

Original Research Article

Loneliness and internet addiction in doctors and medical students: a cross-sectional study

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ABSTRACT

Background: Our aim in this study is to determine the level of internet addiction in medical school students and primary care physicians and the factors affecting them.

Methods: A 68 physicians and 167 students participated in this descriptive study. The participants were administered the young internet addiction test, UCLA loneliness scale and asked to respond to survey questions about their sociodemographic characteristics, and the relations were evaluated with appropriate statistical methods.

Results: It has been identified that playing games online, surfing the internet aimlessly and loneliness score affected internet addiction regardless of other variables ($p < 0.05$). A statistically significant correlation between addiction level and age ($r = -0.341$, $p < 0,001$), loneliness score ($r = 0,284$, $p < 0,001$) and online time ($r = 0,387$, $p < 0,001$) has been discovered.

Conclusions: In this study, it was found statistically significant that students with internet addiction stayed online for long periods of time and it seemed in line with the criteria observed in substance use disorders such as longer duration of use than intended and not being able to spare time for other activities.

Keywords: Internet addiction, Loneliness, Physicians, Medical students

INTRODUCTION

In the developing world, the purpose of the emergence of the internet was to increase the possibilities for researchers, basically by increasing communication and facilitating information sharing. However, the rapid spread of the internet has led to the problem of internet addiction due to pathological overuse.¹

As with all addictions, the concept of internet addiction is characterized by the increasing use and the frustration of the control efforts. Internet addiction, described as psychopathological internet use, is defined as the inability of a person to control the use of the internet and it can cause problems in one's life such as decrease in sleep, eating disorder in the long run and limited physical

activity, impaired learning, and deterioration in work and other personal daily life.²

Ivan Goldberg (1996) was the first person to identify it and he brought up the term "internet addiction" for discussion.³ Goldberg developed indicators for internet addiction in line with the substance abuse diagnostic criteria in DSM-4. In those years, Young (1996) also defined DSM-4 internet addiction based on pathological gambling diagnostic criteria.⁴ Subsequent research and progress, the increasing demand for internet addiction led the American Psychiatric Association to include it in DSM-5 diagnostic criteria.⁵

Researchers have said that internet addiction might occur at an earlier age than other addiction types.⁶ Internet

addiction typically has a negative impact on academic performance as well as psychological problems such as psychomotor agitation, anxiety, longing, loss of control, and decreased ability to make decisions.⁷ It is possible to mention some direct and indirect reasons related to the internet addiction of an individual. The factors such as the purpose and the amount of using the internet and the loneliness of the individual play an important role in the internet addiction. It is stated that using internet for purposes such as gambling, chatting, playing and pornography can be a direct factor in the formation or the development of internet addiction.⁸⁻⁹

It can be said that one of the most important concepts thought to be related to internet addiction is the need for the individual to socialize.¹⁰ This need can be thought of filling the deficiency of socialization in a virtual environment that could not be achieved or attained in real life. The individual tries to socialize via electronic mails, chat rooms, discussion forums and online games. The inclination of the individual towards internet with the intention to socialize or to find social support triggers the risk of internet addiction and the individual can withdraw from society.¹¹ In terms of Internet addiction, it is seen that students are in a very sensitive place. The promises of the internet for professional development of students and its becoming an integral part of school life has opened the way for internet usage in the campuses. This situation increases the likelihood of students being at risk of using the internet in a pathological way. Particularly the intensity of the lessons in the medical faculties and the difficulty for students to participate in social activities have opened a door to internet addiction by driving the students to loneliness and to quest for the ways to overcome this loneliness.

Our aim in this study is to determine the level of internet addiction in medical school students and primary care physicians and the factors affecting them.

METHODS

The universe of this descriptive study consisted of 555 medical students studying at Faculty of Medicine in Recep Tayyip Erdoğan University in 2016-2017 academic year and 134 physicians working in primary care health service in Rize. 167 students and 68 doctors were reached on the basis of volunteerism; the sample was not selected.

Collection of data

The survey questions were delivered to participants from April 1, 2017, to May 31, 2017, and they were asked to respond. The survey form consisted of three parts.

Sociodemographic and behavioral characteristics

The participants' age, gender, marital status, place of residence and person, status of smoking, if medical

student what grade he/she is in, if physician number of years in profession, leisure activities, purposes of using the internet, weekly internet usage time are in the first part of the survey form.

Internet addiction test (IAT)

Internet addiction was assessed by Young's Internet Addiction Test (IAT), consisting of 20 questions. The questions were rated on a six-point Likert scale between 0 (never) and 5 (always). IAT scores were categorized as follows: Between 0-30 was normal usage (normal user), between 31-49 mild internet addiction, between 50-79 moderate usage (moderate user), between 80-100 severe internet addiction.¹² The validity and reliability of the scale in our country were provided.¹³ In the study of Kaya et al, Cronbach's alpha coefficient for the internal reliability score of the scale was calculated as 0.91. In this study, Cronbach's alpha coefficient for the internal reliability score of the scale was calculated as 0.92. The written permission was obtained from Center of Internet Addiction (Dr. Kimberly Young) for use of the Young internet addiction test.

