Internet use and addiction among students of

College of medicine

Al- Mustansiriyah University

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Abstract

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Abstract

Back ground: Internet Addiction (IA) among medical students and its association with psychological distress can impact their academic progress and long-term career goals. IA would also indirectly impact community of health care professionals and the society. Thus, there is a need to investigate the IA among medical students.

Aims of the study: To determine the rate and of levels of internet addiction among students according to Internet addiction test (IAT). As well as to Find out the influence of gender and school year on the likelihood of development IA.

Subjects and method: A cross-sectional study was performed among

 students of college of medicine -Al- Mustansiriyah university for academic year 2018/2019, for the period from 3rd to 20th of March 2019.The data were collected via self-report questionnaire and IA Test (IAT) was utilized to assess IA.

Results: The total number of students enrolled in the study was 418 students. The rate of IA among study group was **(**81.8%), 55% of them were categorized as mild addicts. Males and females have approximately   same rate of IA (81.5% and 82%) respectively.

The highest rate of IA and sever level of addiction was (92.3%, 5.9 %) detected among students in third grade.

Social network was the main purpose for internet use (42.8%). The majority of the students (90%) utilized mobile phones for Internet access.98.32% of the students enrolled in the study had face book account and 72% of students spend more than 3 hours on internet daily.

Conclusion: Internet addiction has become a vital problem for medical students. Students should be counselled about the hazard of internet addiction.

among

The distribution of study group according to grade: First 30 (7.2%),third 91(21.7%),fourth 100(23.9%) ,fifth 94(22.5%) and sixth 103 (24.64%) According to the IAT, 342(81.8%) of the study sample was addicted to the internet

Introduction

The beginning of the 21-century there was explosive growth of internet usage worldwide, particularly in the developing countries.

Originally internet created for information exchange and research purpose, today it has literally percolated every aspect of human life including social communication, education, research, health seeking, banking, business, shopping, administration, and entertainment, so much so that internet has been an essential part of our lives and today, we cannot imagine our lives without internet.[1]

Use of the Internet and smartphones has grown all over the world, with more than three billion people using the Internet daily and two and half billion people using a smartphone every day [2,3].

Epidemiology of internet use:

Conferring to the statistics of the international association of telecommunication, in September 2017, over 3.5 Billion people have access to the internet. The ratio of using the internet is calculated as the number of internet users in every 100 individuals. Accordingly, the ratio of internet users has increased from 12 per every 100 in 2005 to over 48 per 100 people in 2017, suggesting a four-fold increase of internet users worldwide. The statistics among the youth indicate that more than 803 million people (70%) of internet users consist of the youth between 18 and 24 years of age. Furthermore, men use internet twice more often than women [4].

Moreover in 2017, 56.7% of the Middle East population are active internet users who represented 3.8% of internet users worldwide [5].

In Iraq, there hasn't been many researches and studies about this new subject, because before 2003 internet access was limited strictly to government facilities. Recently, internet has spread widely in all of Iraq governates and became available in many ways. Beside the developmental upgrades in smart devices like mobile phones and tablets, the internet is now a daily tool used by most people in Iraq for various needs. The number of internet users in Iraq increased from 12500 (0.1% of total population) at 2000 to 14000000 (37.3% of total population) at 2016[6].

The university students are the major Internet users, needing to use the Internet for educational purposes, accessing virtual libraries, conducting research studies, and recreational activities [7]. A large percentage of students wasting their time by visiting a non-educational site, although a small fraction uses the internet for educational activities. Researches have shown that the proportion of time a student spends on the internet for non-educational activity could significantly determine his academic performance [8].

As for medical students, the internet is commonly used for literature searches and searching relevant medical information and resources, as it is cheap, easily used and available everywhere

[9]. Thus, the internet appears to be one of the important tools among medical students who experience a stressful life [10]. They often release their tension or stress by playing online games, watching videos, or chatting with friends on social networks. Those medical students who spend their time intensively and inappropriately on the internet are prone to getting addict to it [11].

FACRORS FOR IAD:

Many factors are linked to internet addiction among students such as mental predisposition, free and unlimited access to the internet [12], social and cultural factors, and internet-specific characteristics [13]. Moreover, researches that investigated IA determinants explained that lack of self-control, and social and absence of emotional ties with family were among the main psychosocial factors that underlie the IA [14]. Meanwhile, the main types of activities involved in IA are online gaming, social networking, online shopping and gambling [15].

Definition of Internet addiction

Many have used the term "addiction" to describe problematic Internet use for quite some time. Medical research appears to support the use of this terminology in that the effects of behavioral compulsions (e.g., compulsive online video-game-playing) on dopamine pathways and other brain structures have been demonstrated to be comparable to those of chemical addictions[16].

