Original Article

Investigation of Levels of Internet Addiction in Junior High School Students and the Effects of the Addiction on their Health

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Abstract

Objective: In this present study, the aim was to investigate the level of internet addiction and the effects of the level of internet addiction on health, based on families' and children's viewpoints.
Methods: The population of the descriptive of study included 1410 students. The study data were collected from the participating students and their families separately. The study data were collected from the participating students and their families separately. Data collected from students: Personal Information Form, Internet Addiction Test (IAT) was used. Data collected from families: Family Personal Information Form and Family-Child Internet Addiction Test (PCIAT) were used.
Results: In conclusion, according to their IAT scores, of the students, 91.2% were not internet addicted, 7.9% were likely to be internet addicted, and 0.9% were internet addicted. According to their PCIAT scores, of the students, 96.5% had no symptoms and 3.5% had a limited number of symptoms. The students' and their parents' opinions in terms of internet addiction rates were consistent with each other.
Conclusions: The study findings emphasize that there is a relationship between internet addiction and health problems, but whether this relationship is a direct one or not should be supported by more specific researches.

Keywords: İnternet addiction, junior high school students, parents, the internet and health

Introduction

Because of many opportunities it offers, the internet facilitates, diversifies, enriches and improves human life. Despite the positive contributions of the internet to the daily life of the people and the opportunities and diversity it provides, it also leads to problematic human behaviors due to its improper use (Ceyhan & Ceyhan 2007). In parallel with the rapid growth of the internet, internet users' ages has gradually decreased, and thus the number of internet users and internet accesses has increased (Sahin, 2011). According to the media research and survey conducted by the Turkish Statistical Institute in 2013 on the use of information technology by children between 6 and 15 years of age, the average age at which children start using computers is eight, and it is nine for the internet use and 10 for the mobile phone use (TSI, 2013). According to the findings of the European Union Kids Online Project related to

Turkey, the 9-16-year-old children in the study group started to use the internet around the age of 10 and used the internet 1-1.5 hours a day (Akbulut, 2013).

The rapid increase in the use of the internet has resulted in uncontrolled use and consequently the concept of pathological internet has become a current issue. The term internet addiction was first used by Goldberg (1996) to refer to the pathological Internet use. Young (1996) identified internet addiction as a new and often unrecognized clinical disorder affecting the user's internet use, control skills, relational, occupational and social skills to an extent to cause problems (Young, 1996; Kiran Esen, 2009). Internet addiction in general is defined as spending too much time on the Internet. The overuse of the Internet has been shown to have detrimental effects on children's psychosocial developments and behaviors. Due to internet addiction, children and adolescents spend a large

part of their time on the internet, and thus their social and physical developments and psychological status can be adversely affected.

Various cross-sectional studies have shown that internet addiction has a negative effect on many lifestyle factors such as irregular nutrition, physical inactivity, sleep disorders and increases in alcohol and tobacco use in children (Gunnell et al., 1998; Kim & Chun, 2005; Choi et al 2009, Lam et al., 2009; Sahin & Korkmaz, 2011).

Junior high school children's spending a long time in front of the computer leads to vision problems, musculoskeletal system damage due to inappropriate posture and sitting positions, electromagnetic radiation problems, creative and mental development risks, decline in language skills, reduced academic achievement, problems in brain development and negativities in social development (Aktas Arnas, 2005).

In a study that investigated the effect of internet use on junior high school students, the most common health problems due to internet usage were eye strain, back pain, headache, fatigue, difficulty in concentrating, and joint pain (Wanajak, 2011). In their study conducted with junior and senior high school students, Kim and Chun (2005) concluded that people with internet addiction perceived their healthy lifestyles as poor. As a result of internet addiction, which begins to manifest itself especially in junior high school years, it can form the basis of loneliness/social isolation in children. In the later periods of the child's education and family life may also cause negativity. School health nurses can do informative trainings in order to prevent problematic internet use in cooperation with students and families. Nurses can contribute to protecting and improving the health of the students by conducting studies that will determine the problematic internet usage of the students and provide solutions. While in many studies, internet addiction has been investigated from a single aspect, in this present study, it was aimed to investigate the level of internet addiction and the effects of the level of internet addiction on health based on families' and children's viewpoints.

Methods

The study is a descriptive and relational study. The population of the study consisted of 7584 5th, 6th, 7th and 8th (10 and 15 years of age) grade students who attended 17 junior high schools. Of

the population, 1410 students constituted the study sample. The study data were collected from the participating students and their families separately. Data collected from the students using the Personal Information Form and Internet Addiction Test (IAT) and from the Families using the Family Personal Information Form and the Parent-Child Internet Addiction Test (PCIAT) were used.

