

Sahin S^{*1}, Ozdemir K^{*}, Unsal A^{**2}

EVALUATION OF THE RELATIONSHIP BETWEEN INTERNET ADDICTION AND DEPRESSION IN UNIVERSITY STUDENTS

Objective: To assess the Internet addiction and depression level in university students.

Methods: The present study is a cross-sectional study conducted on the students of Sakarya University between 05 April and 05 July 2012. After the departments were selected by casting lots, 994 students who were randomly selected from each class constituted the study group. Students in the classrooms were informed about the objective and purpose of the study. Then they were asked to complete the previously prepared questionnaire under supervision. In the current study, the Internet Addiction Scale was used in order to assess the Internet addiction. The higher scores obtained in the scale represent higher level of Internet addiction. Depression was assessed with the Beck Depression Inventory. Students with a score of 17 and above were regarded to have suspected depression. Data were assessed in SPSS (version 15.0) Statistics Package Program on the computer. Student's t-test, One-Way Analysis of Variance and Spearman's Correlation Analysis were used for analyses. Statistical significance value was taken as $p < 0.05$.

Results: The study group consisted of 573 (57.6%) females and 421 (42.4%) males. They were aged between 18 and 26 with a mean age of 21.10 ± 1.71 years. The scores obtained by the students from the Internet Addiction Scale ranged between 0-90 with a mean score of 20.04 ± 12.85 . The scores obtained from the Beck Depression Inventory ranged between 0-53 with a mean score of 11.32 ± 9.23 . In our study, frequency of suspected depression was determined to be 23.0% ($n=229$). In the present study, Internet addiction level was determined to be higher in males,

* Sakarya University School of Health

** Eskişehir Osmangazi University

those with high family income, those staying in dormitory, smokers, those with an extroverted personality, those having Internet access, those using Internet once a day or more and students with suspected depression ($p < 0.05$ for each).

Discussion: Internet addiction is an important health problem in university students. A significant relationship was determined between Internet addiction and depression.

Key words: University students, Internet addiction, depression, Turkey

INTRODUCTION

As a global communication system of interconnected computer networks, Internet is a technology created based on the ever-increasing desire to “store, share and easily access the generated information”.¹ On December 2011, 32.7% of all people around the world and 44.4% of the Turkish population use the Internet (<http://www.internetworldstats.com/stats.htm> Access date: 11/10/2012).

Internet addiction can be broadly defined as irrepressible desire to overuse Internet, the perception that time spent without Internet connection is futile, hyperirritability and aggression in case of deprivation, and progressive disruption of business, social and family life of a person.^{2,3}

Internet use is more common in young population as they are more interested in technology.^{4,5} It is known that the young people use the Internet for reasons such as research, homework, socializing, downloading music and films, gaming, pornography etc.^{6,7}

It is a well-known fact that young people who spend a significant amount of time by using computer have important issues in interpersonal relationships. It was reported that the young people and children using the Internet in extended periods become gradually isolated and have difficulties in face-to-face communication.^{8,9,10}

Some studies indicate that people develop a new life style based on their Internet activities and negative consequences may occur in real social relations. In other words, depressive individuals rely on the Internet for social assistance, which increases the risk of developing internet addiction as a result of the deterioration of interpersonal relations in their real life.^{9,11}

The concept of depression may be regarded as both a cause and an effect for the Internet addiction. An individual who suffers from depression because of other sociological or psychological factors may either turn towards the Internet and become addicted or become depressed because of the addiction after developing addiction.¹²

This study was conducted to assess the relationship between the Internet addiction and depression in the students of Sakarya University.

MATERIAL AND METHOD

This cross-sectional study was conducted on the students of Sakarya University between 05 April and 05 July 2012.

The number of students at this university in 2011-2012 Academic Year was 31,668. Sample size for this study was calculated as 841 students (incidence of the condition is 11.0%, margin of error 0.04, confidence level 95.0%). After the departments were selected by casting lots, 994 students who were randomly selected from each class constituted the study group.

The questionnaire prepared based on the literature^{9,13,14,15} included questions on some socio-demographic characteristics, some factors believed to be associated with the Internet addiction, Young's Internet Addiction Test and Beck Depression Inventory.

After required approvals had been obtained from the university management, students were gathered in classes and informed about the subject and objective of the study. Informed verbal consents were obtained from those who agreed to take part in the study. Previously prepared questionnaires were completed by the students under supervision. This procedure lasted for 20-25 minutes. The study group consisted of 994 students who were present at the school and agreed to take part in the study. The rules stated in the Helsinki Declaration were complied in the stage of data collection.