These similar effects on the brain seem to lend credibility to the concept of *process addictions* (sometimes referred to as *behavioral addictions* or *impulse-control disorders*) in which an individual compulsively engages in a particular activity despite suffering negative consequences after repeated attempts to stop[17].

Internet addiction has been defining by the scholars as: "any behavior dependent on online media which causes disorder in normal life and creation of stress in the family and job". Among the most important dimensions of defining Internet addiction are its numerous effects on various aspects of quality of life and development of disorder in routine activities [18]. According to the latest definition by American Society of addiction medicine, Internet addiction is not considered a group of abusing mass communication; rather it has been defined as a chronic mental disease [19].

The first person to discussed such a subject was Dr. Ivan Goldberg, a New York psychiatrist in 1995 when he published one of the first diagnostic tests for Internet Addiction Disorder [20].

Researchers have suggested various diagnostic criteria to examine Internet addiction from a clinical perspective. Some scientists adapted the diagnostic criteria of pathological gambling or impulse control disorders to diagnose Internet addiction.

Criteria according to these definitions include [21] :

- preoccupation with the Internet
- increasing amounts of time on the Internet
- unsuccessful attempts to quit
- irritability when trying to cut back
- staying online longer than intended
- jeopardizing significant relationships to stay online
- lying to cover up Internet use
- using the Internet as an escape from problems.

Size of IA problem :

In recent years Internet addiction has become the most significant International mental health problem and needs special attention. Easy access and social networking are two important promoting factors for addicting behaviour [22].

The prevalence of Internet addiction among youth may vary from 1.98% to 35.8% [23].

Surveys in the United States and Europe found prevalence rates between 1.5% and 8.2%, respectively [24].

National studies in Asian countries indicate that IA ranges from 41%- 84% in countries such as China, South Korea and Malaysia [25].

Studies investigated the prevalence rate of IA among students estimated that 3-13% of university students were IA [26]. On other hand studies carried out among medical students reported that the prevalence of IA among those students can range from 10.8% to 16.2 % [27].

Based on meta-analysis study conducted in Iran. The results suggested that the total prevalence of IA at moderate level is 25.3% and at severe level is 4.67% [28].

While the results of study performed in India reported that 94.5% of medical students were found to have internet addiction. 60.8%, 31.3%, and 2.5% were found to have mild, moderate and severe internet addiction, respectively [29].

Furthermore, the findings from study among medical students of Sohag university, Egypt stated that the prevalence of IA was 47.7% [30].

In Iraq the results of study conducted among medical students of Kufa University revealed that, 44.5% of the participants had a mild internet addiction, 54.6% had a moderate internet addiction, and only 0.9% had a severe internet addiction [31].

IMPACT OF IAD:

Apart from the bright side of the internet use, overuse of the Internet is associated with problems for adolescents, whose physical health, family life, and academic performance can be particularly negatively affected [32].

It is an important disorder, it is often associated with many mental and psychological problems such as attention deficit, stress, anxiety and depression, and compulsive disorders [33].

One study reported that who used the internet for 38 hours a week on average, face problems such as lack of sleep and excessive tiredness [34]. Interestingly, many addicts will even take caffeine pills just to stay awake and alert for a longer duration to use the Internet. Internet addicts may also suffer from back strain, eyestrain, carpal tunnel syndrome, and repetitive stress inquiry from intensive time spent at the computer [35].

Furthermore, it affects the academic performance and study times due to poor concentration in class and excessive time wasted online for other purposes. It also affects their life in general as in family status and emotional relationships, instead of spending time on real-world social activities, internet users are more prone to spend their leisure time online alone which make them more liable to be anti-social and depressed. Moreover, greater expenditure of both money and time on internet by IA medical students may inversely impact their academic achievement result in undesirable financial costs, putting off their healthy professional development with destructive social consequences [36].

Aims of the study :

1- To determine the rate and of levels of internet addiction among medical students in Al- Mustansiriyah University according to Internet addiction test (IAT).
2- Find out the influence of gender and school year on the likelihood of development IA

Methodology

● **Study design:** Across sectional study with analytical element.

● **Setting:** the study was carried out at Al-Mustansiriyah university / college of medicine for the period from 3rd to 20th of March 2019.

● **Study Population:** The studied population was composed of Students from the first to six grades with exclusion of 2nd grade students for academic year 2018/2019.

● **Sample size and sampling technique:** 300-350 students were the suggested sample size. About 60-80 students were designated from each study grade depending on the number of students who were assigned to collect data from each grade and each student was requested to collect data from 15-20 students. A convenient sampling technique was used for selection of a study group.

