

# Investigating the Association Between Internet Addiction, Depression, Social Phobia, Social Anxiety and Psychiatric Disorders Among Secondary Education Students in Turkey

## Türkiye’de Ortaokul Öğrencilerinde İnternet Bağımlılığı, Depresyon, Sosyal Fobi, Sosyal Kaygı ve Psikiyatrik Bozukluklar Arasındaki İlişkinin İncelenmesi

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### Abstract

**Introduction:** The purpose of the study is to identify the prevalence of Internet addiction (IA) among students and evaluate the association of IA with depression, social phobia, social anxiety and psychiatric disorders.

**Materials and Methods:** A total of 297 students aged 9-14 years and studying at a private school in Gölbaşı/Ankara province were included in the study. The study was conducted between November 2015 and May 2016. The student’s depression inventory; social phobia scale for student and adolescents; social anxiety scale for student-revised and strength and difficulties questionnaire were used as data collection tools. According to the Internet dependency scale, student were classified into 4 groups as non-addicted group, threshold group, risk group and addicted group.

**Results:** According to the Internet dependency scale, the majority (258/86.9%) of the students were not Internet addicts. Twenty seven (9.1%) students were in the threshold group and 12 (4%) student were in the risk group. Compared with the depressed mood, the likelihood of having depression in the risk group was higher ( $p=0.001$ ). The risk group and the threshold group had higher social phobia and social anxiety scores at a statistically significant level than the non-dependent group ( $p\leq 0.05$ ).

**Conclusion:** Internet use is an indispensable element for the lives of generation-Z student. However Internet addiction, which is directly related to this condition, causes many psychological and social problems for student at an alarming level. These problems cannot be ignored and can be avoided by rational use of the internet.

### Öz

**Giriş:** Bu çalışmanın öncelikli amacı, ortaokul öğrencilerinde İnternet bağımlılığının (İB) hangi düzeyde olduğunu belirlemek ve İB’nin depresyon, sosyal fobi, sosyal anksiyete ve psikiyatrik bozukluklarla ilişkisini incelemektir.

**Gereç ve Yöntem:** Araştırma Gölbaşı/Ankara ilinde özel bir okulda öğrenim gören 9-14 yaş arası 297 öğrenci ile Kasım 2015-Mayıs 2016 tarihleri arasında

### Keywords

Internet addiction, depression, social phobia, social anxiety, psychiatric disorders, student

### Anahtar kelimeler

İnternet bağımlılığı, depresyon, sosyal fobi, sosyal kaygı, psikiyatrik bozukluklar, öğrenci

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yürütülmüştür. Araştırmada veri toplama aracı olarak öğrenci depresyon envanteri; çocuk ve ergenler için sosyal fobi ölçeği; öğrenci-gözden geçirilmiş sosyal kaygı ölçeğinin gözden geçirilmiş versiyonu ile güçler ve güçlükler anketi kullanılmıştır. İnternet bağımlılığı ölçeği sonuçlarına göre öğrenciler bağımlı olmayan grup, eşik grup, risk grubu ve bağımlı grup olmak üzere 4 gruba ayrılmıştır.

**Bulgular:** İnternet bağımlılığı ölçeğine göre öğrencilerin önemli bir çoğunluğunun (258/%86,9) internet bağımlısı olmadığı tespit edilmiştir. Yirmi yedi (%9,1) öğrenci eşik grupta iken 12 (%4) öğrenci risk grubunda yer almaktaydı. Depresif duygu durum ile karşılaştırıldığında, risk grubunda depresyon olma olasılığının daha yüksek olduğu belirlendi ( $p=0,001$ ). Risk grubu ve eşik grubunun bağımlı olmayan gruba göre istatistiksel olarak anlamlı düzeyde daha yüksek sosyal fobi ve sosyal kaygı puanlarına sahip olduğu belirlendi ( $p\leq 0,05$ ).

**Sonuç:** Günümüzde İnternet kullanımı Z kuşağı öğrencileri için vazgeçilmez bir unsurdur. Bu gerçekle doğrudan ilişkili olarak ortaya çıkan internet bağımlılığı, öğrencilerde pek çok psikolojik ve sosyal sorunu beraberinde getirmektedir. Bu sorunların göz ardı edilmesi mümkün olmamakla birlikte akılcı internetin kullanımı ile söz konusu sorunların önlenmesi mümkün olabilir.

## Introduction

The use of information technology, new technologies and undoubtedly the internet have a great role in changing the lives of individuals in the modern world. Today the internet has become the most effective and indispensable tool in almost all areas of life, including science, business, education, culture, commerce and politics (1). The new generation has benefited from the internet more than ever before (2). As a consequence, internet is used in various ways, especially by young people (3).