Personal Information Form: The Form developed by the researcher in line with the pertinent literature has 14 items questioning the students' sociodemographic characteristics, health behaviors and physiological problems (Gencer, 2011; Toroman, 2013).

Internet Addiction Test (IAT): The test developed by Young (1998) is a self-report test. The validity and reliability study of the Turkish version of the test was performed by Bayraktar (2001). The test has 20 items. Responses given to each item are rated on a 5-point Likert scale ranging from 0 to 5. Those whose score ranges between 80 and 100 are classified as "addicted", between 50 and 79 as "probably addicted" and between 20 and 49 points as "not addicted". The higher the score obtained from the test is, the higher the risk of addiction is (Young 1998, Bayraktar 2001).

Family Personal Information Form: It is a 6-item form developed by the researcher in line with the literature. The items in the form question parents' employment status, whether the parents are separated or not, the number of siblings, etc. (Gencer, 2011; Toroman, 2013).

Parent-Child Internet Addiction Test (PCIAT): The test was developed by Young (1999). The validity and reliability study of the Turkish version of the scale was conducted by Esgi (2014). It was derived from the Internet Addiction Test. The test has 18 items. Responses given to each item are rated on a 5-point Likert scale ranging from 0 to 5. While a score ≥ 80 refers to those who are "addicted to internet ", a score between 50 and 79 refers to those with "a limited number of symptoms" and a score ≤ 49 refers to those with "no symptoms" (Esgi, 2014).

The researcher collected the data from the families and students separately. The data were collected from the students in the classroom environment with the Personal Information Form and the IAT using the pencil/paper method. The data were collected from the Families with the Family Personal Information Form and the PCIAT. The forms were taken to the families in

closed envelopes by the students. After the families responded the forms, the students brought them back in another envelop provided by the researcher. SPSS 20.0 was used for statistical analysis of the data. Because the Kolmogorov-Smirnov Z test values of the data were <0.05, nonparametric test methods were used in the analysis of data. In the statistical analysis of the data, numbers, percentages, standard deviation, mean values were calculated. In addition, the Kruskal-Wallis H test, Mann-Whitney U test and Spearman's rank correlation coefficient were used.

Results

The students, 52.6% were female. The mean age of the students was 12.26 ± 1.25, 28.1% were in the 5th grade and 27.6% were in the 8th grade. Of the mothers, 45.7% were primary school graduates and of the fathers, 34.8% were primary school graduates. Of the students, 88.7% lived with their parents and 57.9% had two siblings (Table 1).

Table 1. Distribution of the Socio-Demographic Characteristics of the Participating Students and Their Parents (n=1410)

General Characteristics	n	%
Gender		
Female	742	52.6
Male	668	47.4
Grade		
5th grade	396	28.1
6th grade	284	20.8
7th grade	341	24.2
8th grade	389	27.6
Students' age*	12.26±1.25 (Min:10-Mak:14)	
Mothers' education status		
Primary school	645	45.7
Junior high school	306	21.7
Senior high school	348	24.7
University	111	7.9
Fathers' education status		
Primary school	491	34.8
Junior high school	298	21.1
Senior high school	451	32.0
University	170	12.1
Mothers' profession		
Unemployed/Housewife	938	66.5
Government officer	68	4.8
Worker	298	21.1
Self-employed/tradesperson	84	6.0
Retired	22	1.6
Fathers' profession		
Unemployed	42	3.0
Retired	134	9.5
Government officer	149	10.6
Worker	732	51.9
Self-employed/tradesperson	353	25.6
Whether the students live with their parents		
Parents live together	1251	88.7
Mother is dead	13	0.9
Father is dead	15	1.1
Parents live separately	128	9.1
Both mother and father are dead	3	0.2
The number of the siblings		
1	268	19.0
2	817	57.9
3	245	17.4
4 $\geq$	80	5.7

* Age is given as an average.

Table 2. Distribution of the Scores the Students Obtained From the Internet Addiction Test (IAT)

IAT	n	%	IAT		
			Median	**Min.**	**Max.**
Not addicted	1287	91.2			
Probably addicted	111	7.9	13.00	00,00	88.00
Addicted	12	0.9			
Total	1410	100.0			

Table 3. Distribution of the Scores Obtained from the Parent-Child Internet Addiction Test (PCIAT)

PCIAT	n	%	PCIAT		
			Median	**Min.**	**Max.**
Those with no symptoms	1360	96.5			
Those with a limited number of symptoms	50	3.5	12.00	00.00	76.00
Total	1410	100.0			

Table 4. Relationship between the Internet Addiction Test (IAT) and the Parent-Child Internet Addiction Test (PCIAT)

Variables	n	r	p
IAT scores			
PCIAT scores	1410	.571	0.000*

*p<0.05

Table 5. Comparison of the Mean Scores the Students Obtained from the Internet Addiction Test (IAT) in Terms of their Health Behavior Status (n = 1410)