● **Data collection:** data were collected via a self-administered questionnaire. The students were recruited at their break time and times between lectures, labs and clinical sessions and were informed that participation in the study was completely optional and it would only take about 10-15 minutes of their time.
Adequate explanation concerning the purpose, the objectives of the study and the procedure of filling the questionnaire was provided to the participants by the study team.
Each of the participant who agreed to join in the study was handed over a copy of the questionnaire.

Filling out the questionnaire by the student was regarded as consent to enroll in the study. The respondents were asked not to mention

their names for maintaining anonymity and also to encourage participation and provoke truthful response.

Study instrument: A structured questionnaire was used in this study. It was formed by the study team and supervisor after reviewing the related studies dealing with the comparable issue.

⬤ **The questionnaire consisted of two sections:**

 The first section had questions pertaining to basic data as gender and grade. In addition, to questions inquiring about   internet usage such as: main purpose for using the internet, duration of internet use, device of access as well as Facebook account and e-mail.

 The second section of the questionnaire measured the level of IA using a modified Internet Addiction Test (IAT).

Internet Addiction Test (IAT) is the first validated measure of Internet Addiction, this scale has been widely used for screening and measuring the level of IA worldwide.
 The IAT consists of 20 questions to evaluate the respondent's level of internet addiction. Each of the questions was scored using four-point Likert scale ranging never to always. The responses were assigned a score where never was scored zero point and always was scored five point. After answering all the questions, scores of each response were added to obtain a final score ranging between 0-100. The scores categorized as follows to identified the level of IA into:

None:0-30 points
 Mild :31-49 points
Moderate:50-79 points
 Sever:80-100 points
 Accordingly, each participant was classified   as non- internet addiction, mild, moderate and severe IA.

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● **Data analysis:** Microsoft excel was used for data entry and analysis. Data was presented in forms of frequencies and percentages in form of tables and figures. **Chi square test was used to study the association between study variables (gender and grade) with addiction state and level of addiction .. P value <0.05 was considered statistically significant.**
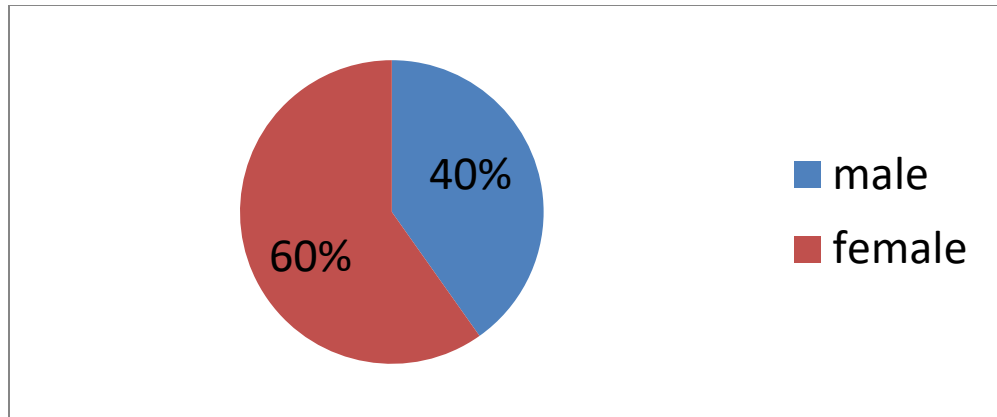
Result

The total study comprised 418 students, their distribution according to grade presented in table-1.

Table-1 The distribution of study group according to grade.

Grade	No.	%
First	30	7.2
Third	91	21.7
Forth	100	23.9
Fifth	94	22.5
sixth	103	24.64
Total	418	100%

