

## Internet Addiction Among Iranian Students of Medical Sciences

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### Abstract

**Objective:** To identify the prevalence of Internet addiction (IA) and associated factors among Iranian medical students. **Material and Methods:** The cross-sectional survey was conducted on a random sample of 400 students. The self-administered questionnaire consisted of two sections: the first section was sociodemographic data, data about student's relations, and Internet use characteristics; the second part aimed at assessment of the level of IA using Young's 20-item scale for IA. Data analyzed in SPSS 20 at 0.05 significant level. **Results:** Considering their familiarity with the Internet, 80.3% stated personal experience and 12.3% individuals stated educational periods held outside the university. The most locations of using the Internet were dormitories (21.0%) and houses (43.5%). Concerning hours of Internet use, 45.2% used the Internet more than two hours per day. One hundred sixty-eight individuals (42.0%) stated that they used the Internet less than 15% for university activities. One hundred eighty-eight individuals (47.0%) used VPN and 75.5% were dissatisfied with Internet speed 61.2%. A total of 64.3% had a poor dependency on the Internet and the prevalence of IA was 3.5%. The mean score of IA questionnaire was  $43.98 \pm 15.92$  from 125. The mean score of IA was higher in the male sex, but there was no significant correlation between sex and IA ( $p > 0.05$ ). There was not a significant correlation between the field of study and the year of entrance. **Conclusion:** The prevalence of Internet addiction among medical students was low. Identification of factors associated with IA can help in the planning of preventive programs to raise students' knowledge about the hazards IA.

**Keywords:** Internet-Based Intervention; Behavior, Addictive; Students, Medical.

## Introduction

The Internet changed the nature of communications in the 20th century dramatically and such change is more often true about adolescents who are known as Net generation [1]. The Internet is one of the social communication tools. It is inexpensive and fast. The necessary information can be obtained by connection to Internet from everywhere without time limitation. The information available on the Internet is more often up-to-date and this is the reason why it has been turned into a proper tool for following scientific advancements [2].

It has been indicated that Internet users are more creative and more self-efficient than those who do not use the Internet [3]. The overuse of Internet can be dangerous for physical health and human thoughts [4]. The term “internet addiction” was proposed by Dr. Ivan Goldberg in 1995 due to pathologically compulsive internet use [5]. Internet addiction is a new and attractive topic and it is considered as a behavior-oriented dependency [6]. Those who are highly dependent on the internet use it for watching films and cartoons, listening to music, playing computer games, membership of social networks and chat rooms. In contrast, normal users use it for reading news, events, education and searching for university websites. In addition, those who are dependent on Internet, use it aimlessly in private places [7].

Like drug addiction and other dependencies, Internet addiction is a real addiction. Such addiction is a chronic, recurrent and pervasive event followed by severe physical, economic, familial, social and mental impairments [8]. Studies indicated that the overuse of Internet had an adverse effect on the mental health of students. Those who overused the Internet had more mental problems and pathologies than the students who did not have such experiences [9]. Seventy-four percent of Indian adolescents used the Internet moderately and 7% of them overused it [1]. Prevalence use of the Internet among dental and medical students was high [10].

It has shown the pooled prevalence of Internet addiction in medical students is five times than the general population [11]. Previous research showed that students addicted to the Internet had less complex practices than normal individuals. Also, they were less able to process information and control motivations [12]. Internet addiction in young individuals is a health problem all around the world [13].

Therefore, in continuing our interest in the medical research [14-18], the present research was conducted on Iranian students of medical sciences to consider increase in application of Internet, it's inevitable role in students' research activities, importance of students' mental health, their role in future and lack of information in this regard.

## Material and Methods

### Study Design and Sample

This is a cross-sectional descriptive research conducted on 400 individuals who were selected randomly. Students of Kerman Medical Sciences University, who had passed two academic semesters at this university, entered the study.

### Data Collection

The study questionnaire includes two parts: demographic features such as age, gender, entrance year, field of study, hours of using the Internet and type of application. Yang's standard questionnaire on Internet addiction includes 20 items. Respondents answered the questionnaire based on 5 points Likert scale - from alternatives of none of them (1) to always (5). The range of test scores was from 0 to 100. The higher score

shows more dependency on Internet. After calculating the total score, the status of the users was determined as follows: the score lower than 20 shows independency (none-user), the score between 20 and 49 shows normal user, the score between 50 and 79 shows minor addiction (risky individuals) and the score between 80 and 100 indicates severe addiction.

