

Internet Addiction among Dental Students in Malaysia

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Abstract

Excessive use of internet by undergraduate students can be pathological which may result in internet addiction (IA) that has negative consequences such as decline in academic performance, social isolation and emotional disturbances. This study aims to assess pathological internet use and its association with psychological distress among dental students.

A sample of 257 dental students from International Islamic University Malaysia participated in this study. Internet addiction was assessed using Chen Internet addiction Scale while the psychological distress was assessed using the 12-item General Health Questionnaire (GHQ-12).

The prevalence of IA among dental students was found to be 29.2% while 12.5% were at higher risk for addiction. No significant differences in terms of gender and other socio-demographic factors were found. IA is significantly higher among students with poor social interaction and in those who are using internet for more than 40 hours per week. IA was significantly associated and positively correlated with psychological distress.

IA is considerably high among dental students. Male and female students are equally affected. IA has a positive correlation with psychological distress symptoms.

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Introduction

In Malaysia, the Malaysian Communications and Multimedia Commission (MCMC) conducted the Internet Users Survey (IUS) which 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 in 2016.¹ In many universities, free unlimited internet service is usually provided to students and it is intended to enhance education, communications and research. However, excessive/problematic internet use has serious negative outcomes on academic performance², psychological well-being³, and quality of life.⁴ Recently, the term addiction has been extended further than substance dependence to include non-substance-related behaviors that cause

problems and impairment.⁵ Addiction to a substance and addiction to a behavior may look similar in their effects on behavioral patterns, emotions and physiology.⁶ Internet use, gambling, eating, sex, exercise, work and shopping are examples of behavioral addiction⁷. Internet addiction is the most widely used term to describe this maladaptive internet use as it reputable to describe the behavioral problems manifesting from heavy internet use⁸. IA is an emerging disorder that recently became the focus of many studies, due to the emergence of clinical cases presenting abuse symptoms. 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.^{9,10}

Since there are many various tools to assess internet addiction, it is crucial to use a validated and reliable tool such as Chen Internet addiction scale (CIAS). It assesses five domains of Internet-related problems: compulsive use, withdrawal, tolerance, interpersonal and health consequences, and time management difficulties.¹¹

Since IA may affect the psychological well-being of the undergraduate students, this will

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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^{12, 13}

In addition to that, previous studies showed that emotional disturbances in the form of depression, anxiety and stress symptoms were known to occur among dental students during their university time study.^{14, 15}

Thus, it is very crucial to determine the prevalence of IA among dental students and to assess the association of IA with psychological distress among internet addicted students.

Materials and methods

This cross-sectional study enrolled undergraduate dental students at the Kulliyyah (Faculty) of Dentistry, International Islamic University Malaysia (IIUM). It was supported by a research grant from IIUM, and the Research Ethics Committee of the IIUM approved the study. Participation was 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 are able to use the internet and were registered as undergraduates at the IIUM Faculty of Dentistry. 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.¹¹ 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 22.0 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. The univariate association between all demographic variables (Gender, phase of study, family monthly income, age, accommodation, social relationships, time of internet use per week) also the correlation of psychological distress with IA was determined using Pearson correlation. A value of $P < 0.05$ was considered significant.

Results

A total of 257 of the 290 registered students (88%) participated in the study. The majority were females older than 21 years of age, 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 7.7 years among students with IA.

Students with poor social interaction were having significantly higher mean CIAS score than those who were socially active ($P < 0.05$) and higher CIAS mean score was significantly higher among students who used internet more than 40 hours per week ($P < 0.05$). There was no statistically significant difference in terms of gender, phase of study, family monthly income, accommodation, and marital status. (Table 1)

	Total n (%)	CIAS mean score	P- value
Gender			
Male	60 (23.3)	59.9	0.47
Female	197 (76.7)	61.1	
Phase of study			
Pre-clinical	98 (38.1)	61.0	0.82
Clinical	159 (61.9)	60.7	
Family monthly income			
≤ RM1500	39 (15.2)	63.3	0.30
RM 1501-5000	103 (40.1)	59.9	
>RM 5000	115 (44.7)	60.8	
Marital status			
Married	14 (5.4)	62.5	0.57
Single	243 (94.6)	60.7	
Accommodation			
Hostel	245 (95.3)	60.7	0.37
Not in hostel	12 (4.7)	63.8	
Social interaction			
Socially active	117 (45.5)	59.0	0.021
Socially inactive	140 (54.5)	62.4	
Time of internet use per week			
> 40 hours	89 (34.6)	65.0	0.00
20-40 hours	123 (47.9)	60.2	
< 20 hours	45(17.5)	54.4	

Table 1. Socio-demographic factors and its association with internet addiction.