Out of the total studied sample ,168(40.2%) were males as shown in fig-1
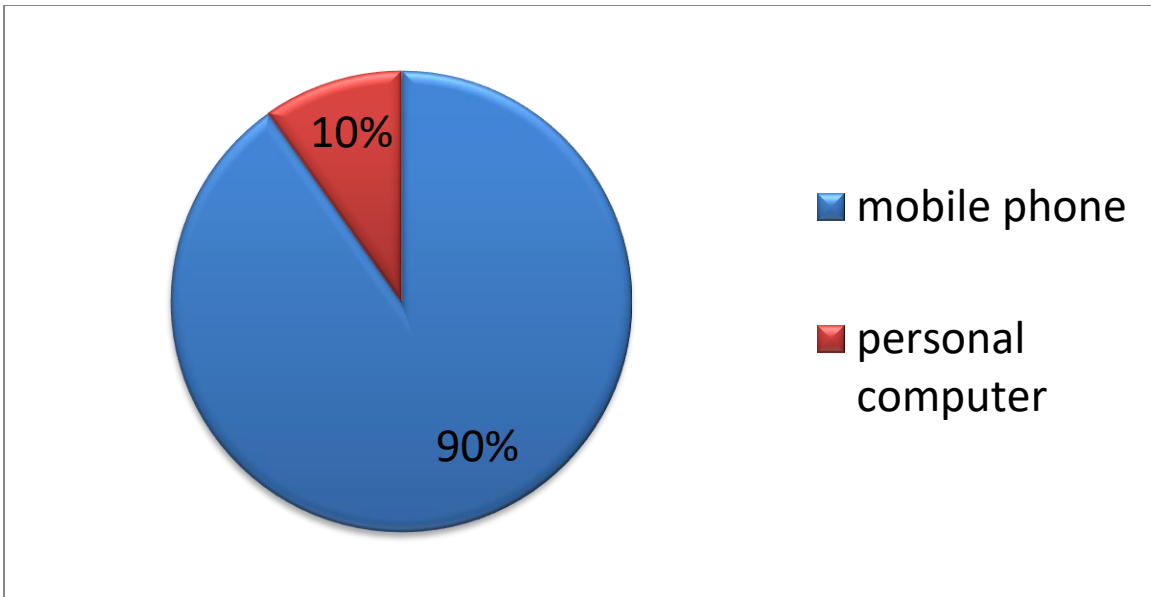
Figure -1 :The distribution of the study group according to gender

Table-2: The distribution of study group according to main purpose of internet use

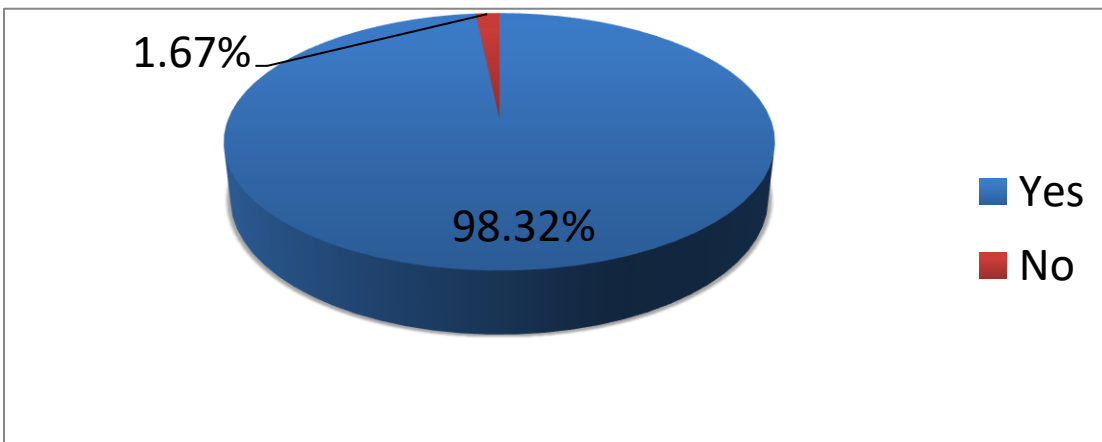| Purpose of internet use	No.	%
chatting	84	20.1
Social network (Facebook, Instagram)	179	42.8
Entertainment	149	35.6
Academic activity	50	12

***Some give more than one response
Among the study sample, social network was the main purpose for internet use (42.8%). While only (12%) stated that their main purpose for internet use was for academic activities.

Figure - 3: The distribution of study group according to the primary method of access to internet
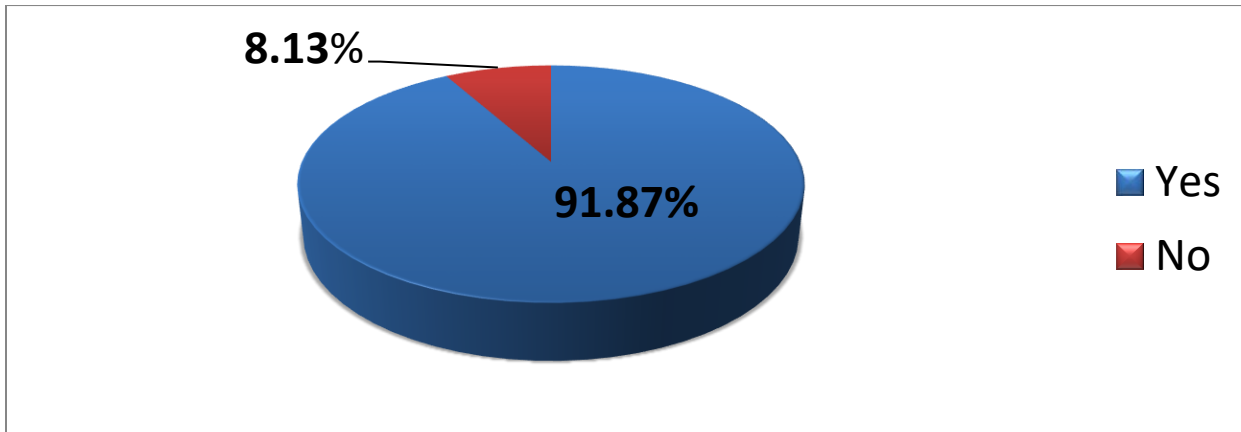
The majority of the students (90%) use mobile phone as their main access to internet. Figure-3.