#### Data Analysis

Data were analyzed using IBM SPSS Statistics for Windows, Version 19.0 (IBM Corp., Armonk, NY, USA). T statistical test and Chi-square test were done. The significance level has been considered 0.05.

#### Ethical Clearance

This research was approved with the Code of K/93/438 by the Ethics Committee of Kerman University of Medical Sciences.

### Results

Among 400 students, 245 (61.2%) were female, medical field (32%) and sophomores (31.5%) (Table 1).

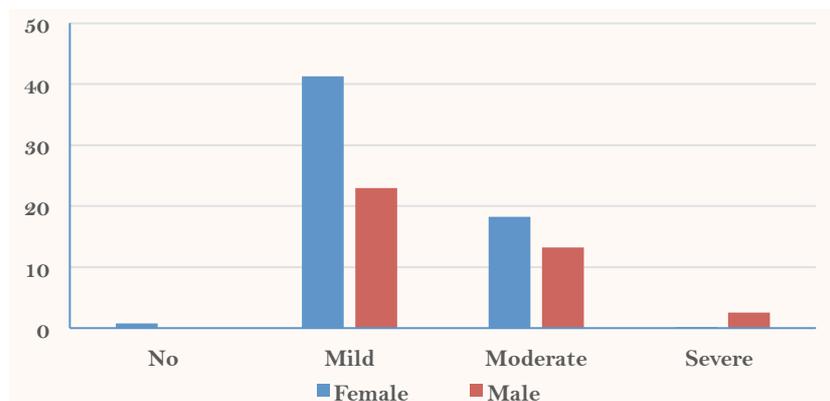
**Table 1. Distribution of participants.**

Variables	N	%
Gender		
Male	155	38.8
Female	245	61.2
Field of Study		
Medicine	128	32.0
Dentistry	122	30.5
Pharmacy	90	22.5
Nursing and Midwifery	36	9.1
Paramedical	24	6.0
Academic Year		
First	50	115.0
Second	126	31.5
Third	52	13.0
Fourth	67	14.3
Fifth	57	14.3
Sixth	31	7.8
Seventh	7	1.8

Considering their familiarity with the Internet, 80.3% stated personal experience and 12.3% individuals stated educational periods held outside the university. The most locations of using the Internet were dormitories (21.0%) and houses (43.5%). Concerning hours of Internet use, 45.2% used the Internet more than two hours per day. One hundred sixty-eight individuals (42.0%) stated that they used the Internet less than 15% for university activities. Ninety-two individuals (23.0%) used the Internet for scientific searching topics. Eighty-six individuals (21.5%) checked their e-mails daily. One hundred eighty-eight individuals (47.0%) used VPN and 75.5% were dissatisfied with Internet speed (Table 2). In the present research, 64.3% had a poor dependency on the Internet. The percent of Internet use is none-users (75%), poor users (64.2%), risky users (31.5%) and severe users (3.5%), respectively. Figure 1 shows Internet dependency based on gender.

**Table 2. Distribution of participant according to Internet information.**

Variables	N	%
<b>Method Familiar to Internet</b>		
Out of University	49	12.3
In University	17	4.3
Self-Education	321	80.3
Others	6	1.5
No Answer	7	1.7
<b>Access to Internet</b>		
Home	174	43.5
University	75	18.7
Coffee Net	13	3.3
Dormitory	84	21.0
Others	54	13.5
<b>Daily Use of Internet</b>		
Less than Half of Hour	52	13.0
Two Hours	167	41.8
Greater than Two Hours	181	45.2
<b>Use of Internet for University Homework</b>		
Less than 15%	168	42.0
15-35%	123	30.8
35-70%	67	16.7
Greater than 70%	22	5.5
No Answer	20	5.0
<b>The Most Use Service</b>		
Advertising, Fun, Game	29	7.3
Searching	47	11.7
Social Media	324	81.0
<b>Use of Internet for Scientific Topic</b>		
Yes	92	23.0
No	245	61.3
No Answer	63	15.7
<b>Email Checking</b>		
Every Day	86	21.5
At Least One Time in a Week	220	55.0
Occasionally	94	23.5
<b>Access to VPN</b>		
Yes	188	47.0
No	212	53.0
<b>Satisfy with Internet Speed</b>		
Yes	97	24.3
No	303	75.7



