World Journal of Medical Sciences 13 (4): 218-224, 2016
ISSN 1817-3055

DOI: 10.5829/idosi.wjms.2016.218.224

Internet Addiction among School Adolescents in Northeastern Jordan

[1]Noha Al-Shdayfat, [2]Nazir Hawi, [3]Shereen Hamadneh, [1]Fayez Albnian, [4]Sukaina Alzyoud and [6]Teresa Logue

[1]Community and Mental Health Nursing Department,
Nursing Faculty, Al al-Bayt University, P.O.Box 130040, Mafraq 25113, Jordan
[2]Department of Computer Science, Faculty of Natural and Applied Sciences,
Notre Dame University, Louaize, P.O. Box 72 Zouk Mikael, Zouk Mosbeh, Lebanon
[3]Maternal and Child Health Department, Nursing Faculty,
Al al-Bayt University, P.O.Box 130040, Mafraq 25113, Jordan
[4]Community and Mental Health Nursing Department, Nursing Faculty,
The Hashemite University, P.O. Box 330127, Zarqa 13133, Jordan
[5]Yale School of Public Health, New Haven, CT 06520, United States

Abstract: This study was designed to investigate the prevalence of Internet Addiction among a sample of Jordanian adolescents. Internet usage has been dramatically increased in Jordan. The intense use of Internet among adolescents has been studied in different parts of the world. This study investigated the Internet Addiction (IA) and its association with some socio-demographic factors among Jordanian adolescents. It is a descriptive cross sectional study carried out in Mafraq governorate, located in North Jordan. A convenient sample of 2415 adolescents was obtained from schools (7th to 12th grades), the mean age of the sample was 15.5 years old (SD=1.5). The Arabic version of the Internet Addiction Test (IAT) was used to collect the data. Results showed that the majority (93.78 %) of the participants were found to be addicted on Internet. Approximately two thirds (65%) were severe to moderate addicts. The statistics showed a significant influence of some socio-demographic variables on the addicts; participants were more likely to be addicted on the Internet when they were males, aged between 16 and 19 years old, used Internet outside their homes, failed in their schooling, were not using Internet to seek information, or their parents had no control on their Internet usage. Logistic regression model revealed that the aim of using Internet and place of internet use are the strongest predictors of IA among Jordanian adolescents. It can be concluded that national efforts should be launched to raise awareness among adolescents, parents and teachers about the risks of IA. This study may guide both future research and current efforts to combat IA amongst adolescents.

Key words: Internet Addiction · Adolescents · Socio-demographic characteristics

INTRODUCTION

Despite the growing concern about pathological Internet use, many countries of those who joined the digital world did not investigate the prevalence of Internet addiction among their adolescents so far. There could be several obstacles, but one of them is the lack of validated instruments for Internet addiction assessment in their spoken languages. Fortunately, in the Arab world, the Internet Addiction Test (IAT) has been translated and validated [1]. In Jordan, we are employing this version to study Internet addiction prevalence among adolescents whereby thousands may be affected given the growing rate of Internet usage that reached 86.1% of the population in December 2014. In the first semester of the 2013-2014 academic year, the prevalence of IA among a sample of 587 students from ten different universities in Jordan was 40% [2]. This alarming figure motivated us to focus on the adolescents segment of the population because it could have been at higher risk for pathological

Corresponding Author: Noha Al-Shdayfat, Community and Mental Health Nursing Department,
Nursing Faculty, Al al-Bayt University, P.O.Box 130040, Mafraq 25113, Jordan.
Cell: +962 772 194 434, E-mail: dr.nuhash@aabu.edu.jo.

Internet use. The source of high risk is adolescents' Internet usage without supervision, despite parental control attempts that remain limited. However, parents are not to blame because of the technology invasion is recent and there is lack of guidance.

