THE INVESTIGATION OF THE INTERNET ADDICTION LEVELS OF UNIVERSITY STUDENTS IN TERMS OF SOME DEMOGRAPHIC VARIABLES AND SELF-ESTEEM

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Abstract:

The aim of this research is to examine the internet addiction levels of university students in terms of gender, daily time spent online, the frequency of daily internet use and self-esteem. A total of 169 volunteer university students, 127 (75.1%) and 42 (24.9%) men, participated in this study. The data were collected with "Personal Information Form", "Young's Internet Addiction Test-Short Form" and "Two Dimensional Self-Esteem Scale". Independent samples t-test, ANOVA, Pearson Product-Moment correlation analysis and simple linear regression analysis techniques were used in data analysis. In the research findings, it has been revealed that university students who use internet for 7 hours or more have higher total scores of the internet addiction than university students who use internet for 1-2 hours daily. In addition, the group with the highest internet addiction scores was found to be university students who use the internet continuously. Finally, the self-esteem was found to be significant predictor of the internet addiction.

Keywords: internet addiction, self-esteem, university students

1. Introduction

The popular communication tool used by people today is the internet. Most people use the Internet excessively to meet their psychological, emotional, social and physical needs. This excessive internet use has started to have some negative effects on people's lives. These negative effects such as excessive mental engagement with the internet and failure

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in controlling the internet usage are known as indicators of internet addiction (Bağatarhan, 2020).

Internet addiction is defined as a form of addiction that occurs as a desire to use the internet unlimitedly, to continue using it for all its harms and to experience intense anxiety when there is no access to the internet (Griffiths, 2000). In another definition, internet addiction is the case of spending time on the internet continuously, using the time spent on the internet uncontrolled, hiding the internet use and continuing to use it regardless of all the negativities experienced in this case (Young, 2007). Internet addiction was found to be 50% with a different psychiatric disorder (Çınar & Mutlu, 2019). As a result, the common aspect of these definitions is that the most important indicator in the conceptualization of internet use as addiction is that the individual spends excessive and uncontrolled time at the Internet. Internet addiction is connected with some variables such as self-esteem, anxiety and loneliness. On the other hand, there are both individual and environmental variables that affect internet addiction. At this point, self-esteem can be evaluated within the scope of individual variables. In this study, self-esteem is thought to have affected the internet addiction levels of the students.

One of the important variables affecting internet addiction is self-esteem. Self-esteem is the positive or negative attitude that the individual develops towards him or her (Rosenberg, 1965). Self-esteem is defined by Coopersmith (1967) as an internal image that determines the individual's own attitudes and behaviors. In another definition, self-esteem is defined as individual's self-confidence, self-worth and self-acceptance (Esenay, 2002). As a result, the common point of these definitions is that self-esteem is a part of one's self-image, and is based on feelings of worthiness and competence. In addition, it was found that depressive, phobic, obsessive and paranoid thoughts were higher in children and adolescents with high internet usage time. In addition, these individuals have been found to have disruption in thought processes, insensitivity in relationships, and deterioration in their health status (Odabaşıoğlu, 2007). In conclusion, these studies show that internet addiction has many negative effects on the emotional state and mental process of the individual. In order to reduce these negative effects, first of all, the factors that increase the self-value of the individual should be determined. At this point, the concept of self-esteem becomes important. Because the individual improves thought processes and controls the emotional state by accepting, valuing and trusting, that is, by increasing self-esteem (Kara, 2017). This positive development process can also contribute positively to the cognitive and emotional process of internet addiction. For this reason, this research, which reveals the relationship between self-esteem and internet addiction, is thought to contribute to the literature.

