

Internet Addiction Disorder among Medical Students in University of Kufa: A Cross Sectional Study

Shaymaa Abdul Iteef Alfadhul^{1*}, Huda Ghazi hameed² and Salam Jasim Mohammed²

¹Faculty of Medicine, Family Medicine, University of Kufa, Medical Education Unit, Al-Najaf, Iraq

²Department of Family and Community Medicine, Faculty of Medicine, Community Medicine, Al-Najaf, Iraq

Abstract

Objectives: To determine the prevalence of internet addiction and some of the associated factors among medical students of the University of Kufa, and find its effect on academic performance.

Subjects & Methods: A cross sectional study was conducted on 218 medical students selected throughout a systematic sampling method. A self-administered questionnaire was used for collection of data, its include three parts (demographic data, computer and internet use data, and Young Internet Addiction Test). The analysis of data was carried out using the Statistical Package for Social Sciences (SPSS). Chi square test (X^2 -test), T-test, and binary logistic regression were used to investigate variables. The level of significance was considered as p-value ≤ 0.05 .

Results: According to the results of Young Internet Addiction Test score, 44.5% of the participants had a mild internet addiction, 119 (54.6%) had a moderate internet addiction, and only 2 (0.9%) had a severe internet addiction. Further analysis using binary logistic regression revealed that spending time online for studying related purpose was a significant protective factor from internet addiction among participants ($P < 0.001$, OR=0.975, 95% C.I=0.963-0.987).

Conclusions: High prevalence of internet addiction among medical students of Kufa University. Students who spend more time on the internet for educational purposes are protected from internet addiction. There is no significant association between internet addiction and academic performance of students.

Keywords: Academic performance; Internet addiction; Participants

Introduction

The use of the internet is important for medical students as a source of education. It has enabled the flow of information, including academic material, entertainment, financial, and news [1-3]. The use of internet has been rapidly increasing worldwide, and In Iraq, the number of internet users increased from 12500 (0.1% of total population) at 2000 to 14000000 (37.3% of total population) at 2016 [4]. Despite many potential benefits of this technology, the problem of overuse and the resulting 'internet addiction' (IA) has become increasingly apparent and college students are particularly susceptible group [5]. The term "internet addiction" was first proposed by Dr. Ivan Goldberg in 1995 for pathological compulsive use of the internet [6]. Young believes that "the use of the internet can definitely disrupt academic, social, financial, and occupational life the same way other addiction like eating disorder, pathological gambling, and alcoholism". Moreover, Young mentioned that "as the internet permeates our lives at home, school and work, it can also create marital, academic, and job related problem" [7] Internet addiction disorder (IAD) is defined as a maladaptive pattern of internet use characterized by psychological dependence, off-line withdrawal symptoms, loss of control, compulsive behavior, and significant impairment of normal social interactions [8]. Symptoms of internet addiction include all of increasing of time spent on Internet activities, computer using that interfere with a job or school performance, withdrawing from other pleasurable activities, changes in sleep patterns and neglecting friends and family [9]. Internet addiction can be compared to other types of addictions regarding risks and consequences [10]. Among the most common adverse reactions due to excessive Internet use are a musculoskeletal pain, headache, eye irritation, isolation from family members and community, refusing to answer calls [11]. Specialized centers have been established in the US, Europe, and South-East Asia for the treatment of severe internet addiction, especially for online gaming, this reflects the growing need for professional help [12]. Studies demonstrated the Prevalence of

internet addiction in general population varies from 0.3% to 38% [13]. Young estimated that about 5-10% of internet users were addicted to it [5]. Internet in the form of smartphones and tablets has become an essential part of every student's life [14]. A large percentage of students wasting their time by visiting a non-educational site, although a small fraction uses the internet for educational activities [15]. Researches have shown that the proportion of time a student spends on the internet for non-educational activity could significantly determine his academic performance [16,17]. In Iraq, to our best of knowledge, this condition not well studied and there are no published researches about the size of this problem especially among medical college students. Hence, the present study aimed to determine the prevalence of internet addiction and some related factors among medical students of Kufa University, and its effect on academic performance.

Subjects and Methods

Study design and setting

A descriptive, cross sectional study of medical students was conducted throughout the period from April 2017 to November 2017 at the faculty of medicine/ Kufa University in Al-Najaf Governorate.

***Corresponding author:** Shaymaa Abdul Iteef Alfadhul, Faculty of Medicine, Family Medicine, University of Kufa, Medical Education Unit, Al-Najaf, Iraq, Tel: 00964 7704537524; E-mail: shaymaa.alfadhul@uokufa.edu.iq

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Study participants

The studied sample was 218 medical students of both sexes, aged 17-25 years, the selection of the sample was by a systematic sampling method, any student giving his/her consent to participate was included in the study.