Information technology and computers benefits in education and human development have been well documented in the literature [3-5]. Despite the capabilities offered via Internet access, our concern stems from previous studies in school students that have associated pathological Internet use with a number of factors such as academic performance deterioration, sleep deprivation, obesity, depression, ADHD, introversion, neuroticism personality traits and anxiety [6-9]. In particular, the excessive use of the Internet has gained increasing scientific probe especially that it is spreading faster than an epidemic. This excessive use is characterized by the problematic use of online video games which lead the American Psychological Association to include Internet Gaming Disorder in the appendix of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5). So, Internet addiction is not officially a clinical diagnosis, but based on research and observations Internet addicts manifest emotional, social and mental problems in multiple areas of daily activities. The physical effects of intensive use of computers are also highlighted in the research. For example, high prevalence (69.3%) of computer vision syndrome among soft ware companies workers was reported [10].Today, many Internet addicts seek help for their Internet addiction-related problems especially after impairing their functioning.

Internet addiction is associated with socio-demographic variables. A review on the variables associated with problematic Internet use (PIU) by Kuss *et al*. [9] found that male gender, higher family income levels and loneliness were frequently reported to be associated with PIU. In addition, Internet use variables had been found to be associated with Internet addiction among adolescents, such factors include Internet use for entertainment purposes, length of Internet use, Internet access at home and Internet usage at an Internet café. Similarly, Lin *et al*. [11] explored the effect of some psychosocial risk factors on Internet addiction among Taiwanese college students, their study findings showed positive association between Internet addiction and being male, long internet usage time and lower satisfaction with academic achievement.

To our knowledge, Internet addiction among adolescents has not been studied in Jordan using an Arabic version of the Internet Addiction Test [12]. A previous similar study was conducted in Lebanon [1]. This makes our investigation a valuable contribution to the field by determining the existence and severity of the 21st century electronic epidemic in a Jordanian sample of adolescents and where possible establishes a comparison not only within Arab countries but with the rest of the world.

The primary aim of the current investigation was to evaluate the prevalence of Internet addiction among adolescents in northeastern Jordan. The secondary aim was to explore the association of some demographic and psychosocial factors with Internet addiction among the study population.

MATERIALS AND METHODS

Ethical Approvals: Approvals to conduct this study were obtained from the Institute Review Board at Al al_Bayt University and Ministry of Education in Jordan. Also, parents' consents were obtained for the students aged 18 years old or less. For the students who agreed to participate in the study, consent forms along with an explanation of the study purpose were sent to students' parents or the caregivers to be signed prior to the data collection date. Also, students were informed that they can withdraw from the study at any time.

A descriptive cross-sectional design was used to examine the internet addiction levels among adolescents in northeastern Jordan.

The total number of students affiliated in the 7th to 12th grades was 37508 students (16099, 8855 and 11554 enrolled in the Main, North-Western Badia and North-Eastern Badia Directorate respectively) including males and females, living in urban and rural areas.

Four schools were recruited from each Directorate in the Badia (Two male schools and two female schools) and another eight schools (Four for males and four for females) from the Main Directorate. All eligible students affiliated in grades 7th, 8th, 9th, 10^{th,} 11th and 12th were invited to participate in the study.

Instrument: The instrument composed from two main parts; the first part explored the demographic characteristics of the adolescents (10 items), it included questions on age, gender, availability of Internet at home, place of Internet use, parents control on length of Internet use, control on the quality of websites used by the adolescents, average number of hours spent on Internet after school, average number of hours spent on Internet during holidays and the purpose of Internet use. The second part of the questionnaire included the 20 items of YIAT instrument, each item rated on six- point

Likert scale (Rarely, occasionally, frequently, often, always and does not apply). The Arabic version of the questionnaire was translated into Arabic and validated by Hawi[1], who gave the researchers permission to use the tool for the current study.

Giving the fact that the Arabic language is the main language used by students in Jordan and they are able to read and write in Arabic, all participants filled the Arabic version of YIAT.

Procedures: Three research assistants were trained to collect the data from the students. They approached the students in their classes. The questionnaires were distributed and explained to the students. To ensure anonymous environment; neither the data collectors nor the school teachers were present during filling the questionnaires by the students.