Grounded on these, the studies examining the internet addiction of university students and studies investigating the role of self-esteem in relation to internet addiction in the literature have been examined. Canan (2010) revealed in his research that the average rate of internet addiction among university students varied between 8.1% and 18.3%. Similarly, in the research conducted by Balcı and Gülnar (2009), 23.2% of university students are internet addicted and 28.4% are risky internet users. In addition,

the rate of internet usage in TUIK (2019) data is 90.8% in the age range of 16-24 shows that addiction may be particularly related to this age group. Therefore, university students are considered the most risky sample in developing internet addiction (Young, 2004). In addition to all these, in the DSM-V, published in 2013, it was included as "*game disruption on the internet*" under the heading "*topics that require further research*". In order to determine which individuals with self-structure and characteristics carry more risk of internet addiction, the demand for further research on the subject in DSM V is important in terms of the fact that internet addiction is at a considerable rate in line with TUIK data and it is more common in the 16-24 age group. There are also many studies presenting that there is a strong relationship between self-esteem and internet addiction. According to Seabra et al. (2017), Internet addiction and self-esteem are significantly and negatively correlated. Low self-esteem also predicts high levels of Internet addiction. Self-esteem is found significantly and negatively correlated with Internet addiction among adolescents (Aydın and Sarı, 2011). As a result, the purpose of this study is to examine the internet addiction levels of university students in terms of some demographic variables such as gender, daily time spent online, the frequency of daily internet use and self-esteem. The following research questions were asked in the current research:

1. What is the internet addiction level of university students?
2. What is the self-esteem level of university students?
3. Do the total scores of internet addiction of university students differ significantly according to gender?
4. Do the total scores of internet addiction of the university students differ significantly according to their daily time spent online?
5. Do the total scores of internet addiction of the university students differ significantly according to the frequency of daily internet use?
6. Is there a statistically significant relationship between the total scores of internet addiction and the total scores of self-esteem of university students?
7. Do the total scores of self-esteem of university students significantly predict the total scores of their internet addiction?

2. Method

2.1 Research Design
This study was designed as a correlational study. In the correlational research design, the existence and direction of the relationships between the variables are discussed (Fraenkel & Wallen, 1993). As it was aimed to reveal the value of some demographic variables and self-esteem of university students to predict their level of internet addiction and their relationships, this study was carried out in accordance with the correlational research pattern.

2.2 Participants

A total of 169 volunteer university students studying in different universities of Turkey, 127 of whom were women (75.1%) and 42 were men (24.9%), participated in this study through online survey. They also study in different departments of different universities. Since the data were normally distributed, outliers and missing value analysis wasn't performed. The age ranges of these university students are 18-26; the average age is 20.41 and the age standard deviation is 1.74. In addition, personal information of the working group is presented in Table 1.

Table 1: Demographic Distribution of the Participants

		N	f	%
Gender	Female	127		75.1
	Male	42		24.9
	Total	169		100
Class Level	1st		51	30.2
	2nd		48	28.4
	3rd		22	13.0
	4th		41	24.3
	5th		4	2.4
	Preparatory Class		3	1.8
	Total		169	100

2.3 Data Collection Instruments

2.3.1 Personal Information Form

This form has been prepared to get information about the participants' gender, class level, age, daily time spent online and the frequency of daily internet usage.

2.3.2 Young's Internet Addiction Test - Short Form

This scale was developed by Young (1998). It was adapted to Turkish by Kutlu, Savcı, Demir and Aysan (2016) and its validity and reliability study was carried out. For the validity of the scale, exploratory factor analysis, confirmatory factor analysis and criteria-dependent validity were performed. For the reliability of the scale, Cronbach alpha coefficient and test-retest method were examined. It consists of 12 items. It is one-dimensional and a five-point Likert type scale. In the validity study conducted by Kutlu, Savcı, Demir and Aysan (2016), the construct validity was examined. Confirmatory factor analysis was used for construct validity. As a result of the confirmatory factor analysis, fit index values were found as RMSEA = 0.072, $\chi2 = 144.93$, sd = 52, CFI = 0.95, GFI = 0.93, IFI = 0.91 and AGFI = 0.90. Also, the reliability study performed by Kutlu, Savcı, Demir, and Aysan (2016) was evaluated by the internal consistency coefficient. The internal consistency coefficient value was found to be 0.91. In this study, the Cronbach Alpha coefficient of the scale was found to be 0.88.