The internet itself is a harmless and even highly functional tool. However, excessive and misuse of the it brings the risk of addiction (4). internet addiction (IA) or problematic internet use is defined as a type of behavioral addiction (5). It causes the difficulty of controlling impulses and the incapacity of disconnecting from internet (6).

IA has become a serious public health problem worldwide, especially in Asia (7) due to the cheap, fast and widespread use it. The easy accessibility of the internet makes it very dangerous, especially for young users (8) and brings along many negative effects for them. Depression is the psychological disorder most commonly associated with IA. However, previous studies support a bilateral relationship between IA and psychiatric symptoms (9). It has been documented that IA has been associated with depression (10-16) and other physiological, social, physical and academic problems (17-22). In this study we aimed to identify the prevalence of IA among student and evaluate the association of IA with depression, social phobia, social anxiety and psychiatric disorders.

## Materials and Methods

In total, 297 student aged 9 to 14 studying at a private school in Gölbaşı district of Ankara were included in the study. The study was conducted between November 2015 and May 2016. Personal information (age, gender, familial characteristics of student, internet usage time, tools used for accessing the internet, internet usage purposes, types of social media they used) of the students were recorded. Ethical committee approval for the study was obtained.

### Data Collection Tools

Internet addiction scale; The student's depression inventory; social phobia scale for student and adolescents; social anxiety scale for student-revised and strength and difficulties questionnaire were used as data collection tools.

As a result of the validity and reliability analyses, it was concluded that the use of the IA scale, which was developed by Gününç and Kayrı (23) (2010) and consisted of 35 items, was appropriate. The Cronbach's alpha coefficient of the scale was 0.94. The students were asked to complete this scale. The Likert type scale items were scored from 5 to 1 (1= definitely not agree, 2= disagree, 3= neutral, 4= agree, 5= completely agree). According to the IA scale, students were classified into 4 groups as non-addicted group, threshold group, risk group and addicted group. The assessment over the total score of the scale was made as follows:

- 35-91 points: Non-addicted
- 92-119 points: Threshold group
- 120-147 points: Risk group
- 148-175 points: Addicted group (24)

In the next phase of the study, the depression

inventory (27 items), social phobia scale consisting (25 items), social anxiety scale (18 items) and power and strength questionnaire (25 items) were applied. The student's depression inventory was developed by Kovacs (25) (1985) and the Turkish validity and reliability study of it was carried out by Öy (26) (1991). It was a triple Likert type scale and each item was scored as 0, 1 and 2 according to the severity of depression symptoms. The scores of the one-dimensional scale varied between 0-54. Higher scores indicated more severe depressive symptoms. The internal consistency coefficient of the scale was 0.80 [Yavuz et al. (27)].

Social phobia scale was developed by Demir et al. (28). The Cronbachs alpha coefficient was 0.83. In the validity and reliability study, it was determined that it was a valid and reliable scale. Social anxiety scale was developed by La Greca et al. (29) and revised in 1993 [La Greca and Stone (30)]. The Turkish Validity and Reliability study of the scale was conducted by Demir et al. (31). The Cronbach alpha of the scale was 0.81. As a result of the Turkish adaptation study, it was determined that this 5-point Likert type scale was valid and reliable. A minimum of 18 and a maximum of 90 points could be obtained from the scale.

Strength and weaknesses questionnaire was developed by Goodman et al. (32). The Turkish validity and reliability study was performed by Güvenir et al. (33). As a result of the Turkish adaptation study, it was determined that the scale was valid and reliable. The Cronbach's alpha of the Parent scale was 0.84 and the Cronbach's alpha of the Adolescent scale was 0.73.

According to the depression scale, the cut-off score was 19. The cut-off score for the social phobia scale was calculated as 67 points, corresponding to the 90<sup>th</sup> percentile. In the case of patients with 67 points or more, there was an increase in the likelihood of clinical problems as the score of social phobia increased. The social anxiety scale and the strength and difficulty questionnaire did not have a cut-off point, so the average score was considered and the score was assessed as increasing the susceptibility to clinical problems (25,28,31,33). The association of IA with depression, social phobia, social anxiety and psychiatric disorders were compared.

### Statistical Analysis

The demographic data of the students were evaluated with The Statistical Package for the Social Science Program (SPSS) version 21 (IBM Corp., NY, 2012). Data were presented with frequency (%), mean  $\pm$  standard deviation, median, minimum and maximum values. Pearson Chi-Square ( $\chi^2$ ), Kruskal-Wallis, Mann-Whitney U and Spearman correlation tests were used for the comparisons. A p value of  $\leq 0.05$  were considered statistically significant.