The result in fig-4 pointed out that, nearly all the students (98.32%) had Facebook account.
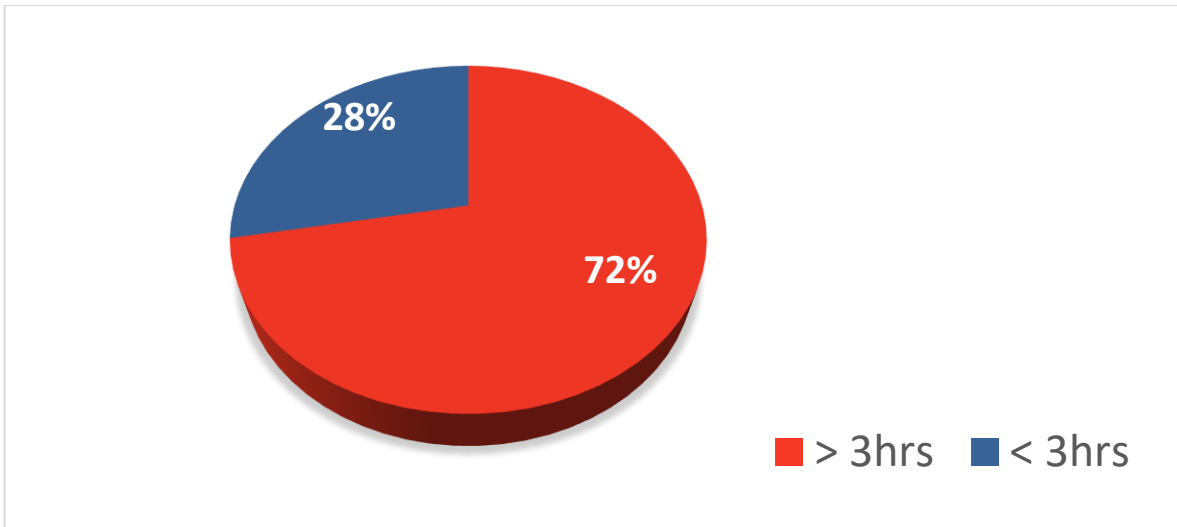
When the students were inquired about e-mail account, 91.87% stated that they had account. The result presented in fig-5

Figure -5: The distribution of study students in relation of having E-mail account

The result revealed that 72% of students enrolled in the study spend more than 3 hours on internet daily as presented in fig-6.

Figure -6: The distribution of study group according to duration of using internet daily

Among 418 students, 342(81.8%) of them were classified as internet addicts according to IAT. Figure -7.
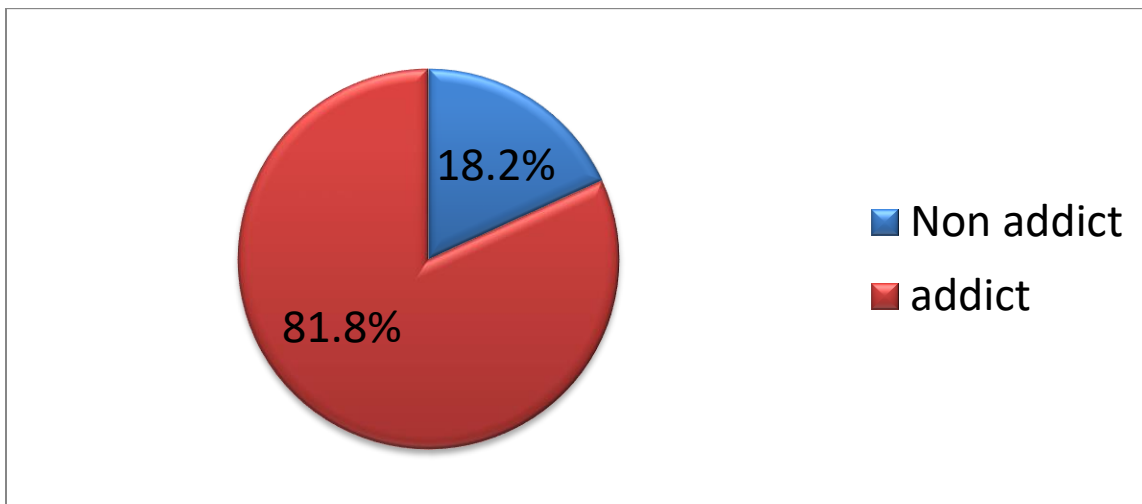
Figure -7: The distribution of study group according to IAT