The sample size was calculated according to the following equation:

$$N = Z^2 P(1-P) / d^2$$

Where N is the sample size, Z is the statistic corresponding to a level of confidence, P is the expected prevalence, and d is precision. The prevalence considered as 17% according to the findings of previous studies (using Young Internet Addiction Test) [17,18], level of confidence interval equal to 95%, and precision equal to 5%, the sample size was calculated as 218.

Data collection tools

Data were collected using a self-administered and full structured questionnaire form, which was designed for the current study, the questionnaire includes three parts, first part contained demographic data such as age, sex, academic year, academic performance, marital status, father’s and mother’s education. The second part included computer and internet use data such as information about having PC or smartphone, and whether it’s connected to network service provider(simcard), availability of internet (wifi) at the family home or another residence, the purpose of using the internet. The third part was Young Internet Addiction Test (YIAT) which contains 20 “how often” questions were used [19]. The five-Item Likert scale rated responses for each item on a 5 points scale from 1(never) to 5(always). Scores were summed from these 20 items to yield a total score ranging between 20 and 100. The total score was classified into mild, moderate, and severe internet addiction. A score range of 20-49 as mild, when the user is average online user, a score range of 50-79 as moderate internet addiction, when the user will experience frequent or occasional problems because of the Internet, and score range of 80-100 as severe internet addiction,when the internet usage is causing significant problems in their life [19].

Ethical consideration

The consent was taken from the Ethical Committee of the Medical College of Kufa University to conduct the study; the data were collected with the aid of the college lecturers, the study objective and scope was explained to the students at each grade. All students were informed that participation in the study was voluntary and were given the option not to participate in the survey and all the information collected are confidential and will be used for the research purposes only. Every student received an anonymous self- administered questionnaire.

Statistical analysis

The analysis of data was carried out using the Statistical Package for Social Sciences (SPSS) 20. Standard deviation, mean, percentage, frequency was used to describe the demographic data, computer and internet usage data of the participants. Chi-square test (X^2 -test) of independence was used to test the association between categorical data of two groups. A T-test was used for comparing means between two independent groups for quantitative data. A multivariable analysis using binary logistic regression was used to control possible confounders. All analyses were done with 95% confidence intervals (CI) and level of significance was considered as p-value \leq 0.05.

Results

The socio demo graphic characteristics of the participants were illustrated in Table 1. A total of 218 medical students were included in this study, their mean age 19.29 years (SD 1.04 years). More than half of them were females (50.9%). Most of them (84.9%) were urban residents. Majority of students (96.8%) were single. The academic performance of students was measured by passing the 1st semester, it was found that 188 (86.2%) students passed the 1st semester, while 30 (13.8%) did not. Regarding the educational status of fathers and mothers of participants; 155 (71.1%) of fathers completed their higher education, whereas 133 (51.3%) of mothers completed their higher education (Table 1).

Most of the students having PC, smartphones, internet services at home, and at their current residence. 67 (30.7%) of the students using internet by SIM card. Table 2 showed the frequency distribution of having personal computer PC, smartphone and internet service availability among participants (Table 2).

Variables	Frequency	Percentage (%)
Age year (mean \pm SD)	19.29 \pm 1.04	
Gender		
Male Female	107	49.1
	111	50.9
Residence		
Urban Rural	185	84.9
	33	15.1
Current residence		
Home Dormitory Relatives	183	83.9
	31	14.2
	4	1.8
Marital status		
Single Married	211	96.8
	7	3.2
Academic performance		
Passed Failed	188	86.2
	30	13.8
Father’s education		
Illiterate Primary school Secondary school University	2	0.9
	9	4.1
	52	23.9
	155	71.1
Mother’s education		
Illiterate Primary school Secondary school University	8	3.7
	31	14.2
	66	30.3
	113	51.8
Total	218	100

Table 1: Sociodemographic characteristics of the studied sample (N=218).

Variable	Frequency	Percentage (%)
Having PC	207	95.0
Having a smartphone	195	89.4
Available internet service at home	207	95.0
Available internet service at current residence	197	90.4
Internet by SIM card	67	30.7
Using internet services (being online)	208	95.4
Total	218	100

Table 2: Frequency distribution of having a personal computer, smartphone and internet service availability among the studied sample (N=218).

According to the results of Young Internet Addiction Test score, the frequency distribution of the participants was normal with a mean score of 53.49 and SD=11.32. 44.5% of the participants had mild IA of score (<50), 119 participant (54.6%) at risk score (50-79) and labeled as moderate IA, while those who had a significant problem with a score of (80-100) and labeled as severe IA, were only 2 participants, providing a prevalence of 0.9% (Table 3).