UCLA-loneliness scale (UCLA-LS)

The loneliness status of the individual was assessed with the UCLA-Loneliness Scale (UCLA-LS). It is a 20-item scale designed to determine the level of loneliness perceived by the individual. The highest score is 80 and the lowest score is 20. High scores indicate that loneliness is more intense.¹⁴ The validity and reliability studies of the scale in our country were conducted by Demir.¹⁵ The Cronbach's alpha coefficient for the internal reliability score of the scale was 0.96. In this study, the internal reliability score of the scale was calculated to be 0.44.

Statistical analysis

SPSS (Statistical Package for Social Sciences) version 17 was used for data entry and analysis of data. Frequencies, percent distributions, mean, standard deviation, median, minimum and maximum values were calculated in descriptive analyses. The goodness of fit tests for normal distribution were applied. Student's t-test, ANOVA test and chi-square test were used in analytical analyzes. Linear regression analysis was applied for multivariate analysis. Internal consistency of the scales was assessed by the kappa test.

RESULTS

A total of 235 people participated in the study, 167 of whom were medical students and 68 were physicians. The mean age of the students was 20.6 (± 2.1) while the mean age of the physicians was 37.7 (± 9.4). 54.5% of the participants were female (n=128) and 45.5% were male (n=107). 80.4% (n=189) of the participants were single, 19.6% (n=46) were married and the average internet

addiction score of the single participants was higher compared to married ones ($p<0.001$). 82.1% ($n=193$) of the participants were living with their families or friends while 17.9% ($n=42$) of them were living alone. The average internet addiction score of those living with their families or friends was 43.7 (± 12.9), while the internet

addiction score of those living alone was 49.1 (± 17.3) ($p<0.05$). Amongst the participants of the study, the average internet addiction score of students staying in a student residence was significantly higher than those staying at home ($p<0.001$). Other sociodemographic characteristics of the participants are shown in Table 1.

Table 1: Sample distribution and the prevalence of internet addiction by sociodemographic and behavioural factors.

	Total		Internet Addiction							
	Sample		Normal internet use (0-30)		Mild IA (31-49)		Moderate-severe IA (50-100)		IAS	p
	n	%	n	%	n	%	n	%		
Sex										
Female	128	54.5	16	12.5	68	53.1	44	34.4	46.0 \pm 14.1	0.063
Male	107	45.5	22	20.6	51	47.7	34	31.8	42.6 \pm 13.5	
Marital status										
Single	189	80.4	24	12.7	93	49.2	72	38.1	46.5 \pm 14.0	<0.001
Married	46	19.6	14	30.4	26	56.5	6	13.0	36.0 \pm 9.7	
Status										
Student	167	71.1	17	10.2	84	50.3	66	39.5	47.1 \pm 13.8	<0.001
Working Physician	68	28.9	21	30.9*	35	51.5	12	17.6	37.9 \pm 12.0	
Place of Residence-2										
Home	132	56.2	29	22.0	67	50.8	36	27.3	41.3 \pm 12.6	<0.001
Student Residency	103	43.8	9	8.7	52	50.5	42	40.8	48.5 \pm 14.6	
With Whom-2										
Family/Friend	193	82.1	33	17.1	98	50.8	62	32.1	43.7 \pm 12.9	<0.05
Alone	42	17.9	5	11.9	21	50.0	16	38.1	49.1 \pm 17.3	
Smoking Status										
Yes	40	17.0	4	10.0	27	67.5	9	22.5	44.3 \pm 13.4	0.955
No	195	83.0	34	17.4	92	47.2	69	35.4	44.5 \pm 14.1	

The relationship between participants' time on the internet and their internet addiction status is shown in Table 2. The internet addiction score of the group using the internet for social media was 45.5 (± 13.3), while the internet addiction score of the group not using the internet for social media was 41.4 (± 15.3) ($p=0.046$). The highest internet addiction score among respondents to the question "What are you using the Internet for?" was earned by those who wander around the internet aimlessly with the score of 51.3 (± 14.6) points and 50% of those in this group were medium-severe internet addicts.

Severe or moderate internet addicts played more games at significant levels than normal internet users ($p<0.05$). In our study, the internet addiction scores were lower for those using internet for reading their e-mails and for monitoring the news ($p<0.05$).

In our study, we did not detect any relationship between participants' leisure time activities and internet addiction status. We also could not find any effects of situations such as having a club membership, reading frequency, regular sporting, being a sports spectator and participating in sports events as a spectator (Table 3).

