Pathological Internet Use among Science Students in Malaysia

Ali S Radeef[1], Ghasak G Faisal[2] Mohammed R Dawood[3]

[1]Department of Psychiatry, Kulliyyah (Faculty) of Medicine, International Islamic University Malaysia, 25200, Kuantan, Pahang, Malaysia

[2] Department of Fundamental Dental and Medical Sciences, Kulliyyah (faculty) of Dentistry, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia.
[3] College of Medicine, Mustansiriyah University, Baghdad, Iraq

Corresponding author:
Associate Prof. Dr. Ghasak Ghazi Faisal
E-mail: drghassak@gmail.com

ABSTRACT

Background: Heavy and prolonged internet use of internet can be pathological in the form of internet addiction. Pathological internet use has negative consequences especially among undergraduate students as it may lead to decline in the academic performance, social interaction, and mental well-being. This study aimed to assess pathological internet use among science students and its relation to psychological distress.

Methods: A sample of 211students from kulliyyah (faculty) of science, International Islamic University Malaysia participated in this study. Chen Internet addiction Scale was used to assess pathological internet use while psychological well-being was assessed general health questionnaire (GHQ-12)

Results: The prevalence of pathological internet use among science students was found to be 30.8% while 12.8% were at higher risk for addiction. No significant differences in terms of gender and other socio-demographic factors. Pathological internet use/IA is significantly higher among students who are using internet for more than 40 hours per week. IA was significantly higher among students and positively correlated with psychological distress.

Conclusions: IA is considerably high among science students. Male and female students are equally affected. Students with pathological internet use are at higher risk for psychological distress.

Keywords: Pathological internet use, mental health, science students, Malaysia

I.INTRODUCTION:

In 2016, the Internet Users Survey was conducted by the Malaysian Communications and Multimedia Commission (MCMC) (IUS) showed that 38.1% of internet users were between 20 to 29 years of age and the estimated number of internet users was 24.5 million people.[1] The availability of free unlimited internet service is usually provided to students usually in almost all universities as it is envisioned to enhance education, communications, and research. However, despite these inherent advantages, excessive and prolonged internet use may precipitate serious negative consequences on student's social interaction with others[2], performance [3], poor sleep quality[4], psychological well-being [5], and quality of life.[6]

Internet use has extensively investigated, and multiple terms are exploited to refer to seriously dysfunctional behavioral patterns of excessive Internet use including internet addiction (IA)[7], problematic internet use[8], pathological Internet use(PIU)[9]. Internet addition/pathological internet use is the most widely used term to describe this maladaptive internet use as it reputable to describe the behavioral problems manifesting from heavy internet use [7]. Although IA is not included in the

Statistical Manual of Mental Disorders fifth edition (DSM-5), internet gaming disorder has been incorporated into section III of DSM-5. [10,11] Chen Internet addiction scale (CIAS) is a valid and reliable tool which can be used to assess IA/PIU. It assesses five domains of Internet-related problems: compulsive use, withdrawal, tolerance, interpersonal and health consequences, and time management difficulties.[12]

Since IA may affect the psychological well-being of the undergraduate students, this will make them more vulnerable to psychological distress. Psychological distress is the state of poor psychological well-being that is characterized by undifferentiated mixtures of symptoms extending from depression and anxiety symptoms to personality traits, functional disabilities and behavioural problems[13, 14]

Previous studies have shown that emotional disturbances in the form of depression, anxiety and stress symptoms were known to occur among science students during their university time study.[15]

Based on that, it is very crucial to determine the prevalence of IA/PIU among science students and to assess the association of IA with psychological distress among internet addicted students.

II. METHODOLOGY

A cross-sectional study conducted among 211 undergraduate students from the Kulliyyah (Faculty) of science, International Islamic University Malaysia (IIUM). The ethical approval was obtained from the Research Ethics Committee @IIUM prior to conducting the study. Students were participated entirely on a voluntary basis; students were ensured about confidentiality and consent was obtained prior to enrolment. The study was conducted in the middle of the term, before the examination period, to minimize any additional stress symptoms. The participants inclusion criteria are students who agreed to participate in the study and who can use the internet and were registered as undergraduates at the IIUM Faculty of Science were eligible. Students who did not give consent or were not conversant in English were excluded. The participant socio-demographic characteristics included in the study were nationality, age, marital status, sex, year of study, living accommodation during the studies and household income.

