Internet Addiction among Senior Medical Students in King Abdulaziz University, Prevalence and Association with Depression

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Abstract

Introduction: Excessive internet use can lead to negative outcomes such as poor academic performance and social isolation. Objectives: To estimate the prevalence of the internet addiction and to explore the factors associated with depression among medical students, King Abdul-Aziz University, Jeddah, Saudi Arabia.

Methods: The total number of senior medical students was 1049 in the academic years 2013-2014. An analytical cross sectional study was adopted. Stratified sampling technique with proportional allocation to recruit medical students. A self-administered questionnaire was used which adopted the 20-item Young's internet addiction test (IAT) to explore the internet addictions, while the existence of depression was assessed using the centre for epidemiological studies depression scale (CES-D).

Results: The study included 161 medical students, making the response rate of 78.2%. Majority (94.4%) had computer and 99.4% were using the internet. Community sites ranked first (40.6%), whereas general sites, chatting and emailing were preferred by 14.4%, 10% and 10% respectively. Internet addiction was reported among only five students (3.1%). Possible addiction was reported among 74 students (46.3%). Male students (66.2%) were more addicts to internet than females (44.6%) (P=0.007). The 4th year students reported the highest rate of internet addiction or possible addiction (70.3%) (P=0.003). All internet addicts were depressed, whereas 74.1% of possible addicts and 62.2% of non addicts were depressed (P=0.088). However, the trend in the prevalence of depression in the three different situations was statistically significant (P=0.034).

Conclusion: Internet addiction is growing hidden problem, which has psychological and social impact on medical students and requires preventive strategies and therapeutic interventions.

Keywords: internet addiction, depression, college students, medical students, Saudi

1. Introduction

The importance of internet, as a useful tool in education is well known and it is readily available and cost effective, (Castrén, 2008).

Medical students are using the internet both for getting access to information related to health and for recreational purposes. (Aboujaoude, 2010; Ayatollahi, 2010; Ko, 2008; Swaminath, 2008; Dargahi, 2007). This use is increasing with time, such enormous use is not without negative effects, like its detrimental effect on academic performance, social isolation and psychological problems (Subramaniam, 2008).

Internet addiction has emerged as a new behavior based addiction and attracting a lot of attention, (Vizeshfar, 2005). The term addiction was recommended by some researchers because symptomatically is as grave as addiction to alcohol or drugs (Young, 1998). Common internet uses are involved in utilizing this facility for news, trade, educational sites … etc. but internet addicts are using it mainly for chat rooms, social media sites, computer games, cartoons and films. Moreover, these internet addicts prefer to use it while alone, (Sunwoo, 2002; Fortson, 2007).

Prevalence of internet addiction varies from 1.5% to as high as 25% in different studies covering variable populations, (Deng, 2007; Johansson, 2004; June, 2007; Tsai, 2009).

Personal skills in using the internet are also affect the chances of becoming an internet addict but other factors like gender, psychological health, social deprivation, availability of internet, …etc are contributing to internet addiction, (Bao, 1998; Ur Rehman, 2004; Lam, 2009; Ceyhan, 2008; Yang, 2010).

Like other universities, medical universities are spending millions of dollars to provide the students all the advantages of the internet including purchasing books and journals (Mohagheghzadeh, 2002; Ershad, 2007).

Unfortunately, a large number of students get indulged in the internet abuse ultimately ending up in addiction.

The objectives of this study are to estimate the prevalence of internet addiction, and to explore factors associated with depression among medical students, King Abdul-Aziz University, Jeddah, Saudi Arabia.

2. Methods

This is a cross sectional analytical study. The total number of senior medical students (4th, 5th and 6th years) in the faculty of medicine, King Abdul-Aziz University was 1049 in the academic years 2013-2014 (524 males and 525 females).

The sample size was calculated using the single proportion equation in Raosoft software package, (Online Raosoft sample size calculator, 2017), the required sample size is 206 students at 99% confidence intervals (expected frequency 10.8%, (Shaw, 2008) margin of error accepted was 5%. The sample was increased to 225 to compensate for drop out (112 male and 113 female students).

By using stratified sampling technique with proportional allocation the sample size was distributed among the three level medical students and between male and female students and determined as a percentage proportionally related to the total number of the students in the college of medicine. The total number of students in the faculty of Medicine is 1049 and sample size=225 (21.4%).

The questionnaire consist of three parts; the general information, the measures of internet addiction and the measures of depression parts. The general information includes; age, sex, academic year, the mark in last semester, the time using the internet, family income, the websites frequently retrieved, the daily sleeping hours, how many days absent from the classes, and how much parents control internet usage.

The 20-item Young's internet addiction test (IAT) 'examines the degree of pre-occupation, compulsive use, behavioral problems, emotional changes, and the impact on life related to internet use (Widyanto, 2004.)