2.3.3 Two Dimensional Self-Esteem Scale

This scale was developed by Tafarodi and Swan (2001). It was adapted to Turkish by Doğan (2011), validity and reliability analyzes were performed. Item analysis, internal consistency, test-retest, confirmatory factor analysis (CFA) and criterion-related validity methods were examined for validity and reliability. It has 16 items. It is a 5 point Likert type scale. The scale has two sub-dimensions. These are self-liking and self-competence. In this study, this scale was used with total points. Confirmatory factor analysis was used in the construct validity analysis by Doğan (2011). In the confirmatory factor analysis results, the goodness of fit values of the scale were determined as RMSEA = 0.049, χ^2 = 258.93, sd = 98, CFI = 0.97, GFI = 0.94, IFI = 0.97 and AGFI = 0.91. In addition, in the internal consistency reliability analysis conducted by Doğan (2011), the reliability coefficient was found as .74 for self-competence and .83 for the self-liking sub-dimensions. In addition, the test-retest reliability coefficient was calculated as .72 for both sub-dimensions. In this study, the Cronbach Alpha coefficient of the whole scale was calculated as 0.89.

2.4 Data Analysis

At the data collection part, the surveys were sent to the university students in an online platform. Firstly, preliminary analysis of the data collected through online survey was made. At this point, skewness and kurtosis values were examined for the assumption of normality. Grounded on the Tabachnick and Fidell (2007) criteria, the data showed normal distribution. After the normality assumption was met, the independent samples t-test from difference tests in order to determine whether the internet addiction differs significantly according to gender and ANOVA difference test in determining whether internet addiction differs significantly according to daily time spent online and daily internet usage frequency were used. In addition, in determining the source and direction of the difference, Games- Howell test from Post hoc tests when variances were not distributed homogeneously, and Tukey test from Post Hoc tests in cases where variances were distributed homogeneously were used. Levene test was examined for the test of homogeneity. Then, Pearson Product Moment correlation analysis was applied to determine the relationship between internet addiction and self-esteem, and finally, simple linear regression analysis technique was used to reveal the value of self-esteem to predict internet addiction.

3. Results

3.1 Preliminary Analysis

In this context, kurtosis and skewness values were examined. Grounded on the skewness values given in Table 2; the skewness value of the total score of Internet addiction is .42 and the skewness value of the total score of self-esteem is -.39; When kurtosis values are examined in Table 2; the kurtosis value of the total scores of internet addiction is -.66 and the kurtosis value of the total scores of self-esteem was found -.01.

Table 2: Skewness and Kurtosis Values

Variables	Skewness	Kurtosis
TSIA	.42	-.66
TSSE	-.39	-.01

Note: TSIA: Total Scores of Internet Addiction; TSSE: Total Scores of Self-Esteem

Considering the skewness and kurtosis values in Table 2, it can be interpreted that the data show normal distribution considering the Tabachnick and Fidell (2007) criteria.

Table 3: Descriptive Statistics

Variables	Min	Max	$\overline{X}$	SD
TSIA	13	48	28.56	8.42
TSSE	25	76	54.71	9.80

Note: TSIA: Total Scores of Internet Addiction; TSSE: Total Scores of Self-Esteem

The first and second research questions of the study are "What is the internet addiction level of university students?" and "what is the self-esteem level of university students?" The scores can range between 0 and 60 in Young's internet addiction test. High scores also show the high levels of internet addiction. The score of two dimensional self-esteem scale can range between 0 and 80. In this study, while the total scores of internet addiction of university students is ($\overline{X}$:28.56); the total scores of self-esteem is ($\overline{X}$:54.71) as stated in Table 3.

Table 4: Independent Samples t-Test Comparing
the Total Score of Internet Addiction and Gender

Dependent Variable	Gender	N	$\overline{X}$	SD	t	p
TSIA	Female	127	28.71	8.17	.40	.68
	Male	42	28.10	9.24		

Note: **p<0.01; *p<0.05; TSIA: Total Scores of Internet Addiction.

