International Journal of Epidemiologic Research, 2014; 1 (1): 9-15.

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Prevalence of internet addiction among university students in Ilam: a cross-sectional study

Ataollah Hashemian[1], Ashraf Direkvand-Moghadam[2*], Ali Delpisheh[3], Azadeh Direkand-Moghadam[4]

[1]Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran; [2]Student of Ph.D. by Research, Psychosocial Injuries Research Center, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran; [3]Epidemiology Dept., School of Medicine, Ilam University of Medical Sciences, Ilam, Iran; [4]Student Research Committee, Ilam University of Medical Sciences, Ilam, Iran.

Received: 15/Jun/2014 Accepted: 23/Sep/2014

Original article

ABSTRACT

Background and aims: Internet addiction is one of the problems emerged with the development of technology. Considering the potential negative effects of internet addiction on health, the present study aimed to determine the prevalence of internet addiction in university students in Ilam, west of Iran, in 2014.

Methods: In this cross– sectional study, 1066 university students in both public and private sectors were assessed in 2014. The samples were selected by multi-stage random sampling method. Data were collected by a two-part questionnaire: the personal characteristics and Internet Addiction Test (IAT)-20. This 20-itemed questionnaire measures internet addiction in mild, moderate and severe levels. Each answer is scored based on a Likert scale from 1 to 5. The higher score represents a greater level of addiction. The total score between 20 and 49 represented mild, 50-79 showed moderate and 80-100 was severe addiction.

Results: Overall, 466 (43.7%) of students were placed in the Internet addiction group. Generally, 39.6% of students had mild and 4.1% had moderate addiction. No case of sever Internet addiction was seen. Prevalence of internet addiction in the medical students was higher compared to nonmedical students ($P< 0.0001$).

Conclusion: Based on the results, internet addiction should be considered as a serious problem in adolescents and young adults. So, it is necessary that proper use of internet to be educated to adolescents and young adults to prevent the risk of internet addiction.

Keywords: Cross– Sectional study, Ilam, Internet Addiction Test, Prevalence, University students.

INTRODUCTION

The rapid development in world sciences has resulted in paying the cost of internet for educational purposes by many families.[1] In some cases, internet is used to establish quick connections around the world. Many applications in science and technology and attractiveness of the internet usage have led to considering the emergence of internet addiction in recent years.[2]

Internet addiction or excessive use of internet is one of the individual and social problems of internet overusing. Nowadays, a high internet addiction percentage has been reported among users of various sciences

***Corresponding author:** *Psychosocial Injuries Research Center, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran, Tel: +988412240404, E-mail: direkvand-a@medilam.ac.ir.*

which it could be considered as one type of behavioral addiction.[3] In fact, based on the results of worldwide studies, internet addiction has become a global problem.[2, 4-6]

International estimates of Internet addiction widely varies. In a multicenter study, the prevalence of adolescent's internet addiction was reported between 7.9% and 22.8%.[7] Another study reported the internet addiction equal to 4.4% among university students in Ilam.[8] In another study, 1.6% of Korean adolescents have reported to suffer from internet addiction and 38% of the participants had the potential for Internet addiction.[9] In addition, in some studies, its prevalence, has been reported to be up to 26 %.[10] In fact, every one in eight US adults are addicted to internet.[11]

There are several potential negative impacts of internet addiction including negative impact on family relationships and emotional stability.[6] Adolescents with internet addiction are at risk of depression and suicide.[9] Shek and colleagues in 2008, showed that internet addiction has led to the abnormal physical and mental effects on consumers.[12]

Several risk factors have been identified as determinants of internet addiction including: being male, living in metropolitan areas, not living with biological parents, low parental involvement, parental unemployment,[8] low educational level of parents, being so young when using internet for the first time, overusing of social and game network sites.[7] Another study reported the parental conflict and inadequate supervision on unessential internet use as the main causes of Internet addiction.[13]

Due to the lack of parental control and the feeling of independence, adolescents and young adults are at high risk of behavioral addictions. A study reported that college students are a group that may be particularly vulnerable to internet addiction.[14] Taking into account the potential negative effects of internet addiction on health situation, the present study was conducted to determine the prevalence of internet addiction in university students in Ilam, located in west of Iran, in 2014.

METHODS

In this cross–sectional study, we assessed 1066 university students in both public and private sectors in Ilam in 2014, using a multi-stage random sampling method. Data were collected by a two-part questionnaire. The first part of the questionnaire included the personal characteristics such as age, gender, the field and section of the study, parents' job, parents' education, hesitancy internet using hours per day. Second part of the questionnaire was Internet Addiction Test (IAT)-20.