**Figure 1. Internet dependency severity according to gender.**

Mean score of questionnaires was  $43.98 \pm 15.92$ , with ranges between 20 and 94. The mean score of the questionnaire was  $42.23 \pm 15.00$  for female students and  $46.97 \pm 16.90$  for male students (from a maximum score of 125). No statistically significant difference was seen between both groups ( $p=0.09$ ). No statistically significant difference was observed between the mean score and the students' field of study ( $p=0.57$ ) (Table 3). Nevertheless, no statistically significant difference was seen between entrance years and mean score ( $p=0.45$ ).

**Table 3. Correlation between field of study and internet dependency.**

Field of Study	Mean	SD	p-value
Medicine	42.23	14.47	0.57
Dentistry	44.25	14.73	
Pharmacy	45.70	19.92	
Nursing and Midwifery	43.54	17.36	
Paramedical	43.33	15.10	
Total	43.98	15.92	

## Discussion

In the present research, the mean score of Internet dependency was  $43.98 \pm 15.92$ , suggesting a moderate amount of Internet dependency. The mean score of Internet dependency of female and male students at Hormozgan medical sciences university was reported  $36.11 \pm 23.66$  and  $46.77 \pm 26.85$ , respectively and it is in agreement with the results of the present research [19].

No statistically significant difference was seen between Internet dependency and gender in the present study, differently from that reported by other authors [20-23]. The difference mentioned may be due to the individuals' personalities who were being studied. Anxiety and depression lead to significant Internet addiction [24]. A significant relationship between gender and Internet dependency did not report in similar studies [25,26] and this fact is in agreement with the present study. In this research, among 400 individuals, the percent of risky users was 31.5% and severe users were 3.5%. A previous article showed that 27.2% were non-users, 35.4% were normal users, 20.9% were risky users and 16.3% were severe Internet addicted users [27]. Internet dependency of individuals under the study was lower than that in similar studies. Such difference may be due to the population under study. A previous study reported severe Internet dependency was 2.8%, which is in agreement with the present research [20]. Severe Internet dependency was 0.2% in Greek medical students [28]. Internet addiction in medical students in a previous study was 47.7% [29], a result higher than that seen in this study.

In the present research, students mostly used internet for social networks and chats and it is in agreement with the study on Mashhad medical students, that showed the highest internet application was for chatting with new people and relationship with relatives and friends [30]. It has been shown that some of the Internet activities such as games and chats are more addictive than other activities [31]. In this research, 181 individuals used the Internet more than two hours daily. In research on Hormozgan medical students, 159 individuals used the Internet more than 15 hours [19] and this is in agreement with the results of the present study. It has been shown that an increase in hours of Internet use is one of the factors leading to Internet addiction [30]. In the present research, no statistically significant relationship was seen between the mean score of the questionnaire and the field of study. It is in disagreement with research conducted in Kermanshah medical students, which authors reported a significant difference between students of different fields of study and Internet addiction [32]. The reason for such difference may be the amount of access to the Internet and

the personality of students under study. Also, it may be due to the difference between students' scientific level and high Internet application for doing scientific researches in the present investigation. In addition, no statistically significant difference was seen between the entrance year and Internet dependency in this research. Such results are in agreement with the study on medical students [20].

Among the limitations of the study is the cross-sectional design, which it is possible only to demonstrate results in Kerman Medical University students, and is not representative of all Iranian medical university students.

## Conclusion

Most of the students were normal users of the Internet. Internet dependency has been paid more attention because the application of social networks has been increasing during recent months, and most of the individuals use the Internet for their activities.

## Authors' Contributions

MT		0000-0002-3116-2382	Conceptualization and Validation.
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AB		0000-0001-5622-9312	Investigation.
IM		0000-0001-6351-3119	Writing – Review and Editing and Visualization.
MKA		0000-0003-4485-5476	Methodology, Resources and Writing – Original Draft Preparation.

All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

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## Conflict of Interest

The authors declare no conflicts of interest.

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