (2009) who has investigated the predictors of depression among 8 graders reported that low self-esteem was an important predictor of depression. In a similar study, Eskin et al. (2008) found out that low self-esteem was causing depression among high school students. In a meta-analysis conducted by Chen, Chiu & Huang (2013), 50 studies containing more than 32,000 participants were examined. As a result of the study, findings revealed that there was a moderate but significant relationship between self-esteem and depression. Aside from these studies, Shrier et al. (2001) conducted a research with 6,583 adolescent students who were in grades of 7th to 12th. As a result of the study it was stated that there was no significant relationship between depressive syndrome and self-esteem.

In the literature, it can be seen that there is number of studies which have investigated the relationships between daily internet use, pathological internet use, internet addiction and depression. For instance, according to Sanders et al. (2000), increase on internet use was causing weakening effect on social relations, however that wasn't affecting the depression levels of the students significantly. In similar studies, Banjanin et al. (2015) and Tan et al. (2016) stated that there was a significant positive correlation between internet use and depression. According to them, as the time spent online increased depression level of individual was rising. In another study, Ayas & Horzum (2013) investigated the relations between internet addiction, loneliness, self-esteem and depression among high school students. Findings revealed that while there was a significant positive relationship between depression and internet addiction, no relations have been found between self-esteem and internet addiction. In a recent study, Budak et al. (2015) stated that internet addiction levels of the university students were causing elevation on psychopathological symptoms and drop on their self-esteem.

As the use of social media and social networking sites widened rapidly, studies that were investigating the effects of this increase to depression have been conducted. Pantic et al. (2012) reported that daily time spent on social media was causing adjuvant effect on depression levels of the high school students. Steers, Wicham & Acitelli (2014) have reported a similar result to the findings of Pantic et al. (2012). According to this study, staying longer on Facebook was making students more depressed. In contrast to the finding of Pantic et al. (2012), Jelenchick, Eickhoff & Moreno (2013) stated that there was no significant relationship between daily time spent on social networking platforms and depression among university students. In other study, De Choudhury, Counts & Horvitz (2013) have developed a model that was aiming to analyse the tweets of individuals in order to determine their depression levels. As a result of the study, it was reported that social media platforms such as Twitter could be consistent, reliable sources for measuring the depression levels of the individuals. It was also stated that detecting any sign of depression at early stages would enable specialists to prevent and intervene symptoms before escalating. Another study, that has investigated the Facebook status updates of the university students, revealed that 25% of the students were showing depressive symptoms and 2.5% of them were determined as in a major depressive episode.

Despite there is a number of research that have investigated the effects of self-esteem, internet use and social media addiction on the depression levels of the individuals, number of studies conducted with Turkish adolescents thought to be inadequate. Therefore, this study was seemed to be needed in order to study the effects of psychological and technological factors on the depression levels of Turkish adolescents. Furthermore, contributions of the studies which are investigating the effects of excessive use of internet and social media on individuals' psychology considered to be beneficial to the literature.

Hypotheses of this research are:
1- There is a positive association between depression and daily internet use.
2- There is a positive association between depression and social media addiction.
3- There is a negative association between depression and self-esteem.
4- There is a positive association between daily internet use and social media addiction.
5- There is a negative association between daily internet use and self-esteem.

2. Method

2.1 Research Design

In this study, relational survey design has been used. Relational survey design enables researchers to investigate the change and the level of the variation of two or more variables together (Karasar, 2015). In order to determine the relationship between depression, self-esteem, daily internet use and social media addiction, structural equation modeling analysis have been utilized.

2.2 Participants

Adolescents aged between 12 and 18 constitute the population of the study. Purposeful sampling method was used in order to choose the participants. 1130 students who are in grades between 6 to 11 in secondary and high schools in southern region of Aegean had participated in this study. Demographic features of the participants are shown in Table 1.