CIAS is a self-report instrument used to determine IA that is composed of 26 items rated on a 4-point Likert scale. It assesses five domains of Internet-related problems: compulsive use, withdrawal, tolerance, interpersonal and health consequences, and time management difficulties. Scores range from 26 to 104. Higher CIAS scores indicated high severity of addiction to Internet activity.[12] The cutoff point of 63/64 and 67/68 of the CIAS were considered to be the best for screening and diagnosis of IA among college students respectively, meaning that 26-63 shows normal use, 64-67 indicates at risk use and need for screening and 68-104 indicates IA.[16] In this study, we used Chen Internet Addiction Scale CIAS to assess the prevalence of IA.

The General Health Questionnaire (GHQ) which was used to assess the psychological distress among dental students.[17,18] The items on the GHQ-12 represent 12 manifestations of psychological distress, and respondents were asked to rate the presence of each of these manifestations in themselves during their study. Subjects responded to each question by choosing from four typical responses: ‘not at all’, ‘no more than usual’, ‘rather more than usual’, and ‘much more than usual’. A binary scoring method was used to evaluate responses. This method assigns a score of zero to the two least symptomatic answers and a score of one to the two most symptomatic answers (i.e. 0-0-1-1). Thus, responses can only be scored as zero or one. The minimum GHQ-12 total score was 0, and the maximum GHQ-12 total score was 12. ‘Caseness’ was defined as a total questionnaire score of 4 or more.

Statistical Analysis:

The statistical package for social sciences (SPSS) software version 24.0 was used for both descriptive and inferential analysis. The analysis of the variables such as age group, gender, nationality, monthly household income, marital status, year of study, and type of accommodation were presented in numbers and percentages. Independent T-test and ANOVA test were used to compare the mean score of Chen internet addiction scale with all demographic variables (Gender, phase of study, family monthly income, age, accommodation, social relationships, time of internet use per week) and psychological distress in order to assess the relationship between these factors with PIU/IA .The mean score and standard deviation were used to analyze the purpose of internet use. The he correlation of psychological distress with IA was determined using Pearson correlation. A value of $P < 0.05$ was considered significant.

III.RESULTS

In this study, the majority of the participants were females older than 21 years of age (mean=22.3), Malaysian, single, living in a student hostel and with a monthly household income of <5000 Malaysian Ringgit and the mean duration of internet use was 8.4 years among students with IA.

Although students with poor social interaction were having higher mean CIAS score than those who were socially active, it was not statistically significant ($P > 0.05$). Students who used internet more than 40 hours per week had significantly higher CIAS scores compared with those who were less using internet ($P < 0.05$).

Students who were psychologically distressed had had shown significant higher CIAS scores compared with those who were not distressed ($P < 0.05$).

There was no statistically significant difference in terms of gender, phase of study, family monthly income, accommodation, and marital status. (Table 1).

TABLE 1: Association of socio-demographic factors and psychological distress with internet addiction

	Total n (%)	CIAS mean score	P-value
Gender			
Male	71 (33.6)	61.09	0.31
Female	140 (66.4)	62.90	
Family monthly income			
≤ RM1500	61 (28.9)	60.98	0.37
RM 1501-5000	96 (45.5)	62.09	
>RM 5000	54 (25.6)	64.14	
Marital status			
Married	4 (1.9)	56.0	0.30
Single	207 (98.1)	62.42	
Accommodation			
Hostel	203 (96.2)	62.38	0.59
Outside hostel	8 (3.8)	60.00	
Social interaction			
Socially active	126 (59.7)	61.96	0.636
Socially inactive	85 (40.3)	62.78	
Time of internet use per week			
> 40 hours	91 (43.1)	65.94	0.00
20-40 hours	84 (39.8)	60.59	
< 20 hours	36 (17.1)	57.05	
Psychological well-being			
Psychological distress	68 (32.2)	60.28	0.00
Not distressed	143 (67.8)	66.52	

Data was analyzed using Independent T-test for two independent variables and ANOVA test for more than two independent variables. P values less than 0.05 was considered statistically significant. Data was presented as mean

In table 2, the main top three reason for internet use by the students were for social media purposes such as Facebook, Instagram, WhatsApp, chatting Apps, followed by media viewing (e.g. videos, songs, YouTube) then for study purposes.