The third research question of the study was determined as "Do the total scores of internet addiction of university students differ significantly according to gender?" At this point, the Levene test was first looked at for the homogeneity of the variances. As a result of Levene test, it was revealed that the variances were distributed homogeneously (.92; p>.05). According to Table 4, the total scores of internet addiction do not differ significantly in terms of gender (p> .05).

Table 5: The Total Scores of Internet Addiction
ANOVA Results Using Daily Time Spent Online as the Criterion

Variable	DTSO	n	$\overline{X}$	SD	F	p
TSIA	1-2 hour	44	25.32	7.20	3.52	.01*
	3-4 hours	64	29.66	7.20		
	5-6 hour	43	28.93	9.33		
	7 hours and over	18	31.67	10.97		

Note: **p<0.01; *p<0.05; TSIA: Total Scores of Internet Addiction; DTSO: Daily Time Spent Online

The fourth research question of the study is whether the total scores of university students' internet addiction differ significantly according to their daily time spent online. Grounded on the results of the ANOVA test (Table 5), the total scores of internet addiction differ significantly according to the daily time spent online (p <.05). Post Hoc tests were used for the direction and source of the difference. At this point, the Levene test was first looked at for the homogeneity of the variances. As a result of Levene test, it was revealed that the variances were not distributed homogeneously (4.22; p <.01). For this reason, Games-Howell test, which is one of the Post Hoc tests, was applied. Table 6 represents Games- Howell test findings.

Table 6: Games- Howell Test Results

(I) Daily Time Spent Online	(J) Daily Time Spent Online	Mean Difference (I-J)	SD	p
1- 2 hours	3-4 hours	-6.34	2.80	.13
	5- 6 hours	-3.61	1.79	.19
	7 hours and more	-.4.33	1.41	.01*
3-4 hours	1- 2 hours	6.34	2.80	.13
	5- 6 hours	.72	1.68	.97
	7 hours and more	-2.01	2.74	.88
5- 6 hours	1- 2 hours	3.61	1.79	.19
	3-4 hours	-.72	1.68	.97
	7 hours and more	-2.73	2.95	.79
7 hours and over	1- 2 hours	4.33	1.41	.01*
	3-4 hours	2.01	2.74	.88
	5- 6 hours	2.73	2.95	.79

Note: **p<0.01; *p<0.05

Considering the results of Games-Howell test in Table 6; the total scores of internet addiction differ significantly between participants who use the internet for 7 hours and over and those who use the internet for 1-2 hours daily (p <.05). Internet addiction total scores of participants who use internet for 7 hours and over ($\overline{X}$:31.67) are higher than those who use internet for 1-2 hours daily ($\overline{X}$ =25.32). Standard deviation levels of participants who use the internet for 7 hours and over and those who use the internet for 1-2 hours daily is 1.41.

Table 7: The Total Scores of Internet Addiction ANOVA
Results Using Daily Internet Usage Frequency as the Criterion

Variable	DIUF	n	$\overline{X}$	SD	F	p
TSIA	Seldom	39	26.67	8.48	12.83	.00**
	Sometimes	82	26.27	6.46		
	Often	36	32.64	9.12		
	Always	12	38.08	7.63		

Note: **p<0.01; *p<0.05; TSIA: Total Scores of Internet Addiction; DIUF: Daily Internet Usage Frequency

The fifth research question of the study was determined as "Do the total scores of internet addiction of the university students differ significantly according to the frequency of

daily internet use?" As indicated in Table 7, the total score of the internet addiction differ significantly according to the frequency of daily internet use (p <.01). Post Hoc tests were also used to determine the direction and source of the difference. Accordingly, the homogeneity of variances was evaluated by Levene test. Grounded on the Levene test result, variances were found to be distributed homogeneously (2.98; p> .01). For this reason, the Tukey test, which is one of the Post Hoc tests, was applied. Tukey test results are presented in Table 7.