Table 1
Characteristics of the Participants

		n	%
Gender	Female	659	58.7
	Male	463	41.3
Grade Level	6th grade	154	13.6
	7th grade	201	17.8
	8th grade	143	12.7
	9th grade	294	26
	10th grade	177	15.7
	11th grade	161	14.2
Age	12	137	12.1
	13	224	19.8
	14	143	12.7
	15	212	18.8
	16	228	20.2
	17	154	13.6
	18	32	2.8
Online via Mobile	Yes	865	80.5
	No	210	19.5
Daily Internet Use	Less than 1 Hour	384	34
	Between 1-3 Hours	467	41.3
	More than 3 Hours	279	24.7

2.3 Instruments

Children's Depression Inventory (CDI): The CDI consists of 27 items labeled from A to Z. For every item there are 3 possible statements which are given points between 0 and 2. 13 of the items are reverse coded. Highest total score that can be taken from the scale is 54 and pathologic cutpoint is 19. The scale was developed by Kovacs in 1981. Adaptation into Turkish of the scale was conducted by Öy (1991). As a result of reliability test, Cronbach Alfa co-efficient was found .86. In this study, calculated reliability co-efficient alpha was .85.

Rosenberg Self-esteem Scale (RSES): The scale was developed by Rosenberg (1965). Adaptation into Turkish of the scale was conducted by Çuhadaroğlu (1986). Scale consists of 10 items on a 4-point likert scale. 5 of the items are reverse scored. Consistency of the scale was .71. In this study, reliability co-efficient was found .78.

Daily Internet Use: Daily internet use was one of the variables in this study. In order to identify the

characteristics of internet usage among participants, personal information form was used. Participants have chosen between 3 items which are "Less than 1 hour", "Between 1 to 3 hours" and "More than 3 hours".

Social Media Addiction Scale: In this study, addiction factor of "Social Networking Status Scale" was used. The scale was developed by Arslan & Kırık (2013). Scale consists of 25 items on a 5-point likert scale such as "I lose track of time while i am on Facebook", "I prefer social media over Tv." and "From the early times of the day i feel desire to log in to social networking sites". Calculated Cronbach Alfa reliability co-efficient for this scale was .93. In this study, consistency of the scale was .94.

2.4 Data Analysis

In the analyses, descriptive statistics, Pearson correlation test and structural equation modeling was used. Structural equation modeling is an extensive statistical approach that is used to test models which consist of hypotheses about direct and indirect associations between observed and latent variables (Hoyle, 1995). Analyses were conducted by using Amos 23.0 and Spss 23.0 package programs.

3. Results

3.1 Descriptive Statistics and Inter-correlations

Significant relationships between depression, self-esteem, daily internet use and social media addiction have been observed. While depression was negatively but moderately associated with self-esteem, it was positively but weakly correlated with daily internet use and social media addiction.

Table 2

Mean Scores, Standard Deviations and Correlation Co-efficients of The Variables

Variables	X	Sd	1	2	3	4
1.Depression	16.61	8.37	.			
2.Self-Esteem	29.28	5.39	-.50**	.		
3.Daily Internet Use	1.90	.76	.27**	-17**		
4.Social Media Addiction	75.12	22.32	.13**	-09**	..44**	.