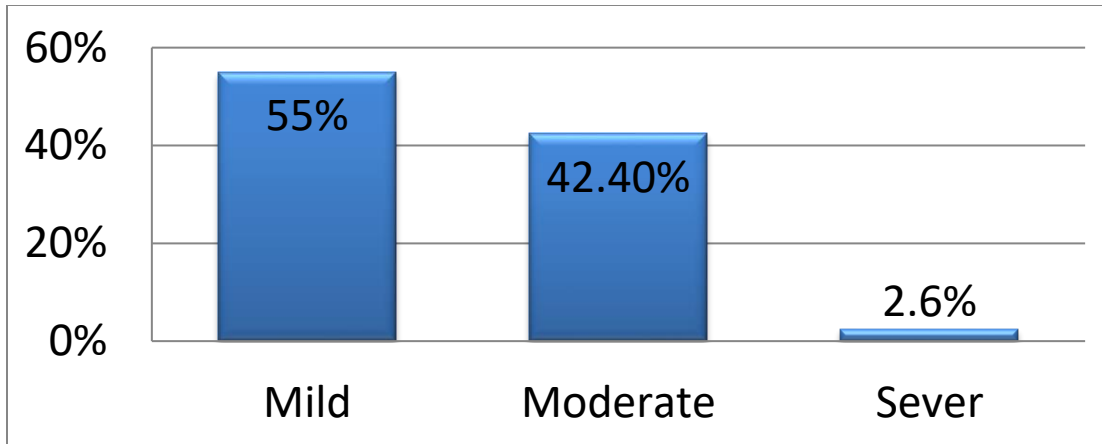**Figure-8: The distribution of internet addicts according to severity of addiction**

Out of 342 internet addicts, 55% of them were categorized as mild addicts, and only 2.6 % of them were severely addicts conferring to IAT.

Table-3: The distribution of study group according to addiction state and gender

State of addiction	Male		Female		Total	
	No.	%	No.	%	No.	%
Non addict	31	18. 5	45	18	76	18.2
Addict	137	81.5	205	82	342	81.8
Total	168	100	250	100	418	100

X^2=0.0138, df=1, p=0.9064 not sig

Table- 3 presented the distribution of study participants according to state of addiction and gender. 81.5% males and 82% of females enrolled in the

study were internet addicts respectively . The gender failed to reveal a statistically significant impact on state of addiction (p=0.9064).

Table-4: The distribution of addict students according to gender and severity of addiction

Gander/ Severity	Male		Female		Total	
	No.	%	No.	%	No.	%
Mild	69	50.4	119	58.1	188	54.9
Moderate	64	46.7	81	39.5	145	42.4%
Sever	4	2.9	5	2.4	9	2.6 %
Total	137	100	205	100	342	100