Table 4 shows the comparison of different variables between ordinary students (mild IA) and those with internet addiction

(moderate and severe IA) using univariate analysis. It was found that married students were higher among the normal group (6.2%) than of addict group (0.8%) with a significant statistical association (p =0.03). Statistical analysis for comparison of means of online spending time according to the purpose of internet use between both normal and addict groups was shown in a Table 5. It was found that mean time of internet usage for study related purposes was higher among normal students 67.175 ± 138.243 than that of the addict students 32.843 ± 22.467, and the difference was statistically significance (p=0.008) (Table 5).

YIAT score	Internet addiction	Frequency	Percentage (%)
0-49	Mild	97	44.5
50-79	Moderate	119	54.6
>79	Severe	2	0.9
Mean score =53.49 (SD=11.32), minimum score =20, maximum score =85			

Table 3: Distribution of studied students according to the internet use as per Young Internet Addiction Test score.

P	Total	Internet addiction		Variable	
		Addict	Normal		
0.33		19.23 ± 0.98	19.37 ± 1.11	(mean ± SD) Age	
0.21	107 (49.1%)	64 (52.9%)	43 (44.3%)	Gender Male	
	111 (50.9%)	57 (47.1%)	54 (55.7%)		Female
0.21	185 (84.9%)	106 (87.6%)	79 (81.4%)	Residence Urban	
	33 (15.1%)	15 (12.4%)	18 (18.6%)		Rural
0.20	183 (83.9%)	00 (82.6%)	83 (85.6%)	Current residence Home	
	31 (14.2%)	17 (14.0%)	14 (14.4%)		Dormitory
	4 (1.8%)	4 (3.3%)	0 (0%)		Relative
0.03	211 (96.8%)	120 (99.2%)	91 (93.8%)	Marital status Single	
	7 (3.2%)	1 (0.8%)	6 (6.2%)		Married
0.08	88 (86.2%)	100 (82.6%)	88 (90.7%)	Academic performance Passed	
	30 (13.8%)	21 (17.4%)	9 (9.3%)		Failed
0.54	63 (28.9%)	37 (30.6%)	26 (26.8%)	Father's education ≤ 12 years	
	155 (71.1%)	84 (69.4%)	71 (73.2%)		> 12 years
0.79	104 (47.9%)	57 (47.1%)	47 (49.0%)	Mother's education ≤ 12 years	
	113 (52.1%)	64 (52.9%)	49 (51.0%)		> 12 years
0.95	207 (95.0%)	115 (95.0%)	92 (94.8%)	Having PC Yes	
	11 (5.0%)	6 (5.0%)	5 (5.2%)		No
0.43	195 (89.4%)	110 (90.9%)	85 (87.6%)	Having smart phone Yes	
	23 (10.6%)	11 (9.1%)	12 (12.4%)		No
0.49	207 (95.0%)	116 (95.9%)	91 (93.8%)	Internet services at home Yes	
	11 (5.0%)	5 (4.1%)	6 (6.2%)		No
0.28	197 (90.4%)	107 (88.4%)	90 (92.8%)	Internet services at current residence Yes	
	21 (9.6%)	14 (11.6%)	7 (7.2%)		No
0.09	67 (30.7%)	43 (35.5%)	24 (24.7%)	Internet by SIM card Yes	
	151 (69.3%)	78 (64.5%)	73 (75.3%)		No

Table 4: Association of sociodemographic variables and other variables with internet addiction (N=218).

Purpose online spending time	Internet use	N	Mean	S.D	P value
Entertainment	Normal	97	42.268	141.206	0.541
	Addict	121	32.587	90.706	
Communication	Normal	97	54.629	139.897	0.804
	Addict	121	50.752	89.471	
study related	Normal	97	67.175	138.243	0.008*
	Addict	121	32.843	22.467	

Table 5: Association between internet addiction and the purpose of online spending time among the studied sample (N=218).

Variables	B	OR	P	95% confidence interval	
				Upper	Lower
Constant	-.785	.456	.490		
Marital status	2.089	8.075	.065	0.876	74.405
Online time spending for studying	-.025	0.975	.000	0.963	0.987

Table 6: Binary logistic regression for factors associated with Internet addiction.

Further statistical analysis using of binary logistic regression demonstrated in a (Table 6) revealed that online time spending for studying related purpose was a significant protective factor of internet addiction among participants ($P < 0.001$, OR =0.975, 95% C.I=0.963-0.987).