The IAT is the first valid and reliable measurement of internet addiction. This 20-item questionnaire was designed by Kimberley Young [15]. It measures internet addiction in mild, moderate and severe levels. Each answer is scored on a Likert scale from 1 to 5. In a way that, score 1= rarely, 2= occasionally, 3= frequently, 4= often, and 5= always. The final score is obtained by summing the scores of all questions. The higher score represents a greater level of addiction. The total score between 20 and 49 represents a mild addiction, 50-79 represents moderate addiction, and 80-100 represents severe addiction. Alavi, and colleagues calculated the validity and reliability of the Persian version of the Young Diagnostic Questionnaire in students of Isfahan university as (r=0.78, 0.81) (r=0.74, P<0.01), respectively.[15] Another study, reported the acceptable internal consistency, test–retest reliability and bisection as:(α=0.88), (r=0.82) (r=0.72) respectively for Young's Internet Addiction Test in Iranian users.[16]

This study was done with the approval of the Ethical Committee in Ilam University

of Medical Sciences. All participants were asked to fill in an informed consent before the enrollment in the study. To enhance the confidentiality, all questionnaires were completed anonymously with only required information.

Because the prevalence of internet addiction in our study population was unknown, it was considered (P=0.5). Sample size was determined by d=0.03 and confidence interval 95%. Mean ± SD, median and percent were used to describe the data. In a normal distribution of continuous data, ANOVA used when a normal distribution of continuous data was not assumed, Kruskal Wallis test was used to analyze between different variables. Pearson correlation coefficient was used to estimate the association between variables. SPSS software (version 19) was applied to analyze the data of this project.

RESULTS

A total of 1066 university student were selected and assessed. The mean of age were 25.85 ± 6.3 and 25.52 ± 5.38 years in non-internet addiction and internet addiction groups, respectively. Overall, 466 (43.7%) students were in internet addiction group. The overall distribution of internet addiction was as follows: The mild addiction was 422 (39.6%) and moderate addiction was 44 (4.1%). The results did not show any case of severe internet addiction. Variables such as parental occupation, parental education and number of children in families were different between two groups (P> 0.05). Demographic characteristics of participants are presented in Table 1.

Table 1: Comparison of Characteristics between groups

Characteristics	Internet addiction		Total	P-value	r
	Yes	No			
Age*	25.52 ± 5.38	25.85 ± 6.3		0.391	
Gender**					
Male	142(41.6)	199(58.4)		0.005	
female	324(45.4)	389(54.6)			
Educational field**					
Medical subgroups	162(27)	483(73)	835(78.3)	<0.001	-0.147
Nonmedical subgroup	691(14.8)	397(85.2)	231(21.7)		
Total	466(100)	600(100)	1066(100)		
Educational level**					
Under Diploma	61(13.1)	34(5.7)	95(8.9)	<0.001	0.09
Diploma	194(41.6)	402(67)	596(55.9)		
Bachelor	87(18.7)	67(11.2)	154(14.4)		
M.Sc.	114(24.5)	63(10.5)	177(16.6)		
PhD	10(2.1)	34(5.7)	44(4.1)		
Total	466(100)	600(100)	1066(100)		

**Values are given as Mean ± SD; **Number (%).*

There was an inverse relationship between educational fields and internet addiction (P< 0.001, r= -0.147) and prevalence of internet addiction was higher in the medical students compared to the nonmedical students (P < 0.001).

There was a direct correlation between age group and severity of internet addiction and internet addiction was more severe in older students (P< 0.001, r= 0.45). The distribution of university students according to internet addiction status and age are presented in Table 2.

Table 2: The distribution of Internet addiction status and age between groups

Age group*	Internet addiction**			Total**	P-value	r
	Non	Mild	Moderate			
>20	68(50.4)	67(49.6)	0(0)	135(100)	<0.001	0.45
20-22	157(63.8)	78(31.7)	11(4.5)	246(100)		
23-25	180(52.2)	165(47.8)	11(4.5)	345(100)		
≤26	195(57.4)	112(32.9)	33(9.7)	340(100)		

**Year, **Number (%).*

The mean of internet access was 11.62 ± 10.65 and 12.2 ± 9.62 hours (mean ± SD) in non-internet addiction and internet addiction groups, respectively. There was an inverse relationship between internet access and internet addiction (P< 0.001, r= -0.1).

The Mean ± SD use of the internet was 1.92 ± 2.07, 3.27 ± 2.47 and 6.32 ± 2.2 hours in none, mild and moderate internet addiction, respectively. ANOVA showed significant difference between groups (P < 0.001). Post hoc tests were performed to detect the differences between the groups. The results are presented in Table 3.