In order to determine the variables affecting internet addiction; age, gender, occupation status, loneliness score, smoking status, 'wandering the internet with the aim of study, research, social media, e-mail, watching videos, playing games, monitoring news', and 'surfing the internet aimlessly' variables were also included in the model. Playing games online, surfing the internet aimlessly and loneliness score were effective on the internet addiction; independent of other variables (Table 4).

A statistically significant correlation between addiction level and age ($r = (-0.341)$, $p < 0.001$), loneliness score

($r = 0.284$, $p < 0.001$) and online time ($r = 0.387$, $p < 0.001$) has been discovered (Table 5).

Table 2: Sample distribution and the prevalence of internet addiction by internet usage features.

	Internet Addiction									
	Total sample		Normal internet use (0-30)		Mild IA (31-49)		Moderate-severe IA (50-100)		IAS	p
	n	%	n	%	n	%	n	%		
Weekly Internet Usage Hours										
0-14 Hours	109	51.4	26	23.9	58	53.2	25	22.9	40.3±12.6	<0.001
15-50 Hours	94	44.3	5	5.3	46	48.9	43	45.7	49.5±13.0	
51-85 Hours	9	4.2	0	0	4	44.4	5	55.6	56.2±13.1	
Purpose of Internet Usage (To Study/Research)										
Yes	123	52.3	18	14.6	62	50.4	43	35.0	45.1±13.6	0.451
No	112	47.7	20	17.9	57	50.9	35	31.3	43.7±14.3	
For News Monitoring										
Yes	114	48.5	21	18.4	60	52.6	33	28.9	42.2±13.2	0.017
No	121	51.5	17	14.0	59	48.8	45	37.2	46.6±14.4	
For Social Media										
Yes	173	73.6	22	12.7	89	51.4	62	35.8	45.5±13.3	0.046
No	62	26.4	16	25.8*	30	48.4	16	25.8	41.4±15.3	
For E-Mails										
Yes	91	38.7	20	22.0	47	51.6	24	26.4	41.5±13.3	0.01
No	144	61.3	18	12.5	72	50.0	54	37.5	46.3±14.0	
To Watch Videos										
Yes	129	54.9	16	12.4	68	52.7	45	34.9	45.2±13.2	0.355
No	106	45.1	22	20.8	51	48.1	33	31.1	43.5±14.7	
To Play Games										
Yes	45	19.1	2	4.4	20	44.4	23	51.1*	49.3±11.7	0.009
No	190	80.9	36	18.9*	99	52.1	55	28.9	43.3±14.2	
Surfing the internet aimlessly										
Yes	60	25.5	4	6.7	26	43	30	50.0*	51.3±14.6	0.017
No	175	74.5	34	19.4	93	53.1	48	27.4	42.1±12.9	

Table 3: Sample distribution and the prevalence of internet addiction by leisure time activities.

	Internet addiction									
	Total sample		Normal internet use (0-30)		Mild IA (31-49)		Moderate-severe IA (50-100)		IAS	p
	n	%	n	%	n	%	n	%		
Those having a membership to a club										
Yes	78	33.2	12	15.4	46	59.0	20	25.6	43.0±12.9	0.263
No	157	66.8	26	16.6	73	46.5	58	36.9	45.2±14.4	
Those who watch sports										
Yes	187	79.6	27	14.4	96	51.3	64	34.2	44.9±13.5	0.296
No	48	20.4	11	22.9	23	47.9	14	29.2	42.6±15.5	
Those who regularly sport										
Yes	54	23.0	11	20.4	30	55.6	13	24.1	42.3±13.6	0.205
No	181	77.0	27	14.9	89	49.2	65	35.9	45.1±14.0	
Those who are spectators at sports events										
Yes	81	34.5	15	18.5	36	44.4	30	37.0	44.6±14.7	0.888
No	154	65.5	23	14.9	83	53.9	48	31.2	53.9	
Book reading status										
<1-2 books annually	76	32.3	26	16.4	85	53.5	48	30.2	45.6±14.3	0.377
4-12 books annually	159	67.7	12	15.8	34	44.7	30	39.5	43.9±13.8	

Table 4: Factors associated with internet addiction.

	β	SE	Confidence interval	p
Playing games online	6.66	0.18	2.24-11.07	0.003
Surfing internet aimlessly	6.52	1.99	2.59-10.44	0.001
loneliness score	0.44	0.10	0.245-0.645	<0.001

Table 5: Relationship between internet addiction score and loneliness score.

Internet Addiction Score		
	r	p
Age	-0,341	<0,001
Loneliness Score	0,284	<0,001
Weekly Online Time	0,384	<0,001

DISCUSSION

The most significant finding of our study was that in the regression analysis we conducted; playing games on the internet, aimless roaming on the internet and high score of loneliness were the variables which affect internet addiction. Amongst the group of students and doctors we evaluated as two separate groups at the beginning of the study, these variables affected internet addiction independently of all other variables.