Discussion

The present study showed that the overall prevalence of internet addiction was equal to 55.4% among the studied students, which was higher than the reported prevalence by an unpublished study conducted in Iraq among Diyala medical college students [20] that showed the prevalence of IA is 35.7%, also it is higher than reported by meta-analysis study that showed the pooled prevalence of IA among 3651 medical students is 30.1% [21], Other researchers in India reported prevalence of IA equal to 46.8%, 58.9% [22,23] which is consistent with the current finding, while researchers from Malaysia [24] reported that 80.5% of students had IA, which was higher than result of this study. This incompatibility in findings could be attributed to differences in the definition of a borderline score of internet addiction, instrument use, cultures and social background of the studied population.

The current study found that the mean score of IA was 53.49 which corresponds to problematic user score, the current finding is higher than reported by other studies conducted in Iraq [20], Malaysia [24], and Iran [18], where the mean score of IA by Young Internet Addiction Test was 32.7, 43.15, and 32.74 respectively. The higher prevalence and mean score for IA could be explained by the worldwide rapid increase of internet use; hence the studied population might at increased risk of IA. In addition to that high level of academic stress leads to students immerse themselves in online activities to get rid of this stress, also frequent use of the internet for online learning could make students more vulnerable to IA [25].

The present research demonstrated that sociodemographic variables (including age, gender, residence, education of father and mother) are not significantly associated with IA. This finding is consistent with the finding of a meta-analysis study [21] that reported age, and gender may not play a key role for IA. Our finding could be explained the similar accessibility rate of the internet for medical students including both gender and different ages.

Marital status by univariate analysis was found to be significantly associated with IA ($p=0.03$). Moreover, the regression model revealed no significant association between marital status and IA ($P=0.065$). Other researchers [20,26-28] found the same non-significant

association, in contrast, Mari Atae et al reported that singles are more prone to IA than married students[28]. The present finding could be attributed to a few numbers of married students (7, 3.2%) among the participants.

Considering the academic performance of students, it was found that 30 out of 218 students were failed in last semester, 9 of them were not addict, whereas 21 students were addict. However, no significant association was demonstrated between academic performance and IA ($p=0.08$). The current finding is inconsistent with other researches [17,24,29] that found internet addiction to be negatively correlated with academic performance. This incompatibilities in findings could be attributed to the differences in assessment process of academic performance of students, educational policy and quality, and internet activities that practiced by the students.

Regarding other factors that related to internet use, this study showed no significant association between IA and having of PC or smartphone, availability of internet services at home or at current residence, and the using of internet by SIM card. Similarly, Siew Mooi Ching et al. [30] found no significant relationship between different variables related to place and method of internet access with IA, The current finding could be attributed to characteristics of the studied sample where majority of students having PC and smartphone with the availability of internet services at their residence.

According to the type of online activities (as time fraction measured by a percentage of estimated total use), it was found that there are no significant differences in mean of online spending time for communication ($p=0.8$), and for entertainment ($p=0.54$) between normal and addict students. However, it was found that normal students spent more time on the internet for educational purposes than addict students with statistically significant differences. Multivariate analysis revealed that spending more time on internet for studying related purposes is a protective factor from internet addiction ($p=0.0001$, OR(95% C.I) =0.975(0.963- 0.987)). Previous studies were contradictory in results, some reported a higher rate of internet addiction among students who used internet for communication and for entertainment than those who used it for academic research and study related purposes [18,20,26], Another study conducted by Salehi et al. showed no significant differences between normal and addict students according to different types of internet activities except when they were chatting or communicating with new peoples and friends [27].

There are several limitations to this study. This study involved only students of Kufa medical college and had a small sample size; therefore,

caution needs to be taken in generalizing the findings. Moreover, as the study was cross-sectional, so casual relationships cannot be inferred. No interview was conducted to confirm the diagnosis of IA. Majority of students were unmarried, having a PC, smartphone, and available internet services at their residence this make the comparison with these factors not feasible. Estimation of time spending for online activities is roughly in a percentage, rather in hours.

Conclusions

High prevalence of internet addiction among medical students of University of Kufa. Students who spend more time on the internet for educational purposes are protected from internet addiction. There is no significant association between internet addiction and academic performance of students.

Thus, it is necessary to develop strategies for prevention of internet addiction as well as therapeutic interventions to enhance the safe and healthy use of the Internet. Awareness should be created among the undergraduate medical students about the disadvantages of the excessive use of the internet and encouraging students to use the internet for academic researches and gathering scientific information. Finally, we suggest that further multicenter population-based study studies that investigate the length of online spending hours with a different type of internet activities such as games, or Facebook, in addition to that preferable time to use the internet to determine the association of these factors with internet addiction among students.

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Conflict of Interest

The authors declare that they have no conflict of interest and they received no funds for this work.

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