Responses: A total of 3400 participants were approached, of which 2544 questionnaires were returned with a response rate of 74.8%. Of the returned questionnaires, 129 were excluded because they were not properly filled. This reduced the sample size to 2415 students. The expected age range for the sample was 12-18 years because the entry age for the first grade in Jordan is officially six years. Students are expected to complete schooling at 18 years at grade 12. However, twelve students were 19 years old (0.5% of the sample), the reason behind this is that some parents delay students to enter school (More than 6 years old) and others may failed and repeat a class or more during their schooling.

Statistical Analysis: Statistical analysis was performed using SPSS for Windows 22.0. Frequencies and means were used to detect prevalence rates and average hours spent on Internet. The association between Internet addiction scores among different groups (i e males and females, place of internet use and parental control) was analyzed using t-tests. Also, multiple regression analyses was conducted to investigate the contribution of some socio-demographic to Internet addiction scores among the participants.

RESULTS

The participants aged between 12-19 years old with a mean of 15.5 years old (SD=1.5). Approximately two thirds of the participants were females (N = 1492, 61.8%). Almost half of the participants (45.3%, n=1093) were from the Main Educational Directorate of Mafraq governorate, the rest of the sample was from the North West Badia Educational Directorate (26.1%, n=630) and North East Badia Educational Directorate (28.7%, n=692). Most of the participants reported that they passed (92.1%, n=2225) and (7.9%, n=190) students failed.

The average time spent by the participants on the Internet during holidays was 3.9 hours (SD= 4.4) and 2.5 hours after school (Mean= 2.5, SD= 2.9) (Table 1).

Internet Usage: Four levels of internet addiction were detected; not addicted, mild, moderate and severe. Students whose scores less than 20 were considered not addicted and those whose scores ranged 20 to 39 were considered mild 'average online user who has complete control over his/her usage', those who scored 40 to 69 were considered Moderate 'Frequent problems due to Internet usage' and those who scored 70 to 100 were considered 'the Internet is causing significant problems'.

The findings showed that internet addiction was severe in 159 students (6.6 %) of the sample, moderate in 1411 students (58.4) and mild in 695 students (28.8%) and 150 students were not addicted (6.2%). The mean hours spent during holidays on internet among the students who met the criteria of severe degree of internet addiction was 7.5 hours, compared to 1.9, 2.4 and 4.4 hours in the none addicts, mild and moderate addicts respectively. Also, the findings revealed that sever Internet addicts in the main and North West Badia directorate were 7.6 and 7.3%, compared to only 4.3% in the North East Badia directorate.

The bivariate analysis showed a significant association between Internet addiction score and some socio-demographic factors (Table 2). It indicated that Internet addiction scores are higher among adolescents who are males, older, accessing Internet outside their homes, failed at school, use Internet not to seek information (Chatting, playing games, emailing, watching videos etc) and those with no parental control over their Internet use.

A regression analysis was used to explore the extent to which adolescents' Internet use score could be predicted by several socio-demographic variables (Gender, place of Internet access and aim of use). Using the enter method, a significant model emerged: $F = 71.1$, $p < 0.05$. The model explained 28.5 percent of the variance ($R^2 = 0.285$) in the participants' Internet use scale. Aim of use (Beta = 0.27, $t = 13.9$, $p < .05$) and place of use (Beta = -0.052, $t = -2.6$, $p < .05$) contributed to the variance in the participants' Internet use scale. This indicated that those who did not use Internet to seek information and use Internet outside home were more likely to addict Internet. Gender was not able to predict the Internet addiction.