Table 8: Tukey Test Results

(I) Daily Internet Usage Frequency	(J) Daily Internet Usage Frequency	Mean Difference (I-J)	SD	p
Seldom	Sometimes	.39	1.48	.99
	Often	-5.97	1.77	.00
	Always	-11.41	2.52	.00
Sometimes	Seldom	-.39	1.48	.99
	Often	-6.37	1.53	.00
	Always	-11.81	2.36	.00
Often	Seldom	5.97	1.77	.00
	Sometimes	6.37	1.53	.00
	Always	-5.44	2.55	.14
Always	Seldom	11.41	2.52	.00
	Sometimes	11.81	2.36	.00
	Often	5.44	2.55	.14

As can be seen in Table 8 which represents the Tukey test findings, the total score of internet addiction differ significantly between participants who always use the internet and participants who seldom use the internet, between participants who always use the internet and those who sometimes use the internet, between participants who often use the internet and participants who seldom use the internet, and between the participants who often use the internet and the participants who sometimes use the internet in a day (p<.01). It is determined that the group with the highest internet addiction scores is the participants ($\overline{X}$:38.08) who always use the internet.

Table 9: Pearson Product- Moment Correlation Analysis Results between TSIA and TSSE

Variable	TSSE
TSIA	-.43**

Note: **p<0.01; *p<0.05; TSIA: Total Scores of Internet Addiction; TSSE: Total Scores of Self-Esteem

Sixth research question of the study is whether there is a significant relationship between the total scores of internet addiction of university students and the total scores of their self-esteem?" In the research, whether there is a multiple linear connection problem was evaluated with VIF and tolerance values. In this context, the VIF value was found to be 1.00 and the tolerance value was 1.00 in this study. According to Kline (2015), the fact that the VIF value is lower than 5 and 10 and the tolerance value is higher than .10 indicates that there is no multiple linear connection problem. As a result, there is no multiple linear

connection problem in this study. Table 9 shows that there is a moderate and negative relationship between the total scores of internet addiction and the total scores of self-esteem which was statistically significant (r = -.43, p <.01).

Table 10: Simple Linear Regression Analysis Results

Independent Variable	B	SH	β	t	p
Constant	49.17	3.32		14.80	.00
TSSE	-.37	.06	-.43**	-6.30	.00
N=169, R=.43, R²= .19, F=39.76, p< .01**, p<.05*					

Note: TSSE: Total Scores of Self-Esteem

The seventh research question of the study is whether the total scores of self-esteem of university students significantly predict the total scores of their internet addiction. As indicated in Table 10, significant relationships were found between self-esteem and internet addiction [R = .43, R² = .19, F = 39.76, p <.01]. In the t-test findings regarding the significance of the regression coefficient, it is seen that the total score of the self-esteem (β: -.43; t: -.6.30) is an important and significant predictor on the total score of the internet addiction (p <.01). In addition, the total score of self-esteem explains about 19% of the variance of the total score of internet addiction

4. Discussion

In this study, it was aimed to examine the internet addiction levels of university students in terms of some demographic variables and self-esteem. Young's internet addiction test scores can range between 0 and 60. High scores also show the high levels of internet addiction. In this study, the total scores of internet addiction of university students is ($\overline{X}$:28.56). The scores of two dimensional self-esteem scale can range between 0 and 80. The total scores of self-esteem is ($\overline{X}$:54.71) in this study. It was found that total scores of internet addiction did not differ significantly between male and female university students. In addition, it was revealed that university students who use internet for 7 hours or more have higher internet addiction scores than university students who use internet for 1-2 hours daily. In addition, the group who has the highest total scores of internet addiction was determined to be university students who use the internet continuously in a day. Finally, the total score of self-esteem was found to be an important and significant predictor of the total score of internet addiction.

One of the findings of this study is that there was no statistically significant difference among the participants' gender on their total scores of internet addiction. There are studies supporting this finding in the literature (Doğan, Işıklar & Eroğlu, 2008; Leung, 2004; Weinstein et al., 2015). This finding can be explained by the fact that both men and women establish development tasks such as an identity and close relationship. Individuals who fail to fulfill these developmental tasks successfully can use the Internet as a means of socializing and getting identity. For example, instead of communicating or meeting someone in their real life, these individuals can enter the process of chatting on

the internet or making new friends. At this point, the internet acts as a savior for them in terms of socialization. Likewise, for individuals who constantly fail during the identity acquisition process, they hide their real identity on the internet and turn to activities such as virtual shopping, gambling, gaming and virtual relationships. Thus, the internet acts as a convenient and safe port for them, where they express themselves best and can decide what they want to be by trial. On the other hand, there are studies showing there is significant relationship between internet addiction and gender (Morahan-Martin & Schumacher, 2000).