Health Behavior Status	n	IAT Mean± SD	Statistical analysis and significance
Do you ever neglect to perform personal hygiene when you are on the Internet?			
No	1084	14.76±13.70	KW=133.183
Sometimes	269	24.45±15.98	P=0.00*
Yes	57	33.02±21.17	
How often do you participate in physical activities?			
Never	176	19.95±16.32	
Every day	403	16.86±14.53	KW=6.811
2-3 times a week	651	16.60±14.64	P=0.14
Once a week	146	18.68±17.65	
Once a month	34	18.41±20.26	
Do you ever fail to perform physical activities?			
No	1178	15.10±13.51	U=72513.500
Yes	232	28.77±18.66	P=0.00*
Do you ever have meals when you are on the Internet?			
No	1306	16.88±15.02	U=52441.000
Yes	104	23.32±17.88	P=0.00*
Do you ever skip a meal when you are on the Internet?			
No	1205	15.57±13.89	U=72892.000
Yes	205	27.81±18.90	P=0.00*
What is your sleeping pattern like?			
Bad	77	26.60±16.94	KW=136.886
Neither bad nor good	407	22.43±15.51	P=0.00*
Good	926	14.35±14.20	
How many hours a day do you sleep?			
<8 hours	599	20.46±16.34	KW=51.460
8-9 hours	489	14.40±13.23	P=0.00*
9-10 hours	270	16.16±15.43	
>10 hours	52	15.38±15.15	

*p<0.05

Table 6. Comparison of the Mean Scores Obtained from the IAT by the Students in Terms of Some Physiological Problems

Some Physiological Problems	n	IAT Mean± SD	Statistical analysis and significance
How often do you have headaches?			
Never	991	15.86±14.82	KW=50.854
Every day	27	21.78±15.80	P=0.00*
2-3 times a week	136	23.59±15.01	
Once a week	131	18.13±15.19	
Once a month	125	20.60±17.45	
How often do you have back pain or lower back pain?			
Never	1035	15.24±14.28	KW=100.934
Every day	39	18.67±17.26	P=0.00*
2-3 times a week	138	26.99±16.72	
Once a week	95	18.84±13.83	
Once a month	103	23.76±17.48	
How often do you have in the hand, arm and wrist?			
Never	1088	15.79±14.60	KW=65.745
Every day	55	28.27±16.22	P=0.00*
2-3 times a week	119	23.36±18.66	
Once a week	76	20.79±14.92	
Once a month	72	19.01±13.69	
Have you ever had eye pain or itchy eyes recently?			
No	1070	15.57±14.47	U=129948.000
Yes	340	22.96±16.61	P=0.00*

*p<0.05

According to the IAT, of the students 91.2% were not addicted, 7.9% were probably addicted and 0.9% were addicted (Table 2).

According to the PCIAT, of the students, 96.5% had no symptoms and 3.5% had a limited number of symptoms. According to the responses given by the participating parents, no students were internet addicted (Table 3).

There was a significant correlation between the scores obtained from the IAT and PCIAT (p<0.05). This relationship was moderately positive and close to +1. As the mean IAT score increased, so did the mean PCIAT score (Table 4).

The results of the present study indicate that there was a statistically significant difference between the mean scores the students obtained from the IAT in terms of neglecting/not neglecting to perform personal hygiene (p<0.05).

There was no statistically significant difference between the mean scores the students obtained from the IAT in terms of the frequency of performing activities regularly (p>0.05). The analysis also revealed statistically significant differences between the mean scores the students obtained from the IAT in terms of neglecting to perform physical activities, eating habits when on the internet and skipping meals when on the internet. There was a statistically significant difference between the mean scores the students obtained from the IAT in terms of their sleeping patterns. There was a statistically significant difference between the mean scores the students obtained from the IAT in terms of the students' daily sleeping hours (Table 5).

The present study indicates that there was a statistically significant difference between the mean scores the students obtained from the IAT in terms of the frequency having a headache.

There was also a statistically significant difference between the mean scores the students obtained from the IAT in terms of the frequency of having back pain or lower back pain. There was a statistically significant difference between the mean scores the students obtained from the IAT in terms of the frequency of having pain in the hand, arm and wrist. The mean score obtained from the IAT by the students who had pain in the hand, arm and wrist everyday was higher than that of the students who had pain in the hand, arm and wrist once a month. There was a statistically significant difference between the mean scores the students obtained from the IAT in terms of having eye pain or itchy eyes (p<0.05) (Table 6).

Discussion

In the present study, the effects of internet addiction on junior high school students' health were investigated by taking their parents' opinions into consideration. The results were discussed in the light of pertinent literature.