Table 3: The compression differences in mean internet use between groups

Group		Mean ± SD Difference*	P-value
No addiction	Mild addiction	-1.358 ± 0.143	<0.001
	Moderate addiction	-4.402 ± 0.351	<0.001
Mild addiction	No addiction	1.358 ± 0.143	<0.001
	Moderate addiction	-3.043 ± 0.356	<0.001
Moderate addiction	No addiction	4.402 ± 0.351	<0.001
	Mild addiction	3.043 ± 0.356	<0.001

**The Mean difference is significant at the 0.05 level*

DISCUSSION

In this study, we investigated the prevalence of internet addiction among medical and nonmedical students in Ilam, western of Iran, 2014. The prevalence of internet addiction was high in our study population, in fact, about half of the participants have had some grades of internet addictions. We found that 57.4% of all participants hadn't internet addiction and 43.6% had mild and moderate internet addiction.

Excessive use of internet is one of the major problems in today's society. Therefore, several studies have been conducted in different age groups to determine the prevalence of internet addiction.[15, 22]. Several studies have reported a wide range of internet addiction. In a review study, 3% - 38% of all participants had an internet addiction.[17] In another study, 17.9% of Taiwanese students had internet addiction.[23] In an Iranian study, the prevalence of internet addiction was reported to be 10.8% in medical students.[24] In our study, there was no cases of severe internet addiction, while in another study [24], 2.8% of all medical students had severe internet addiction.

Due to different measurement tools, the comparable estimation of prevalence of internet addiction in various studies was not possible. In the present study, Internet

Addiction Test (IAT)-20 was applied. In another study, Chen Internet Addiction Scale (CIAS) was used.[25] These two methods are different in scoring. In IAT, the score between 20- 49 represents mild addiction, 50-79 represents moderate addiction and 80-100 represents severe addiction. However, the range of CIAS is 26 to 104. Higher score indicated higher severity of internet addiction. In CIAS the score between 26 and 63 shows normal using, 64-67 indicates at risk using and need for screening and 68-104 indicates internet addiction. Even in cases with the same measurement tool, the cutoff point has an important impact on the reported frequency. Moreover, in some studies, despite using the same tools, the used cutoff points were different.[22, 26]

The students in different fields have different requisites of electronically scientific resources; therefore, we evaluated the internet addiction in both medical and nonmedical students. Most previous studies had investigated internet addiction in a certain populations. For instance, in Salehi and colleagues study, the internet addiction evaluated among 383 medical students in the four stages of education, including basic sciences, physiopathology, extern and intern.[25] Tsai and colleagues evaluated 1360 freshmen at Taiwan University.[23] In addition, an analytical cross-sectional study investigated the prevalence of internet addiction in 426 medical students.[24] In other studies, the adolescents were the study population.[15, 27]

We evaluated a wide age range of participants (18- 45 years) and found a direct correlation between age and severity of internet addiction. In another study, the college students in the age group of 16-18 years old were examined.[15] Due to the high prevalence of internet addiction in adolescents, estimation could vary widely across countries. For example, 1.5% of Greek [22] and 1.6% of Finnish between 12 and 18 years old adolescents were addicted using young's IAT.

In the present study, there was a significant relationship between gender and internet addiction which was similar ot other studies.[15, 24, 25]

CONCLUSION

Internet addiction should be considered as a serious problem among the adolescents. So, it is necessary for adolescents and young adults to be educated for the proper use of the internet in order to prevent from internet addiction.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

ACKNOWLEDGMENT

This study was approved by Ilam University of Medical Sciences. We thank the participants, coordinators, and data collectors who assisted in this study.

REFERENCES

1. Hawi NS. Internet addiction among adolescents in Lebanon. Comput Hum Behav. 2012; 28(3): 1044-53.
2. Ko CH, Yen JY, Yen CF, Chen CS, Chen CC. The association between Internet addiction and psychiatric disorder: a review of the literature. Eur Psychiatry. 2012; 27(1): 1-8.
3. Holden C. 'Behavioral' addictions: do they exist? Science. 2001; 294(5544): 980-2.
4. Yen JY, Ko CH, Yen CF, Wu HY, Yang MJ. The comorbid psychiatric symptoms of Internet addiction: attention deficit and hyperactivity disorder (ADHD), depression, social phobia, and hostility. J Adolesc Health. 2007; 41(1): 93-8.