**p<.001

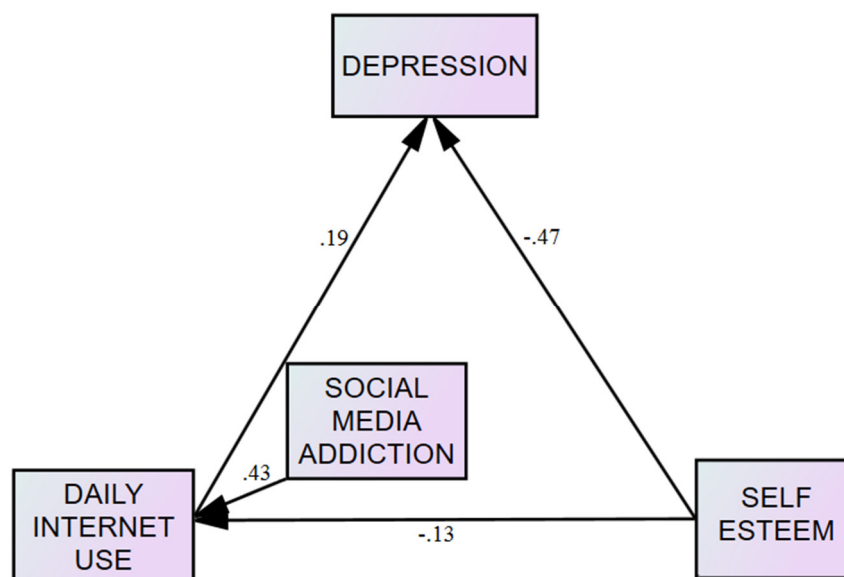### 3.2 Structural Equation Model

Good fit, acceptable values (Hu & Bentler, 1999) and model results are given in Table 3.

According to Table 3., $\chi2$/df and RMSEA results are at acceptable levels and SRMR, GFI, NFI, NNFI, CFI, IFI, AGFI results are at good fit levels. These results suggest that model is accepted.

Table 3

Model Indexes

Indexes	Model Results	Good Fit	Acceptable Values
X^2/df	4.35	X^2/df < 2	X^2/df < 5
RMSEA	.05	RMSEA <. 05	.05 < RMSEA <. 08
SRMR	.03	SRMR < .05	.05 < SRMR < .10
GFI	.99	.95 < GFI < 1	.90 < GFI < .95
CFI	.99	.95 < CFI < 1	.90 < CFI < .95
NFI	.99	.95 < NFI < 1	.90 < NFI < .95
IFI	.99	.95 < IFI < 1	.90 < IFI < .95
AGFI	.98	.90 < AGFI < 1	.85 < AGFI < .90
NNFI	.97	.95 < NNFI < 1	.90 < NNFI < .95

Chi-square= 8.69, df= 2, p-value= .013,   RMSEA= .054
Figure 1. Standardized Values Between Variables

As the t values and standardized values of the variables were examined, it was found that while social media addiction was positively affecting daily internet use (t=16.18, standardized=.43); daily interent use was negatively associated with self-esteem (t=-4.93, standardized= -.13). Furthermore, depression was affected by self-esteem negatively (t=-18.5, standardized= -.47) and it was predicted by daily internet use positively (t=7.39, standardized=.19). Structural equations and R^2 values are presented in Table 4.

Table 4
Structural Equations and R^2 Values

Structural Equation	R^2
Daily Internet Use = .43*SocialMediaAddiction - .13*SelfEsteem	.20
Depression = .08*SocialMediaAddiction + .19*DailyInternetUse - .50*SelfEsteem	.28

Social media addiction and self-esteem were predicting %20 of the daily internet use and %28 of the depression among adolescents was predicted by social media addiction, daily internet use and self-esteem. In the model, daily internet use and self-esteem was affecting depression directly and social media addiction indirectly.

4. Discussion

In this study, variables that are thought to be effective on depression levels of the adolescents have been examined by using correlation analysis and structural equation modeling. Findings revealed that there were significant correlations between depression, self-esteem, daily internet use and social media addiction. It was also found that depression was directly negatively associated with self-esteem and positively with daily internet use. Social media addiction was affecting depression levels of adolescents indirectly (positively).

According to results, self-esteem was affecting daily internet use of adolescents negatively. This finding coincides with some studies (Aydm & San, 2011; Bahrainian et al., 2014; Kim et al., 2016; Mei et al., 2016; Zhang, 2015), as well as it contradicts the other ones (Ayas & Horzum, 2013; Reisoğlu, Gedik & Göktaş, 2013). This result may be explained by that individuals who have low self-esteem are avoiding real interactions and escape to virtual world where they can behave anonymously and act as whoever they want.