Young's Internet Addiction Scale used for assessing Internet addiction was developed by Young in 1998 (Young, 1998), whose reliability and safety study in Turkey was conducted by Bayraktar in 2001.¹⁶ The scores to be obtained from the 20-item scale with 6 Likert type items ranged between 0 and 100. The higher scores denote to increased addiction level. The score of 50 and above was deemed to "have Internet addiction".

Beck Depression Inventory (BDI) used for assessing depression is one of the most widely used scales for depression screening in adults and was developed by Beck et al. in 1961. Turkish reliability and validity study was conducted by Hisli in 1999.^{17,18} The inventory consists of 21 questions with four answer choices. A value of 0 to 3 was assigned to each answer with a total score of 0 to 63. Individuals who obtained a score of 17 and above from this inventory were regarded to have "suspected depression".

In our study, family income level was assessed as high, medium and poor by the students. The students smoking at least one cigarette a day were considered "smokers".¹⁹

Those who defined themselves as uptight, enthusiastic, hasty and impatient were classified as "extroverted personality" and those who defined themselves as quiet, calm, patient and organized were classified as "introverted personality".²⁰ The students whose parents are actively engaged with a revenue-generating business were defined as "employed".

After completing the questionnaire, weight and height of the students were measured to calculate the Body Mass Index (BMI). Those with a BMI equal to or above 25 kg/m² were considered as overweight/obese.²¹

The data was evaluated in IBM SPSS (version 20.0) Statistical Package Program. Mann-Whitney U test (z), Kruskal-Wallis test (KW) and Spearman's Correlation Analysis (r_s) were used for the analyses. Statistical significance value was accepted as $p < 0.05$.

RESULTS

573 students (57.6%) were female and 421 (42.4%) were male. Mean age was 21.10 ± 1.71 years (min: 18, max: 26). The scores obtained from the Internet addiction scale ranged between 0 and 90 with a mean of 20.04 ± 12.85 points. The frequency of Internet addiction was determined to be 8.4% ($n=83$). The distribution of the scores obtained by the students from Internet addiction scale by some socio-demographic characteristics is given in the **Table 1**.

481 students had Type A personality. In the study, smoking frequency was 21.0%, number of overweight/obese students was 155, number of physically handicapped ones was 47 and those with a chronic disease was 96. Frequency of suspected depression was determined to be 23.0% ($n=229$). The distribution of the scores obtained by the students in the study group from the Internet addiction scale by some diseases and other characteristics is given in the **Table 2**.

The mothers of 108 and fathers of 49 students were not literate. 142 students had working mothers and 612 students had working fathers. 32 students had no siblings whereas 414 students were the first-born child in the family. The distribution of the scores obtained by the students from Internet addiction scale by some characteristics of the parents is given in the **Table 3**.

The top reason of using the Internet by the students was studying (21.4%) and the least one was loneliness (4.1%). The reasons for using the Internet by the participants in the study group are given in the **Table 4**.

The mean age for first Internet use was 13.50 ± 2.63 years (min: 6; max: 21) in our study. 791 students stated to have Internet access and there were 718 students using the Internet at least once a day and 181 students using 4 hours or more in a day. The average duration of daily use was 2.38 ± 1.96 hours (min: 0; max: 20). Their academic grade point average was 2.42 ± 0.53 (min: 1.0; max: 4.0). The distribution of the scores obtained by the students from the Internet addiction scale by some characteristics of the Internet use and academic grade point average is given in the **Table 5**.

The average score obtained by the students from the Beck Depression Inventory was 11.32 ± 9.23 (min: 0; max: 53). There was a positive relationship between the scores obtained from the Internet addiction scale and Beck Depression Inventory ($r_s=0.299$; $p=0.000$). The distribution of the scores obtained from the Internet addiction scale and Beck Depression Inventory is given in the **Figure 1**.