In our study, individuals with high internet addiction scores were feeling alone. In fact, it is necessary to find the answer to the question "Are the lonely ones becoming addicted to the internet or are the internet addicts becoming alone?" In one of the studies carried out to determine the direction of this relationship, Morahan-Martin suggests the idea that internet use may lead to loneliness, whilst stating that it is not possible to determine the direction of the relationship.¹⁶ According to Morahan-Martin, the use of the internet takes the place of real-life primarily in social relations, thus the users are caught up in this vicious circle. Individuals experiencing blockages in social relations frequently turn to the internet to reconstruct and maintain their personal relationships and they substitute the internet for face-to-face communication.¹⁷⁻¹⁸ This situation may be leading individuals to more use of the internet with the attempt of searching for meaningful relationships. It is a foreseeable condition for a person who can not realize himself, suffer and who can not find this pleasure in real life to spend all day on the internet. Because of all these reasons, loneliness is interpreted as one of the most important factors that trigger internet addiction.¹⁹⁻²⁰

Although literature generally indicates that men are more likely to use the internet²¹ and have a higher addiction score, there are also studies showing that there is no

difference between the genders in parallel to our findings.²²⁻²⁴ This difference is thought to be due to variables such as the method of measuring the internet addiction and/or cultural differences.

In his paper Young presented in 2007; he mentioned that especially social media led to the risk of addiction since it offered a chance for social support, change identity, sexual arousal. Laconi et al, pointed out in their study that internet users who use the internet without any purpose found themselves more frequently at gaming, pornography and shopping sites or in chat rooms and they use internet for longer periods.²⁵ In our study, it was revealed that 50% of the users who surf the internet with no purpose were internet addicts in the medium-severe level.

In our study, when the weekly internet usage hours of the students were evaluated, it was found that 55.6% of participants with moderate-severe internet addiction use internet 50 hours or more per week, and the difference was statistically significant ($p < 0.01$). The ease of access to the internet led to increased time online, but it was observed that in internet addiction this duration was used out of intention and purpose and at the same time without supervision to the degree that it disrupted functionality. The most noteworthy issues in internet addiction discussions are the inability of the person to control himself/herself on internet usage, the increasing use (tolerance) times, and thus the impairment of functionality and social isolation. In this study, it was found statistically significant that students with internet addiction stayed online for long periods of time and it seemed in line with the criteria observed in substance use disorders such as longer duration of use than intended and not being able to spare time for other activities.

When we look at the studies on internet addiction, it is seen that one of the variables discussed is social support. The presence of people who care about them, who value them, and who are interested in them mean social support. In Wu YK et al, drew attention to the fact that individuals who had no close friendships, especially who were away from their families were more addicted to the internet due to the deprivation of social support. In our study, we identified that the internet addiction score of the individuals who lived with their families or friends was lower ($p < 0.05$).

Individuals who do not have support from the people around them may be developing internet addiction to meet their interpersonal needs and to create alternative social channels.²⁷ At this point, it should not be overlooked that the lack of social support may also be closely related to loneliness. There are many studies that indicate that loneliness scores of individuals with pathological internet use are significantly higher.²⁸⁻²⁹ Also in our study, loneliness may be the basis of

situations such as living away from family and the marital status of being single that are effective in internet addiction.

Another remarkable topic in our research was that playing games online affected internet addiction regardless of other factors. In a study conducted by Festl et al, in 2013 on adolescents, teenagers and young adults in Germany, it was revealed that men spent more time playing games than women, there was negative correlation with age, younger people played more digital games whereas adolescents had higher levels of problematic playing and addiction than others.³⁰ Again in a study performed by Beranuy et al, it was manifested that as the duration of play increased, the loss of control increased and thus, psychological addiction and serious life confusion arose.³¹ Also in our study, according to the literature, 51% of medium or severe internet addicts were using the internet to play games, and their average internet addiction score was higher than those who did not use the internet to play games (p=0.009).

In our study, it was also identified that connecting to the internet without any purpose increased internet addiction. Many studies have shown that those who did not connect to the internet with a purpose stayed online longer than they thought they would.³²⁻³⁴ It may be due to the fact that a person connecting to the internet without a purpose perceives surfing the internet as a leisure activity and creates self-entertainment areas.

There were also some limitations in our research; the most important limitation of our study was that the student group was selected from one public university. This may create a limitation on the generalization of the study. Another limitation was that psychiatric symptoms and their intensities could not be assessed. Whether internet addiction is seen along with psychiatric symptoms, and whether it is a group of symptoms associated with a psychiatric illness are other issues that need to be addressed.

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