In the structured model, most significant predictor of depression was self-esteem. According to this, as the self-esteem levels of students decreased, probability of showing depressive symptoms were going up. Although there is a large number of studies supporting this finding (Burwell & Shirk, 2006; Conti, Adams & Kisler, 2014; Erözkan, 2009; Eskin et al., 2008; Kernis et al., 1998; Li et al., 2015; Lin, 2015; Orth et al., 2008; Orth et al., 2014; Orth et al., 2016; Steiger, Fend & Allemand, 2015; Wouters et al., 2013), some researchers reported different results (Gana et al., 2015; Shrier et al., 2001).

There are various models in the literature that are trying to illuminate the relationship between depression and self-esteem. One of them is vulnerability model which claims low self-esteem is leading individuals to depression. Different from that, scar model asserts that depressive episodes leave certain scars on individuals' psychology and this leads to lower self-esteem. In their study, Steiger, Fend & Allemand (2015) aimed to determine which model was better at explaining the relationship between depression and self-esteem. As a result, findings which are supporting vulnerability model was higher than the findings of scar model. In current study,

similar results were observed as Steiger, Fend & Allemand (2015). According to this, depression was not predicting the low self-esteem levels of adolescents, however, low self-esteem was a significant risk factor and was leading individuals to depression. This may be explained by that individuals with low self-esteem are more sensitive and fragile to negativity around their surroundings. Because of that, this may lead to psychological and emotional damage on person's life by having permanent bad mood.

Another important result of the study is that depression was affected by daily internet use positively. Students who have stayed longer on the internet had higher scores on depression inventory. While this finding is parallel with the result of some studies (Banjanin et al., 2015; Morrison & Gore, 2010; Ostovar et al,. 2016; Tan et al., 2016), it differs from some other studies (Cotton et al., 2014; Moreno, Jelenchick & Breland, 2015; Sanders et al., 2000). As a result of their research that has investigated the association between depression, social isolation and internet use, Sanders et al. (2000) reported that while increased time spent online was weakening the social relations, it was not significantly affecting the depression levels of adolescents. Opposing to Sanders et al. (2000), findings of this study suggest that daily time spent online was predicting depression weakly but significantly. This may be interpreted by that the more students stay away from real life and interactions, the more they get lonely and depressed. As much as there is online communication with other people, since human beings also need physical interactions, these artificial and superficial relations might not be enough to feel fulfilled and satisfied emotionally and psychologically.

Parallel to daily internet use, social media addiction was also positively correlated with depression and analyses revealed that depression levels of adolescents was associated with social media addiction indirectly. It means as the time spent on social media increases, risk of depression is going up. As some studies resulted similarly (Pantic et al., 2012; Sagioglou et al., 2014; Sidani et al., 2016; Woods & Scott, 2016), some of them did not (Banjanin et al., 2015; Jelenchick et al., 2013; Tandoc, Ferrucci & Duffy, 2015). These diversified results suggest that more studies may be needed to shed light on the relationship between social media addiction and depression. Finding of this study suggest that social media addiction causes increased time spent online and as a result of it, there is a higher probability for depressive symptoms to be seen.

As a result of this study, it may be concluded that self-esteem, daily internet use and social media addiction are significant predictors of depression among Turkish adolescents. Adolescence is a transitional period between childhood and adulthood that brings number of psychological, physiological and cognitive alterations into the individuals' lives. In this vulnerable period, harmful factors such as depression which could affect students' development negatively must be avoided as much as possible. Furthermore, conducting preventive studies would be beneficial for healthy development of adolescents. In accordance with this purpose, in order to be able to prevent possible damages, it may be suggested that other possible risk factors that can cause depression among adolescents should be examined. Also, teachers, psychological counselors and adults should gain more consciousness about negative factors affecting adolescents.

This study has some limitations. First limitation is that, sample of the study was consisted of students only from a single city in southern region of Aegean. Conducting future studies with samples from various cities and different age groups would be beneficial in order to generalize the model that was tested in this study. Another limitation is that data was collected by using quantitative scales and self-reports. It may be suggested that new studies may be conducted by using more detailed qualitative instruments to shed further light on these associations.

Acknowledgements

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