One of the findings of this study is that the total scores of internet addiction differ significantly according to daily time spent online. It has been found that university students who use internet for 7 hours or more in a day have higher total scores of internet addiction than university students who use internet for 1-2 hours daily. There are studies in the literature that are consistent with this finding (Anlayışlı & Serin, 2019; Morahan-Martin & Schumacher, 2000; Taş, 2018). It is known that internet usage time does not always lead to internet addiction. It is stated that it is not a worry to use information exchange and e-mail transactions on the internet within two hours of the day, but the limit to create the internet addiction is four hours a day (Anlayışlı & Serin, 2019). However, excessive internet usage time is the main determinant of internet addiction (Tsai & Lin, 2003). Because the increase in internet usage time causes individuals to experience negative psycho-social situations such as excessive fatigue, academic problems, virtual emotional relationships, disruption of sleep patterns, distancing from friends, restlessness, anxiety and anger (Bağatarhan, 2020). These negative psycho-social situations can also be considered as important indicators of internet addiction.

Another finding of this study is that internet addiction total scores vary significantly according to the frequency of daily internet use. There are studies supporting this finding in the literature (Balcı & Gülnar, 2009; Johansson & Götestam, 2004). This finding can be evaluated with the conceptual internet addiction model. According to the conceptual internet addiction model, the frequency of the individual's use of the internet is determined by the driving force in it. With the help of the internet, the individual reduces his troubles and experiences relief by accessing applications such as chat, games and video surveillance, developing virtual social relationships and hiding identity. Thus, the individual meets the internal needs. As a result, the motivation of the individual determines the frequency of using the internet (Douglas et al., 2008).

In the last finding of this study, it was found that the total score of the self-esteem was an important and significant predictor of the total score of the internet addiction. There are studies in the literature that are similar to this finding (Armstrong, Philips & Saling 2000; Çınar and Mutlu, 2019; Niemz, Griffiths & Banyard, 2005; Tohumcu, 2018). The finding that self-esteem predicts internet addiction can be explained by the nature of self-esteem. Self-esteem is a bipolar psychological structure (Coopersmith, 1967). The first pole of this structure is the high self-esteem that occurs as a result of the individual's positive self-assessment and the second pole is the low self-esteem that occurs as a result of the individual's negative self-evaluation (Rosenberg, 1965). When the personality traits

are considered, the individual with low self-esteem is less self-confident. The individual can also easily get negative feelings such as despair, anger and anxiety. In addition, the self-value is uncertain, unstable and external control focused (Tohumcu, 2018). On the other hand, the convenience and entertainment environment offered by the internet for the individual with low self-esteem may be a psychological escape option. This individual may tend to seek self-worth and the need for approval by the community in the environments offered by the internet. This situation may cause internet addiction to increase.

There are some limitations of this research, which should be considered while evaluating the results of this study. The first limitation is the data collection method. The data were collected through online survey from university students who are in different departments of different universities. The second limitation of the study is the ratio of the male and female students in the study. There were 127 female and 42 male in the study. Thirdly, this study focuses on the role of the self-esteem in relation to the internet addiction. The further studies can focus on the other variables affecting the internet addiction.

5. Recommendations

Based on the findings of this research, some suggestions have been made. Firstly, internet addiction reduction programs for university students can be developed. The psychological variable "self-esteem" can also be included in the program. Secondly, comparison studies can be performed with the same variables between groups with and without internet addiction. Thirdly, qualitative research can be carried out to examine internet addiction in more depth. Finally, a model study to prevent internet addiction, including the self-esteem variable, can be carried out.

Conflict of Interest Statement
The authors declare no conflict of interest.

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