### Results

The results of the demographic characteristics of the student were given in Table 1.

It was concluded that the percentage of student using the internet to prepare homework was 21.8%, for watching movies/music was 22.1%, for playing games was 20.5% and for using social networking sites was 20.1%. 54.9% of the student reported that they were supervised by their parents while using the internet. The internet usage history of the student was  $5.58 \pm 2.60$  years. Weekly internet usage time was  $9.84 \pm 10.64$  (minimum 0, maximum 110 hours) hours. The daily usage time of mobile phones was  $104.05 \pm 85.64$  minutes. A significant majority of students (85.5%) stated that they were doing activities collectively at home with their families.

As the weekly internet usage time increased, the scale scores increased. The students in the threshold and risk groups were found to use the internet for a longer period of time on a statistically significant level compared to the non-addicted student ( $p \leq 0.05$ ).

The IA levels of the students were shown in Table 2.

A statistically significant relationship was found between the level of IA and depression ( $\chi^2 (2) = 37.826$ ;  $p \leq 0.05$ ) (Table 3).

When the threshold group was compared with the non-addicted group, the students in the threshold group had higher social phobia, social anxiety and power and difficulty questionnaire scores (p values: 0.006, 0.001 and 0.031, respectively). When the risk group was compared with the non-addicted group, it was concluded that the student in the risk group had higher social phobia and social anxiety scores (p values: 0.014 and 0.013, respectively).

Table 1. Demographic characteristics of the student

Variables	n	%
Gender (Female)	161	54.2
Age (years)		
9	21	7.1
10	65	21.9
11	88	29.6
12	90	30.3
13	32	10.8
14	1	0.3
Handedness (right)	264	88.9
Living with parents	277	93.2
Mothers working	213	71.7
Fathers working	289	97.3
Single child	97	32.6
Has at least one sibling	202	68.0
Mothers' education level		
Illiterate	0	0
Literate	6	2.0
Primary education	0	0
Lower secondary education	2	0.7
Upper secondary education	32	10.9
Bachelor's degree	202	68.0
Graduate degree	55	18.8
Fathers' education level		
Illiterate	0	0
Literate	5	1.7
Primary education	0	0
Lower secondary education	2	0.7
Upper secondary education	27	9.2
Bachelor's degree	182	61.2
Graduate degree	81	27.6
Has own room	284	95.6
Mother has a physical illness	28	9.4
Mother has a mental disorder	3	1.0
Father has a physical illness	27	9.1
Father has a mental disorder	1	0.3
Has a cellphone	275	92.6

There was a moderate association between IA and total depression ( $p \leq 0.05$ ;  $r = 0.447$ ), social phobia ( $p \leq 0.05$ ;  $r = 0.375$ ) and social anxiety ( $p \leq 0.05$ ;  $r = 0.431$ ). A positive and low level correlation was found between IA and strengths and weaknesses scores ( $p \leq 0.05$ ;  $r = 0.173$ ).

Table 2. Internet addiction levels of the students

Groups	n	%
Non-addicted group	258	86.9
Threshold group	27	9.1
Risk group	12	4
Total	297	100

It was determined that 261 (87.9%) student used WhatsApp, 189 (63.6%) students used Facebook and 56 (18.9%) students used Twitter. It was also found that those who used Twitter were statistically significantly more internet addicts ( $p = 0.014$ ) (Table 5).

## Discussion

Extreme use of the internet/computer; which is seen quite frequently in the school age youth, negatively affects both the academic and personal development of the student and makes them addicted. In this context, it is important to define "addiction" and explain its reasons, symptoms and solution proposals (34).

In their study conducted in Hong Kong, Mo et al. (35) examined the relationship between IA, social support and emotional disturbances in middle school students. They concluded that IA and emotional disturbances were at lower rates in student with high social support. They also argued that the relationship between social support, emotional disturbance and IA may be stronger among female students. In our study, there was no statistically significant association between IA and gender, age, family characteristics (parent education, physical and mental illnesses, number of siblings, house conditions, parental supervision, etc.). We think that the fact that the students included in the study were educated in a private school is the reason why there is no difference in terms of socioeconomic aspects.