Table 1. The distribution of the scores obtained by the students in the study group from the Internet addiction scale by some socio-demographic characteristics

Socio-demographic characteristics	n	Score of Internet Addiction Scale Median (min-max)	Test value z/KW; p	Multiple comparison	p
Faculty name					
Business Administration (1)	113	21.0 (5.0-46.0)	67.477; 0.000	6-5	0.011
Economics and Admin. Sciences (2)	144	19.0 (0.0-65.0)		6-2	0.010
Engineering (3)	140	24.0 (5.0-73.0)		6-1	0.000
School of Health (4)	140	16.0 (0.0-74.0)		6-3	0.000
School of Physical Edu. and Sports (5)	179	17.0 (2.0-66.0)		4-1	0.038
Arts and Sciences (6)	278	14.0 (0.0-90.0)		4-3	0.000
-	-	-		5-3	0.001
-	-	-		2-3	0.004
Sex					
Female	573	15.0 (0.0-74.0)	6.032; 0.000	-	-
Male	425	20.0 (0.0-90.0)		-	-
Age group					
≤19	180	17.0 (1.0-62.0)	5.470; 0.242	-	-
20	210	20.0 (0.0-90.0)		-	-
21	226	19.0 (0.0-73.0)		-	-
22	167	17.0 (0.0-74.0)		-	-
≥23	211	16.0 (0.0-66.0)		-	-
Family type					
Nuclear	841	17.0 (0.0-74.0)	0.540; 0.763	-	-
Extended	111	19.0 (2.0-73.0)		-	-
Divorced	42	19.5 (0.0-90.0)		-	-
Family income					
Poor	39	19.0 (0.0-90.0)	3.634; 0.162	-	-
Moderate	662	17.0 (0.0-74.0)		-	-
Good	293	19.0 (0.0-73.0)		-	-
Where they stay					
With family (1)	210	14.0 (0.0-90.0)	22.778; 0.000	1-2	0.069
Home (2)	376	17.0 (0.0-74.0)		1-3	0.000
Dormitory (3)	373	20.0 (0.0-73.0)		1-4	0.120
Apart (4)	35	21.0 (3.0-56.0)		2-3	0.080
-	-	-		2-4	1.000
-	-	-		3-4	1.000
Total	994	18.0 (0.0-90.0)	-	-	-

Table 2. The distribution of the scores obtained by the students in the study group from the Internet addiction scale by some diseases and other characteristics

Diseases/habits	n	Score of Internet Addiction Scale Median (min-max)	Test value z; p
Personality type			
Extroverted	481	19.0 (0.0-66.0)	3.231; 0.001
Introverted	513	17.0 (0.0-90.0)	
Smoking			
Non-smoker	785	17.0 (0.0-74.0)	3.632; 0.000
Smoker	209	20.0 (0.0-90.0)	
Overweight/obese			
No	839	17.0 (0.0-74.0)	1.630; 0.103
Yes	155	20.0 (1.0-90.0)	
Physically handicapped			
No	947	17.0 (0.0-90.0)	1.767; 0.077
Yes	47	25.0 (3.0-57.0)	
Story of a physician-diagnosed chronic disease			
No	898	18.0 (0.0-74.0)	0.209; 0.834
Yes	96	17.0 (1.0-90.0)	
Depression			
No	765	16.0 (0.0-65.0)	8.628; 0.000
Yes	229	24.0 (0.0-90.0)	
Total	994	18.0 (0.0-90.0)	

Table 3. The distribution of the scores obtained by the students in the study group from the Internet addiction scale by some characteristics of the parents

Some characteristics	n	Score of Internet Addiction Scale Median (min-max)	Test value z/KW; p
Education status of mother			
Below primary school	108	15.0 (2.0-61.0)	6.422; 0.170
Primary school	495	18.0 (0.0-74.0)	
Secondary school	144	18.0 (0.0-55.0)	
High school	158	21.0 (0.0-65.0)	
University	89	17.0 (0.0-90.0)	
Education status of father			
Below primary school	49	15.0 (2.0-46.0)	1.365; 0.850
Primary school	303	17.0 (0.0-74.0)	
Secondary school	178	19.0 (0.0-62.0)	
High school	261	18.0 (0.0-65.0)	
University	203	18.0 (1.0-90.0)	
Employment status of mother			
Unemployed	852	18.0 (0.0-74.0)	1.419; 0.156
Employed	142	16.0 (0.0-90.0)	
Employment status of father			
Unemployed	382	17.0 (0.0-90.0)	0.756; 0.450
Employed	612	18.0 (0.0-73.0)	
Number of siblings			
0	32	17.5 (0.0-42.0)	5.828; 0.120
1	234	20.0 (0.0-90.0)	
2	318	18.0 (1.0-62.0)	
3 and above	410	17.0 (0.0-74.0)	
Birth order of the student			
1 st	414	18.0 (0.0-90.0)	2.287; 0.515
2 nd	320	19.0 (0.0-65.0)	
3 rd	125	16.0 (0.0-65.0)	
4 th and above	135	18.0 (0.0-60.0)	
Total	994	18.0 (0.0-90.0)	