X2= 1.9591, df=2, p= 0.375486

When severity of addiction was analyzed in relation to gender, the result revealed no statistically significant influence of gender upon the level of severity of addiction. (P=0.375).
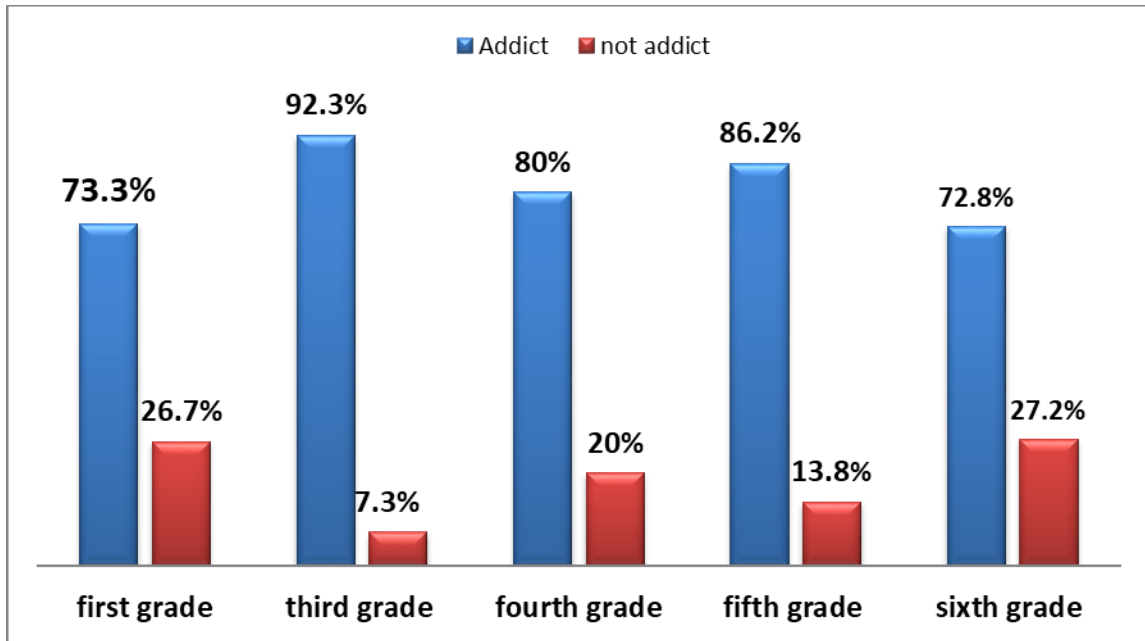
Figure -9: The distribution of study group according to grade and addiction state.

The result in fig- 9 showed that the highest rate (92.3%) of internet addiction was noted among third grade students, while the lowest rate (72.8%) was observed among sixth grade students according to IAT.

Table-5: The distribution of study group according to grade and addiction state

Grade	Addict		Non addict		Total
	No.	%	No.	%	
First	22	73.3	8	26.7	30
Third	84	92.3	7	7.3	91
Fourth	80	80	20	20	100
Fifth	81	86.2	13	13.8	94
Sixth	75	72.8	28	27.2	103

Total	342		76		418

x^2 15. 2133.df =4, p=0.004279

Table-5 described the addiction state according to grade.

The relationship between grade and addiction state showed statistically significant association (P = 0.004279).

When the severity of IA was considered in relation to grade, the result showed that the highest rate of sever addiction (5.9 %) was noticed among third grade students, while no student was categorized as sever internet addict among the fourth and fifth grades respectively. The result failed to revealed statistically significant association between the grade and level of internet addiction (P= 0.060389). Table-6.

Table-6: The distribution of internet addicts' students according to grade and severity of addiction

Grade	Mild		Moderate		Sever		Total
	No.	%	No.	%	No.	%	
First	10	45.5	11	50	1	4.5	22
Third	44	52.4	35	41.7	5	5.9	84

Fourth	54	<u>67.5</u>	26	32.5	0	0	80
Fifth	46	56.8	35	43.2	0	0	81
Sixth	34	45.3	38	50.7	3	4	75
Total	188		145		9		

X^2 9.0286, df 4, p=0.060389

Discussion

Medical sciences are based upon recent progresses and it is very much necessary for medical societies to update themselves with those developments for the correct application of patient caring and other activities in health sector.

To keep on updated, regular internet use has become a part of life of medicos. Side by side, there are other attractions in internet which easily generate much interest of surfing internet among the teenagers and college students. Similarly, medical students are not an exception to them.

Previous studies documented that medical students who used the internet for social media browsing were at higher risk of IA. This finding can be clarified by the nature of social media which affords a means for social interaction and creation of social relation.

The result from the present study revealed that social network was the primary purpose of using internet among the study group. This finding was in line with previous studies from Egypt and India (Santanu GHoSH, SuPantHa Chatterjee. Assessment of Internet Addiction among Undergraduate Medical Students: A Cross-Sectional Study in a Medical College of Kolkata. Journal of Clinical and Diagnostic Research. 2018 Apr, Vol-12(4): VC05-VC09).

which also found that social networking was an important purpose for internet use among medical students.

The use of internet for academic purposes is very low and needs to be improved.

The current study result demonstrated that mobile phones were the main devices of internet use. This finding was also reported by other studies from Egypt, India, and Jordan (Alzayyat A, Al-Gamal E, Ahmad MM. Psychosocial correlates of Internet addiction among Jordanian university students. J

Psychosoc Nurs Ment Health Serv. 2015;53(4):43-51)

The possible explanation of this can be attributed to the fact that with the discovery of smart phones and better services offered by the network companies most students access internet from their phones due to ease of access and availability.

The study result showed that nearly three quarters of students spend more than 3 hours a day using internet. This was also a finding of other studies conducted in Saudi Arabia (Alshehri A, Azahrani H, Alotaibi M. Internet addiction among Taif University
students and its association with psychiatric co-morbidities. Merit Research Journal of Medicine and Medical Sciences. 2015;3:536–44).