In the study mentioned above it was found that more than half (52.1%) of the students used internet more than 11 hours per week, 9% of them used more than 50 hours per week (35). In another study it was concluded that secondary school students spent a wide range of time (1 hour to 84 hours) weekly on the internet (36). In our study, the weekly internet usage time of students was similarly  $9.84 \pm 10.64$  (minimum 0, maximum 110 hours). It was determined that the IA scale score increased as the weekly internet usage

Table 3. The relation of internet addiction with state of depression

Groups		Depression		X <sup>2</sup>	df	Sig.(p)
		Not-depressed (%)	Depressed (%)			
Internet Addiction	Non-addicted	230 (89.1)	28 (10.9)	37.826	2	0.000
	Threshold	17 (%63)	10 (%37)			
	Risk	4 (%33.3)	8 (%66.7)			

Table 4. Internet addiction and scales' total scores

Variables	Min	Max	Mean + SD	1	2	3	4	5
1. Internet Addiction	35	154	65.64±23.2	-	-	-	-	-
2. Social Anxiety	18	78	33.75±14.2	0.431*	-	-	-	-
3. Depression	,00	47	11.63±7.44	0.447*	0.421*	-	-	-
4. Social Phobia	25	95	49.56±15.59	0.375*	0.780*	0.443*	-	-
5. Strengths and weak.	32	63	47.51±4.54	0.173*	0.393*	0.302*	0.444*	-

\*p≤0.05, SD: Standard deviation

Table 5. The relation of internet addiction with state of twitter usage

Groups		Twitter usage		X <sup>2</sup>	df	Sig.(p)
		User (%)	Non-user (%)			
Internet addiction	Non-addicted	43 (16.7)	214 (83.3)	8.519	2	0.014
	Threshold	8 (27.5)	21 (72.5)			
	Risk	5 (50)	5 (50)			

time increased. The students in the threshold and risk groups used the internet for a longer period weekly at a statistically significant level compared to the non-addicted students.

Looking at the world as a whole, it seems that IA is one of the most important problems especially for Asian countries. Such that the rate of IA among young people is 2.4-13.5% in China, 1.6-20.3% in South Korea, 0.7-26% in the United States and 1%-18.3% in Europe (37). In a study conducted in Turkey, 352 students were found to have an IA rate of 11% and a student with IA potential of 12%. It is remarkable that these students were 7th and 8th grade students (34). In our study, the rate of IA students was 4%, which was lower than in Asia and the average of our country.

IA is most prevalent among adolescents aged 12-18 years. In a study conducted with 41 students aged 11 to 16 years, it was reported that 64.3% of the internet addicted students were between 11 and 13 years old and 35% of them were between 14 and 16 years old. There were no significant differences between the addicted group and the control group in terms of age,

gender, class, economic status, mother and father age and educational status (38). In another study it was stated that IA is unrelated to gender (39). According to Syahputra et al. (40) (2019), there was no difference in IA between male and female university students. Similarly, there was no significant difference in demographic characteristics between the non-addicted group and the other groups in our study.

Addiction states and other psychiatric disorders can be seen together. One of them is the combination of IA and other psychiatric disorders (5). Attention deficit hyperactivity disorder, depression, impulse control disorder and anxiety have been shown to be associated with IA. Among these, the psychiatric disorder most associated with IA is depression (9). However, the causal relationship between IA and depression has not yet been proven (5). In a study, *5HTTLPR* gene polymorphism, which was associated with serotonin functions, was suggested to be associated with depression and IA (41). In another study conducted with 208 adolescents aged 15 to 19 years in Hong Kong showed that the majority of IA symptoms were



thought to be serious suicidal ideation and depression. In a study that included 1573 adolescents aged 15-16 years in Korea, it was reported that the levels of depression and suicidal ideation were higher in the addicted group than in the non-dependent and possibly addicted group (42,43). In different studies there were significant positive correlations among IA, depression, and suicidal ideation in adolescents (44-49). In our study, as the IA scale score increased depression, social phobia and social anxiety scores also increased. This result supports the association between IA and depression, social phobia and social anxiety, similar to previous studies.

### Conclusion

IA in students, which causes both psychological and social problems, cannot be overlooked. However, more comprehensive and socioeconomically diverse studies are needed to further evaluate the association between IA and psychosocial problems. In addition, it is concluded that large-scale occurrence of psychosocial problems can be prevented by the conscious use of internet especially in adolescents and young adults. For this reason, it is thought that it is necessary to educate the schools about the conscious use of the internet.

### Ethics

*Ethics Committee Approval:* Ethical approval no: 600-5053, date: 08.07.2015) was received from the Ankara Training and Research Hospital Ethics Committee.

*Conflict of Interest:* The authors declare that they have no conflict of interest.

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