According to the IAT, of the 1410 students who participated in the study, 0.9% were internet addicted, 7.9% were likely to be internet addicted, and 91.2% were not internet addicted. In Sahin's study (2011), of the 710 students, 1.3% were internet addicted and 14.2% were likely to be internet addicted. In Calisgan's study (2013), while 1 student (0.2%) was internet addicted, 22 students (3.5%) were likely to be internet addicted. In Kilinc and Dogan's study (2014) conducted with 7th and 8th grade students, 10.7% of the students were internet addicted and 11.7% of the students were likely to be internet addicted. In Comert and Ogel's study (2009) conducted with 2209 students in Istanbul, 4.5% of the students were internet addicted and 21.2% of the students were likely to be internet addicted. Internet addiction levels and risky internet addiction levels in the present study are consistent with those in other studies. Given that junior high school students are at the peak of their growth and development and their tendency to spend time on the internet is increasing day by day, these rates cannot be overestimated.

According to the results of the PCIAT, of the students, 96.5% were in the group with no symptoms and 3.5% in the group with a limited number of symptoms. In Turkey, our search for studies investigating internet addiction among students based on parents' opinions demonstrated a gap in the literature. However, in the literature, there exist some studies investigating internet addiction among students based on parents' attitudes, and these studies indicated that internet addiction was more widespread in children who had negligent parents than in children who had authoritarian, tolerant or democratic parents (Ayas & Horzum, 2013; Cevik & Celikkaleli, 2010).

As the participants' IAT scores increased, so did their PCIAT scores. The students' views overlap with those of their parents, which shows that both tests used in the present study were valid and reliable, and responses given by the students who participated and by their parents were consistent with each other.

Long-term use of the Internet leads not only to some physiological problems but also to health problems in children whose developmental process is not completed (Akbulut, 2013). Several studies have demonstrated that due to Internet addiction, victims have disturbed sleeping patterns, overconsume beverages which include stimulants like caffeine, might suffer obesity, Carpal tunnel syndrome, back pain and postural disorders due to the gradual decrease in physical activities, and fail to maintain daily relationships (Young 1999, Jacobs & Baker 2002, Cengizhan 2005, Sevindik 2011).

In the present study, the students who constantly or sometimes failed to perform their physical activities and personal hygiene habits had higher internet addiction scores. In their study conducted with 10th and 12th grade students, Sunny and Tsai (2002) concluded that the children who overused the Internet failed to perform even routine tasks in their daily life.

Gur et al.'s study (2016), the participants who failed to perform their hygiene habits like hand washing, bathing etc. and to manage their toilet needs had high internet addiction scores. Kautiainen et al. (2005) also pointed out that physical activity levels of children and adolescents with internet addiction were low. As the results of the present study suggest, spending a long time on the internet prevents the person from performing activities of daily living.

The investigation of the relationship between internet addiction and sleeping pattern revealed that the students with a good sleeping pattern obtained lower scores from the IAT than did the students whose sleeping pattern was bad or neither good nor bad. In a study conducted by

Cam and Nur (2014), sleep disturbance was higher in Internet addicts than that in normal internet users. In a survey conducted with 1569 adolescents by Aktepe et al. (2013), the internet addiction levels of those who had a sleeping problem or who slept less than 6 hours a night were found to be higher. Kim et al. (2010) surveyed 853 people in Korea and reported that Internet addiction caused sleep disorders in them. The results of the present study which are consistent with the results of other studies in the literature showed that the students slept less to spend more time on the internet.

In the current study, the students who skipped meals or had irregular meal times had higher internet addiction scores than did the students who had their meals regularly. Gur et al. (2016) stated that internet addiction scores of the participants who had two meals a day or ate snacks and skipped their meals when they were on the computer were high. Because the minds of internet addicts are constantly busy, they may often forget to meet even their primary needs. When using the Internet, they might skip meals or unwittingly eat a lot of food, often consume unhealthy foods as snacks and thus experience weight problems (Odacı & Berber Celik, 2012).

In the present study, of the participants, those who suffered pain in eyes, or had a hand-arm and wrist pain or back/lower back pain had higher internet addiction scores. Kuzu et al. (2008) found that the most common physiological problems in individuals due to excessive use of the internet were eye fatigue/eye redness; back/neck pain, headache, joint/muscle pain, fatigue and insomnia. Sevindik (2011) stated that the most common health problems in students related to internet use were burning in the eyes and pain in the neck muscles. In another study, computer users' most common complaints were related to the musculoskeletal system, and these complaints manifested themselves as back, neck, and shoulder pain (Jacobs & Baker 2005). The results of the present study which are consistent with the results of other studies in the literature confirm that excessive computer/internet usage might lead to physiological problems related to the musculoskeletal system.

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