Table 1: Distribution of the participants by demographic characteristic of study participants (N= 2415)

Variable	Number	Percent (%)
Age (years) Range =12 - 19	M=15.5(SD=1.5)	
Gender		
Female	1495	61.9
Male	920	38.1
Educational directorate		
Main Directorate	1093	45.3
North-WestrenBadia Directorate	630	26.1
North-EastrenBadia Directorate	692	28.7

Table 2: The associations between the Internet addiction scale and gender, place of internet use, age, academic achievement, aim of Internet use and parental control (N = 2415)

	T-test value	Degree of freedom	*p*-Value CI		Mean	Mean
Gender	-2.8	2413	0.004	-3.1–-0.6	Female	Male
					45.4	47.3
Age	-4.2	2413	0.000	-3.9–-1.4	11-15	16-19
					44.7	47.4
Place of Internet use	2.5	2413	0.011	0.52– 4.0	Outside home	At home
					46.5	44.2
Academic achievement	-2.6	2413	0.008	-5.7– -0.86	Passed	failed
					43.0	46.4
Aim of internet use	-14.3	2413	0.000	-10.0– -7.6	To seek information	Not to seek information
					42.3	51.1
Parental control	4.2	2413	0.000	1.6– 4.4	No parental control	Controlled
					48.2	45.2

DISCUSSIONS

The purpose of this study was to examine the internet addiction level among Jordanian adolescents aged 12–19 using Arabic version of YIAT. None of the studies that have been previously conducted in Jordan targeted Jordanian adolescents IA. One recent study explored the prevalence of IA among Jordanian university students [2]. Other studies focus on the status of Internet addiction among university students and its effect on their academic achievement [13, 14].

In the current study, we found that (6.6%) of our sample met the criteria for severe Internet addiction, the prevalence of Internet addiction was markedly higher than that reported by some studies. For example, the prevalence of severe internet addiction amid Italian adolescents was 0.79% [15] and 4.2% for Lebanese adolescents [1]. On the other hand, studies from other countries reported higher IA prevalence rates of 8.2, 8 and 10.7 % among Greek, Chinese and Korean adolescents respectively [16-18]. It is worthwhile noting that contradictory findings in IA prevalence in the aforementioned studies might be due to usage of different tools in different cultures.

In Jordan, the prevalence of internet addiction is expected to increase in the future due to rapid revolution of telecom companies and the widespread of Internet coverage areas in Jordan and low cost of Internet services, increase usage of internet for educational and recreational activities and wide spread of Smartphone among adolescents

In congruence with previous studies, some socio-demographic factors found to be significantly associated with IA. For example, gender differences were observed to be associated with Internet addiction among adolescents [9, 11, 19-21] it is a globally steady observation. A study that included 11956 adolescents from 11 European countries where male students were addicted at rate of 5.2% exceeding that of females (3.8%) [22]. A nationwide study carried out in Iran, 4500 students of high school were selected by clustered sampling method, male students prone to be addicted more than females [23]. The reason behind this might be the patriarchal nature of Arabic culture where adolescent girls are not enjoying

freedom of moving compared to their male counterparts. Consequently, it is culturally accepted for boys to go to Internet Cafes' while girls are not allowed to do so. Another justification for this phenomenon may be that males are more likely to stay more hours for playing online games, engaging in cybersex, chatting and online gambling, reading magazines, newspapers [18, 24].

Older adolescents and those who failed in one class or more were more likely to be internet addicts. Similar to other studies, our findings revealed a significant association between the severity of IA and using Internet for nonscientific reasons (i.e. not seeking information) [9]. Incongruent to our findings, are the results of a study in North Cyprus where young students tend to be addicted more than older students [25].

The current study indicated adverse effect of Internet addiction on the academic achievement of the adolescents; many students spend long time daily using Internet for non-academic purposes (Chatting, games, etc.) which affect negatively on their academic achievement. Our findings are congruent with recent studies conducted in different countries suggested that internet addiction has unfavorable effects on academic performance. For example, in a sample of 100 Indian school students aged between 14 to 16 years, results showed that student with moderate level of addiction had less effect on school achievement and mental health compared to those who had severe addiction [26]. Similarly, Findings of a study conducted in high school Greece students showed that internet addiction had posed a bad academic achievement for adolescents [27].