Variable	Range	Mean	Std. Deviation
Compulsive symptoms (COM)	15 (5-20)	12.2	3.01
Withdrawal symptoms (WIT)	16 (5-21)	13.2	2.95
Tolerance (TOL)	12 (4-16)	10.5	2.04
Interpersonal and health problems (IH)	19 (7-26)	15.36	3.83
Time Management Problems (TM)	13 (5-18)	9.48	2.87
Internet Addition Core Symptoms (COM+WIT+TOL)	39 (15-54)	35.97	6.95
Internet Addition Related Problems (IH+TM)	26 (13-39)	24.85	5.86
Total CIAS score (Com + Wit + TOL + IH + TM)	62 (28-90)	60.82	11.56

Table 2. Range, mean, standard deviation for the scale and subscales of Chen Internet Addiction Scale (CIAS).

Table 2 shows the range, mean and standard deviation of scores for scales and subscales of CIAS. In this study, the prevalence of IA among dental students was found to be 29.2% while 12.5% were at higher risk for addiction (Table 3).

	Number (%)
No internet addiction	150 (58.3)
At high risk	32 (12.5)
Having internet addiction	75 (29.2)
Total	257 (100)

Table 3. Prevalence of internet addiction among medical students.

Table 4 shows that psychological distress was significantly associated with IA ($P < 0.05$).

	Total n (%)	No addiction n (%)	Internet addiction n (%)	P- value
GHQ				
Normal	154 (59.9)	120 (77.9)	34 (22.1)	0.002
Psychologically Distressed	103 (40.1)	62 (60.2)	41 (39.8)	

Table 4. Association of Internet addiction with psychological distress.

Pearson correlation test showed that there was positive correlation between psychological distress with IA (Table 5).

		Internet addiction	Psychological Distress
Internet addiction	Pearson Correlation	1	.316**
	Sig. (2-tailed)		.000
	N	257	257
Psychological Distress	Pearson Correlation	.316**	1
	Sig. (2-tailed)	.000	
	N	257	257

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

Table 5. Correlation of internet addiction with psychological distress.

Discussion

In this study, the prevalence of IA among medical students was found to be 29.2% which is lower than that in other previous study among dental 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, while our result is slightly higher than that in other studies

in which a rate of 20.5% and 22.8% of the medical students were identified as dependent Internet users.^{21,22} 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.²³ 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.^{24, 25} 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 $r = .88$ ^{11, 26} so that CIAS can be considered as an accurate tool for assessing IA in Asian region including Malaysia.²⁷

Regarding association of gender with IA studies across the world showed varied results. In some studies, IA is associated with male gender^{19, 25, 28} but in a study done in Japan the rate of IA is more among females.²⁹ 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^{30, 31}, Vietnam³², India³³ and USA.³⁴

Poor social interaction has been found in this study to be significantly associated with IA which is similar to previous studies^{35, 36}. This may be due to excessive internet use and IA can displace valuable time that people spend with family and friends which may result in poor social interaction.

In this study, psychological distress was significantly associated with and positively related to IA which is compatible with previous study in Malaysia.³⁷ and experience of recent stressful events are potentials risk factors for IA among adolescents.³⁸ Since psychological distress is significant among students and academic factors are most important stressors³⁹, 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.

Conclusions

IA is potentially high among dental

students. Male and female students are equally affected. IA is significantly higher among students with poor social interaction and in those who are using internet for more than 40 hours per week. IA has a positive correlation with psychological distress. Strategies are needed for early intervention and prevention of IA and its physical and mental consequences among students. Also measures need to be taken for early identification and intervention of stress for better psychological well-being and academic performance.

Declaration of Interest

The authors report no conflict of interest.

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