The 20 items of the IAT are calibrated scores ranging from 1–5 (given a total score ranging from 20–100), self-rating questions with the Likert scale of one (rarely) to five (always), with higher scores reflecting a greater tendency toward addiction.

Three groups of internet-user were recognized: 1- Internet addicts: those who have scored from 70 to 100, the internet is causing major problems for them. 2- Possible internet addicts: those who have scored from 40 to 69, and ultimately they have frequent problems. 3- Non-addicts: those who have scored less than 40, they are average internet users, who have complete control over their usage, and did not show any troubles in their daily activities. The IAT appears to be valid and reliable (Widyanto, 2004).

The existence of depression was assessed using the Center for epidemiological studies depression scale (CES-DC), which is a 20-item self-reported depression inventory, with the Likert scale of zero (not at all) to three (a lot). The total possible scores ranging from 0 to 60, (Weissman, 1980). It has been approved to be reliable and valid in young population (Loretz, 2005).

3. Results

The response rate was 78.2%. The age of the students ranged between 19 and 24 years and the mean 22.2±1.0 year. More than half of them (57.8%) were females. Almost one third (32.9%) were in 5th academic year whereas 40.4% in the 4th year and 26.7% were in 6th years. The academic performance of 44.7% of them in the last semester ranged between 80% and 90%, whereas 26.1% of them got degree of more than 90%. The family income exceeded 15000 SR/month among almost half of them (55.9%).

The majority of medical students (94.4%) had their own computer and almost all of them (99.4%) reported using the internet. 34.4% used it for 3-5 hours per day, whereas 28.1% used it for more than five hours daily. Vast majority of the students (97.5%) preferred to access the internet at home. One fifth of them (20%) reported that their parents always know their online activities compared to 18.1% reported that their parents never or rarely know their online activities. Community sites ranked first (40.6%) as the most preferred websites, whereas general sites, chatting and emailing were preferred by 14.4%, 10% and 10% of them respectively. The total sleeping hours among the study group ranged for 4 hours to 6 hours per day among 45.6% of the participant, whereas it ranged for

3 to 4 hours/day among 5% of them and almost half of them (49.4%) reported more than 6 hours of usual sleeping per day. More than half of the students (57.5%) reported missing 3days or less from the college during the last month. Moreover, 10.7% of them missed college for more than three days during the last month.

The internet addiction was reported among only five students (3.1%) whereas possible addiction was reported among 74 students (46.3%).

It was evident from Table 1 that male medical students (66.2%) were more addicted or possible addicted to internet than females (44.6%) and this difference was statistically significant (P=0.007). Students from 4th academic year reported the highest rate of internet addiction or possible addiction (70.3%) compared to 41.5% and 44.2% among students of the 5th and 6th academic years, respectively, this difference was statistically significant (P=0.003). Student`s age and family income were not significantly associated with the internet addiction or possible addiction.

Table 1. Demographic factors associated with internet addiction among senior medical students, King Abdul-Aziz University

Variables	Internet addiction		P-value*
	Yes/possible: 86	No addiction: 74	
	No (%)	No (%)	
Age in years:			
≤21 (n=37)	19 (51.4)	18 (48.6)	
22 (n=62)	33 (53.2)	29 (46.8)	
23 (n=43)	25 (58.1)	18 (41.9)	
24 (n=18)	9 (50.0)	9 (50.0)	0.913
Gender:			
Male (n=68)	45 (66.2)	23 (33.8)	
Female (n=92)	41 (44.6)	51 (55.4)	0.007
Academic year:			
4th (n=64)	45 (70.3)	19 (29.7)	
5th (n=53)	22 (41.5)	31 (58.5)	
6th (n=43)	19 (44.2)	24 (55.8)	0.003
Family income (SR/month):			
<5000 (n=11)	6 (54.5)	5 (45.5)	
5000-<1000 (n=26)	14 (53.8)	12 (46.2)	
10000-15000 (n=33)	21 (63.6)	12 (36.4)	
>15000 (n=90)	45 (50.0)	45 (50.0)	0.613

* Chi-square test.

Table 2 shows that the students who had no computers were more addicted or possible addicted to the internet than those who had their own computers (75% versus 52.6%). However, this difference was not statistically significant.

Although 77.8% of the student got marks less than 70% in the last semester compared to 54.8% of students who got more than 90% and 45.8% among those who got between 80 and 90% in the last semester were internet addicts or possible addicts, the difference was not statistically significant, p>0.05

There was no significant association between internet addiction and usual sleeping hours per day or missing classes in college among the study group.