Generalization of the findings of this study is limited because the study used a convenience sample of students from public schools operating in North Jordan, which is not randomly selected. Therefore could not necessarily representative of all public school students in North Jordan. However, this study was an essential need in Jordan, as internet penetration rates have grown fast and mobile broadband networks were spread to cover rural and remote Badia. Furthermore, our study used a self-reporting survey which limited the findings. Despite, the study results provided initial evidence of the presence of Internet addiction among Jordanian adolescents.

CONCLUSIONS

Though further research is needed in terms of Internet addiction among Jordanian adolescents, the findings of the current study provide a baseline data on the prevalence and associated factors. The aim of use of Internet was shown to be the strongest predictor of Internet addiction among Jordanian adolescent. Also, other socio-demographic variables were strongly associated with internet addiction (i e gender & age).

Internet addiction is a contemporary behavioral and public health problem that needs a multi-disciplinarily approach to be confined. School nurses, teachers, social workers and families should be involved in designing behavioral promotion programs to reduce the rates of Internet addiction among adolescents. In addition, national efforts are needed to raise the public awareness about health and behavioral risks of Internet addiction

ACKNOWLEDGMENTS

The authors are grateful to the educational departments administrators in Mafraq Governorate for their fruitful support. We thank the school students who participated in the study for their cooperation. Also, we appreciate the research assistants' (Yahia Al-Rshoud, Tamador Shdaifat and Rania Alajlouni) efforts in the data collection phase. Our thank are extended to our colleagues Fadwa Alhalaiqa, Abdallah Alkhawaldeh and Ahlam Alnatour for their efforts in making this work possible.

REFERENCES

1. Hawi, N.S., 2012. Internet addiction among adolescents in Lebanon. Computers in Human Behavior, 28(3): 1044-1053. Make references like this style.
2. Al-Gamal, E., A. Alzayyat and M.M. Ahmad, 2015. Prevalence of Internet addiction and its association with psychological distress and coping strategies among university students in Jordan. Perspectives in psychiatric care, 52(1): 49-61.
3. Nkasiobi, S. Oguzor, Austin N. Nosike and Jacinta A. Opara, 2011. Information Technology (IT) and the Learning Society: Growth and Challenges. African Journal of Basic & Applied Sciences, 3(1): 14-18, 2011 ISSN 2079-2034 © IDOSI Publications, 2011,
4. Yardibi, N., 2008. E learning in development (case of Turkish public bank). American-Eurasian Journal of Scientific Research. 3(2): 117-122, ISSN 1818-6785 © IDOSI Publications, 2008.