Doaa M. Abdel-Salam, , Hajar I. Alrowaili, Haifa K. Albedaiwi, Amnah I. Alessa and Hanan A. Alfayyadh. Prevalence of Internet addiction and its associated factors among female students
at Jouf University, Saudi Arabia . Journal of the Egyptian Public Health Association (2019) 94:12 . doi.org/10.1186/s42506-019-0009-6).

A long time spent on the Internet is a character of Internet addiction. This is due to the inability of the students to restrict their Internet use particularly when they involve in communication websites and the availability of 24-h Internet access at their homes.

The overall rate of Internet addiction in the present study was (81.8%) which was considerably higher than the reported prevalence by previous studies conducted in Iraq, among medical students of Diyala University and University of Kufa which were (35.7% and 55.4%) respectively. But this result was comparable to the result reported by study from Malaysia which stated that
80.5% of students had IA.
(Haque M, Rahman N, Azim MM, Haque S, Kamal Z, et al. Internet use and addiction among medical students of Universiti Sultan Zainal Abidin, Malaysia. Psychology Research and Behavior Management.2016. 14: 297-307

On other hand it was less than rate of IA (94.5%) reported by study conducted in India (**Madhusudan M, Sunny D A Fernandes, Tessy Thomas,**

Alaka Unnikrishnan, Sharath S Malakkaran, Arjun Krishnan H, Hasna K P. Internet Addiction and its determinants among the Students of a Medical College in Kerala. Annals of Community Health • Jul-Sep 2018 . 6(3):8-13).

Aforementioned studies, show great dissimilarity in rate of IA and this may be due to many factors, one of which is the lack of certain definition and exact assessment of IA. Besides various samples and tools assigned and variation in social backgrounds. Moreover, IA prevalence was higher in countries with greater traffic time consumption, pollution, and poor life quality in general.
 Furthermore, the higher rate 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

(Chakraborti A, Ray P, Islam MU, Mallick AK. Medical undergraduates and pathological internet use: Interplay of stressful life events and resilience. Journal
of Health Specialties. 2016;4(1):56-63).

The result revealed no association between gender and either with   IA or severity of addiction. This result coincides with previous studies conducted in Iraq and elsewhere (Zhang M, Lim R, Lee C, Lee C, Ho R (2017) Prevalence of internet addiction in
medical students: A meta-analysis. Acad Psychiatry 42: 88-93.

Which concluded that gender may not play a key role for IA. This could be explained the similar accessibility rate of the internet for medical students including both genders.

The grade of student showed significant influence upon rate of IA, where the highest rate of IA combined with sever level of IA was observed among third grade students. A similar outcome was also obtained by studies conducted in Malaysia and Iran which itemized that the years of medical curriculum influences significantly to the rate of internet addiction.

(Haque M, Rahman NA, Majumder MA, Haque SZ, Kamal ZM, Islam Z, et al.
Internet use and addiction among medical students of university sultan zainal
abidin, Malaysia. Psychol Res Behav Manag. 2016;9:297-307(used before)

Salehi M, Khalili MN, Hojjat SK, Salehi M, Danesh A. Prevalence of internet
addiction and associated factors among medical students from Mashhad, Iranin 2013. Iran Red Crescent Med J. 2014;16(5):e17256.

Limitations:
The study enrolled only students of college of medicine -Al-Mustansiriyah university. Therefore, it is difficult to generalized the findings.

Conclusion

In the light of the results of the present study, the following conclusions were made:

1-Considerable proportion of students were IA, yet more than half of them were mild internet addicts according to IAT

2-Highest rate of both IA and sever level of addiction was observed among third grade students.

3-Almost similar rate of Internet addiction among students irrespective of their gender, both male and female students were suffering from mild IA.

4- The students of College of medicine -Al-Mustansiriyah university can be categorized as habitual and frequent users of the Internet, as almost all of them had face book account, and nearly three quarter of them spend more than three hours on line daily.

5- Mobile phone was foremost gadget used by the student for network browsing.

6-Social network was the main drive of internet use.

Recommendation

1- Generate awareness about the disadvantages of prolonged internet use both from health and social point of view among students, this can be part of responsibilities of the academic guidance unit through workshops, and seminars.

2- There is a need for screening for psychological distress and IA among the students as its highly probable that they co-exist and aggravate each other.

3- Students should be encouraged to use some other mode of entertaining activity to help them ease their Internet addiction.

4- Further studies to be conducted in other colleges (medical and non-medical) to know the extent of AI and related risk factors along with the health and social consequences on university students.

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