TABLE 2: Reasons for internet use

Reasons for using the internet	Mean	Std. Deviation
Social media: Facebook / Instagram / WhatsApp/chatting	4.5687	0.74
Media viewing (e.g.videos, songs, youtube)	4.4597	0.78
Study purpose	4.2559	0.83
Surfing internet for searching information not related to studying	4.2370	0.86
E-mails	4.0995	0.90
Internet banking	2.6588	1.32
Buying online	2.5877	1.18
Online gaming	2.0569	1.35

Table 3 is showing the range, mean and standard deviation of scores for scales and subscales of CIAS.

In this study, the prevalence of PIU/IA among science students was found to be 30.8% while 12.8% were at higher risk for addiction (table 4).

TABLE 3: Range, mean, standard deviation for the scale and subscales of Chen Internet Addiction Scale (CIAS)

Variable	Range	Mean	Std. Deviation
Compulsive symptoms (COM)	15 (5-20)	12.10	3.21
Withdrawal symptoms (WIT)	15 (5-20)	13.06	1.14
Tolerance (TOL)	11 (5-16)	10.74	2.17
Interpersonal and health problems (IH)	20 (7-27)	16.02	3.75
Time Management Problems (TM)	14 (5-19)	10.35	3.18
Total CIAS score (Com + Wit + TOL + IH + TM)	69 (30-99)	62.29	12.28

TABLE4: Prevalence of internet addiction among science students.

Status of Internet addiction	Number (%)
No internet addiction	119 (56.4)
At high risk	27 (12.8)
Having internet addiction	65 (30.8)
Total	211(100)

Table 5 shows that Pearson correlation test showed that there was positive correlation between psychological distress with IA ($P < 0.05$).

TABLE 5: correlation of internet addiction with psychological distress:

		Internet addiction	Psychological Distress
Internet addiction	Pearson Correlation	1	.360**
	Sig. (2-tailed)		.000
	N	211	211
Psychological Distress	Pearson Correlation	.360**	1
	Sig. (2-tailed)	.000	
	N	211	211

**. Correlation is significant at the 0.01 level (2-tailed).

IV DISCUSSION:

The rate of IA/PIU among science students in this study was found to be 30.8% which is lower than that in other previous study among medical students in Malaysia using internet addiction test in which the rate was found to be 36.9%[19] and other study among allied health students found the rate to be 31.8%[20] and lower than other study among nursing students using CIAS in which the rate was 33.3%[21], while the rate was higher than that conducted among medical and dental students in Malaysia using CIAS in which IA/PIU were 22.8% and 29.2% respectively.[2, 22] In one study conducted among medical sciences students in Iran using Young Internet Addiction Test found the rate to be 27.5%.[23] A previous review in assessing IA has revealed that prevalence rates range from 0.8% to 26.7% as a consequence of different assessment tools and cut-offs [24] Other factors which may affect the prevalence of IA includes sample size, whether using validated tool or not, sampling method and cultural differences. Other previous studies on IA using CIAS among college students in Pakistan and Taiwan revealed that the prevalence was 28% and 17.9% respectively.[25, 26] CIAS has been tested to have good psychometric properties and its internal consistency has consistently been shown to be excellent. Its test–retest reliability has been reported to be good: r = .83 and r = .88[12] so that CIAS can be considered as an accurate tool for assessing IA in Asian region including Malaysia.[26]. Regarding association of gender with IA studies across the world showed varied results. In some studies, IA is associated with male gender [19, 23, 26] but in a study done in Japan the rate of IA is more among females.[28] In this study, there was no statistically significant difference in IA between male and female students which is similar to the findings in previous studies in Malaysia [2, 21, 22, 29, 30], Vietnam[31], and India.[32]

In this study, psychological distress was significantly associated with and positively related to IA which is compatible with previous study in Malaysia [22, 33] and experience of recent stressful events are potentials risk factors for IA among adolescents.[34] Since psychological distress is significant among students and academic factors are most important stressors[35], it is crucial to implement appropriate intervention strategies and planning to reduce psychological distress and IA to improve academic performance and quality of life of the students.

V CONCLUSION:

IA/PIU is potentially high among science students. Male and female students are equally affected. IA is significantly higher among students who are using internet for more than 40 hours per week. PIU has a positive correlation with psychological distress. Strategies are needed for early identification and intervention of both PIU and psychological distress to prevent the physical and mental consequences among students.

Acknowledgement:

We wish to extend our sincere gratitude to International Islamic University Malaysia for funding this project (IIUM Research Initiative Grant scheme (PRIGS18-030-0030)) and to the administrative staff in Kulliyyah of science for the kindness of giving permission to conduct this study and for their cooperation. We also would like to express my appreciations to all participants for their participation and consent.

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