5. Adeyemi, T.O. and F.O. Olaleye, 2010. Information Communication and Technology (ICT) for the Effective Management of Secondary Schools for Sustainable Development in Ekiti State, Nigeria. American-Eurasian Journal of Scientific Research, 5(2): 106-113, 2010ISSN 1818-6785© IDOSI Publications, 2010
6. Burnay, J., J. Billieux, S. Blairy and F. Larøi, 2015. Which psychological factors influence Internet addiction? Evidence through an integrative model. Computers in Human Behavior, 43: 28-34.7.
7. Scimeca, G., A. Bruno, L. Cava, G. Pandolfo, M.R.A. Muscatello and R. Zoccali, 2014. The relationship between alexithymia, anxiety, depression and internet addiction Severity in a Sample of Italian High School Students, The Scientific World Journal, Volume 2014 (2014), Article ID 504376, 8 pages http://dx.doi.org/10.1155/2014/504376
8. Servidio, R., 2014. Exploring the effects of demographic factors, Internet usage and personality traits on Internet addiction in a sample of Italian university students. Computers in Human Behavior, 35: 85-92.
9. Kuss, D.J., M.D. Griffiths, L. Karila and J. Billieux, 2014. Internet Addiction: A Systematic Review of Epidemiological Research for the Last Decade. Current Pharmaceutical Design, 20(25): 4026-4052.
10. Kumar K, R. Subramani and S. Kumar, 2014. Prevalence of Computer Vision Syndrome among Information Technology Professionals Working in Chennai Seshadhri Arumugam, World Journal of Medical Sciences, 11(3): 312-314.
11. Lin, M.P., H.C. Ko and J.Y. Wu, 2011. Prevalence and psychosocial risk factors associated with Internet addiction in a nationally representative sample of college students in Taiwan. Cyberpsychology & Behavior, 14: 741-746.
12. Yung, K., E. Eickhoff, D.L. Davis, W.P. Klam and A.P. Doan, 2015. Internet addiction disorder and problematic use of Google Glass™ in patient treated at a residential substance abuse treatment program. Addictive behaviors, 41: 58-6.
13. Eyadat, Y., H. Alzghoul and S. Sharqawi, 2012. Determining the Level of Internet Addiction among University Students in Jordan: An Issue of Concern. Journal of Institutional Research Journal of Institutional Research South East Asia South East Asia, 10(1): 113.
14. Al-Qudah, K., 2012. Internet Addiction Among Students at Jordanian Universities. Journal of Arabic and Human Sciences, 4(2).
15. Poli, R. and E. Agrimi, 2012. Internet addiction disorder: prevalence in an Italian student population. Nordic journal of psychiatry, 66(1): 55-59.
16. Siomos, K.E., E.D. Dafouli, D.A. Braimiotis, O.D. Mouzas and N.V. Angelopoulos, 2008. Internet addiction among Greek adolescent students. Cyber Psychology & Behavior, 11(6): 653-657.
17. Cao, H., Y. Sun, Y. Wan, J. Hao and F. Tao, 2011. Problematic internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. BMC Public Health, 11: 802–809.
18. Park, S.K., J.Y. Kim and C.B. Cho, 2008. Prevalence of internet addiction and correlations with family factors among South Korean adolescents. Family Therapy, 36: 163-177.
19. Goel, D., A. Subramanyam and R. Kamath, 2013. A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. Indian journal of psychiatry, 55(2): 140.
20. Kormas, G., E. Critselis, M. Janikian, D. Kafetzis and A. Tsitsika, 2011. Risk factors and psychosocial characteristics of potential problematic and problematic internet use among adolescents: a cross-sectional study. BMC public health, 11(1): 595.
21. Rees, H. and J.M. Noyes, 2007. Mobile telephones, computers and the internet: sex differences in adolescents' use and attitudes. CyberPsychology & Behavior, 10: 3482-484.
22. Durkee, T., M. Kaess, V. Carli, P. Parzer, C. Wasserman, B. Floderus and D. Wasserman, 2012. Prevalence of pathological internet use among adolescents in Europe: demographic and social factors. Addiction, 107(12): 2210-2222.
23. Ahmadi, K., 2014. Internet addiction among Iranian adolescents: a nationwide study. Acta Med Iran, 52(6): 467-472.
24. Ak, Ş., N. Koruklu and Y. Yılmaz, 2013. A study on Turkish adolescent's Internet use: possible predictors of Internet addiction. Cyberpsychology, Behavior and Social Networking, 16(3): 205-209.
25. Ozcinar, Z., 2011. The Relationship Between Internet Addiction and Communication, Educational and Physical Problems of Adolescents in North Cyprus. Australian Journal of Guidance and Counselling, 21(01): 22-32.

26. Singh, N. and K.C. Barmola, 2015. Internet Addiction, Mental Health and Academic Performance of School Students/Adolescents. The International Journal of Indian Psychology, 2(3) http://oaji.net/articles/2015/1170-1429886806.pdf

27. Stavropoulos, V., K. Alexandraki and F. Motti-Stefanidi, 2013. Recognizing internet addiction: Prevalence and relationship to academic achievement in adolescents enrolled in urban and rural Greek high schools. Journal of adolescence, 36(3): 565-576.