5. Yen JY, Ko CH, Yen CF, Chen CS, Chen CC. The association between harmful alcohol use and Internet addiction among college students: comparison of personality. Psychiatry Clin Neurosci. 2009; 63(2): 218-24.
6. Ryu EJ, Choi KS, Seo JS, Nam BW. [The relationships of Internet addiction, depression, and suicidal ideation in adolescents]. Taehan Kanho Hakhoe Chi. 2004; 34(1): 102-10.
7. Tsitsika A, Janikian M, Schoenmakers TM, Tzavela EC, Olafsson K, Wojcik S, et al. Internet addictive behavior in adolescence: a cross-sectional study in seven European countries. Cyberpsychol Behav Soc Netw. 2014; 17(8):528-35.
8. Durkee T, Kaess M, Carli V, Parzer P, Wasserman C, Floderus B, et al. Prevalence of pathological internet use among adolescents in Europe: demographic and social factors. Addiction. 2012; 107(12): 2210-22.
9. Kim K, Ryu E, Chon MY, Yeun EJ, Choi SY, Seo JS, et al. Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey. Int J Nurs Stud. 2006; 43(2): 185-92.
10. Moreno MA, Jelenchick L, Cox E, Young H, Christakis DA. Problematic internet use among US youth: a systematic review. Arch Pediatr Adolesc Med. 2011; 165(9): 797-805.
11. Aboujaoude E, Koran LM, Gamel N, Large MD, Serpe RT. Potential markers for problematic internet use: a telephone survey of 2,513 adults. CNS Spectr. 2006; 11(10): 750-5.
12. Shek DT, Tang VM, Lo CY. Internet addiction in Chinese adolescents in Hong Kong: assessment, profiles, and psychosocial correlates. Sci World J. 2008; 8: 776-87.
13. Kim GT, Jang YJ, Ryu EJ, Koo KD, Lee CS, Youn H, et al. Cephalosporins with the (E)-thiovinyl linker with pyrimidine at C-3 position exhibiting potent activities against gram-positive strains. J Antibiot (Tokyo). 2004; 57(7): 473-6.
14. Anderson KJ. Internet use among college students: an exploratory study. J Am Coll Health. 2001; 50(1): 21-6.
15. Goel D, Subramanyam A, Kamath R. A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. Indian J Psychiatry. 2013; 55(2): 140-3.
16. Cash H, Rae CD, Steel AH, Winkler A. Internet Addiction: A Brief Summary of Research and Practice. Curr Psychiatry Rev. 2012; 8(4): 292-8.
17. Chakraborty K, Basu D, Vijaya Kumar KG. Internet addiction: consensus, controversies, and the way ahead. East Asian Arch Psychiatry. 2010; 20(3): 123-32.
18. Sasmaz T, Oner S, Kurt AO, Yapici G, Yazici AE, Bugdayci R, et al. Prevalence and risk factors of Internet addiction in high school students. Eur J Public Health. 2014; 24(1): 15-20.
19. Tang J, Yu Y, Du Y, Ma Y, Zhang D, Wang J. Prevalence of internet addiction and its association with stressful life events and psychological symptoms among adolescent internet users. Addict Behav. 2014; 39(3): 744-7.
20. Tsitsika A, Critselis E, Louizou A, Janikian M, Freskou A, Marangou E, et al. Determinants of Internet addiction among adolescents: a case-control study. Scientific World Jl. 2011; 11: 866-74.
21. Tsitsika A, Critselis E, Janikian M, Kormas G, Kafetzis DA. Association between internet gambling and problematic internet use among adolescents. J Gambl Stud. 2011; 27(3): 389-400.
22. Kormas G, Critselis E, Janikian M, Kafetzis D, Tsitsika A. Risk factors and psychosocial characteristics of potential problematic and problematic internet use among adolescents: a cross-sectional study. BMC Public Health. 2011; 11: 595.

23. Tsai HF, Cheng SH, Yeh TL, Shih CC, Chen KC, Yang YC, et al. The risk factors of Internet addiction--a survey of university freshmen. Psychiatry Res. 2009; 167(3): 294-9.
24. Ghamari F, Mohammadbeigi A, Mohammadsalehi N, Hashiani AA. Internet addiction and modeling its risk factors in medical students,Iran. Indian J Psychol Med. 2011; 33(2): 158-62.
25. Salehi M, Norozi Khalili M, Hojjat SK, Salehi M, Danesh A. Prevalence of internet addiction and associated factors among medical students from mashhad, iran in 2013. Iran Red Crescent Med J. 2014; 16(5): e17256.
26. Liberatore KA, Rosario K, Colon-De Marti LN, Martinez KG. Prevalence of Internet addiction in Latino adolescents with psychiatric diagnosis. Cyberpsychol Behav Soc Netw. 2011; 14(6): 399-402.
27. Kaltiala-Heino R, Lintonen T, Rimpela A. Internet addiction? Potentially problematic use of the Internet in a population of 12-18 year-old adolescents. Addict Res Theory. 2004; 12(1): 89-96.

How to cite the article: Hashemian A, Direkvand-Moghadam A, Delpisheh A, Direkand-Moghadam A. Prevalence of internet addiction among university students in Ilam: a cross-sectional study. Int J Epidemiol Res. 2014; 1(1): 9-15.