Table 2. Possible factors and internet addiction among senior medical students, King Abdul-Aziz University

Variables	Internet addiction		P-value
	Yes/possible: 86	No addiction:74	
	No. (%)	No. (%)	
Having own computer:			
Yes (n=152)	80 (52.6)	72 (47.4)	
No (n=8)	6 (75.0)	2 (25.0)	0.193*
Performance in the last semester:			
>90% (n=42)	23 (54.8)	19 (45.2)	
80-90% (n=72)	33 (45.8)	39 (54.2)	
70-<80% (n=37)	23 (62.2)	14 (37.8)	
<70% (n=9)	7 (77.8)	2 (22.2)	0.174**
Total sleeping hours/day:			
3-4 (n=8)	4 (50.0)	4 (50.0)	
>4-6 (n=73)	42 (57.5)	31 (42.5)	
> 6 (n=79)	40 (50.6)	39 (49.4)	0.679**
Absent from the college:			
Not absent (n=68)	31 (45.6)	37 (54.4)	
One day (n=41)	28 (68.3)	13 (31.7)	
2-3 days (n=34)	21 (61.8)	13 (38.2)	
4-5 days (n=11)	4 (36.4)	7 (63.6)	
>5 days (n=6)	2 (33.3)	4 (66.7)	0.074**

* Fisher`s Exact test; ** Chi-square test.

Depression was assessed using the Center for epidemiological studies depression scale for children (CES-DC). Table 3 shows that all internet addicts were depressed whereas 74.1% of possible addicts and 62.2% of non addicts were depressed.

Participants who are more addicted to the internet would be more likely to be depressed, and this found to be statistically significant P-value=0.034.

Table 3. Association between internet addiction and depression among KAU medical students

Depression	Internet addiction			P-value
	Yes	Possible	No	
Normal	0	21	28	
Depressed	5	56.2	46	0.034*

* Linear-by- Linear Association Test.

4. Discussion

The period between mid-1990s and early 2000 showed revolutionary changes in information and communication technology. The hallmark of these changes was the use of internet throughout the world which surpassed all expected levels and still on the rise. Saudi Arabia is not exceptional; the internet is now a part and parcel of every home. Such enormous use is not without positive and negative impacts on society and its users.

Our study has shown that the prevalence of the internet addiction was 3.1%. This is in accordance with most of

previous studies. (Niemz, 2005; Kim, 2006; Aboujaoude, 2006; Pallanti, 2006; Tsai, 2009; Yen, 2007; Megdady, 2008; Cao, 2007; Ko, 2009). There are many factors for this low prevalence of the internet addiction in Saudi Arabia, the Arabian culture still has the extended family style; where the strong bonds between family members still there which can be perceived by regular visits to parents, grandparents and other family relatives. Moreover, Religious prayers 5 times per day reduce the internet usage.

Al-Hantoushi reported a prevalence rate of 5.16% among secondary school students in Riyadh, Saudi Arabia, (Al-hantoushi, 2014).

In present study males were found to be more prone to become an internet addicts as compared to females, this finding is similar to a study by (Niemz, 2005) who found that the tendency to get an internet addict is 3 times more in males. Griffiths also suggested that males were more prone to internet addiction, as they are also prone to gambling and gaming (Griffiths, 2000).

The 4th year medical students spend more time in the internet (70.3%), this is more likely due to inability to restrict their time online, especially when they engage in chatting and games. In contrast, mature students who care more about their academic performance receive a lower rate of using the internet.

Our study showed that the internet addicts or possible addicts were facing academic performance problems. This was noticed by the absence 1-3 days/ week from the college and a relatively less marked performance in last semester. However this was not statistically significant. Many previous studies had similar findings. (Beard, 2001; Young, 1998; Caplan, 2002).

Poor sleep is also one of the side effects of the internet addiction, (Young, 1998) in his study we observed that these internet addicts were using the facility even between 2 to 4 am despite a schedule of leaving for school or job at 6 am. Such sleep deprivation causes excessive fatigue, which ultimily lead to poor academic and job performance. It also impairs the immune system and enhances the chances of infections.

Niewz et al. (Niemz, 2005), and Nalwa and Anand, (Nalwa, 2003) in their studies observed that there was a constant rise in amount of time being spent on internet once a person become addict to it. With the 24 hour of internet availability, this becomes uncontrollable especially for young adults.

Our study found that there was an association between depression and internet addiction, this was pointed out by many researchers like; (Shapira, 2000; Young, 1998) and (Petrie, 1998).

Different types of psychological effects like fear of rejection, poor motivation and low self-esteem are associated with the increasing use of internet. Those adolescents, who are depressed, found it easy to talk to strangers even with fabricated names. Real relationship and human to human interaction becomes less, leading to social isolation.

5. Conclusion

Internet addiction is a problem which is growing fast even in such component of the society like medical students. The internet addiction has enormous social and psychological effects. Both the individual and society are at risk and therapeutic interventions are needed to counter it.

Almost half of senior medical students have internet addiction or possible internet addiction. Male medical students of 4th academic level were more likely to have internet/possible addiction.

Although, not significant, students who got lower academic performance were more likely to be addicted or possibly addicted to the internet.

There was a significant trend of depression with the internet addiction/possible addiction among senior medical students.

Competing Interests Statement

The author declares that there are no competing or potential conflicts of interest.

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