The Relationship between Depression and Excessive Internet Use: Cross Sectional Study among Medical Students

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Abstract

Background: The correlation between internet addiction and depression has already been reported in several studies as a debatable issue.

Objective: To evaluate the relationship between depression and internet addiction among medical students.

Materials and Methods: A total of 260 medical students across all curricular years were conveniently sampled from the population of 1309 were administered a closed-questioned questionnaire with demographic information and young's internet addiction test and the use of Patient Health Questionnaire-9.

Results: The prevalence of depression was found to be 47.3% and showed preponderance in females and fresh year students while internet addiction did not show correlation with sex but correlated to curricular year.

Conclusion: This study has shown that there is a significant correlation between depression and internet addiction both of which medical students are liable to, with both correlating to fresh year students and depression being more in females, it's also important to screen people with internet addiction for depression.

Keywords: Internet addiction; Depression; Medical students

Introduction

The correlation between internet addiction and depression has already been reported in several studies, further researches indicated that medical students have higher depression rates than general population (especially females and fresh year students), hence it is likely for them to have Internet addiction, despite the aforementioned studies, some researchers disagree with the correlation and say that internet addiction is merely a symptom of other disorders, some say it's a cause of other pathological problems, so the question of which came first? Is still standing [1-4].

With advancements in technology internet addiction will be on the rise, combined with depression will result in a major burden to families, communities and even countries, less than 50% of people with depression seeks treatment (less than 10% in some countries), considering what is said college student especially medical students are more liable to depression which will be aggravated by internet addiction will impair daily life activities [5]. The aim of this study is to evaluate the correlation between internet addiction and depression, with an attempt to tackle the question of which came first by measuring the prevalence of depression and internet addiction and correlating other variables.

Material and Methods

A cross-sectional study was undertaken from March to May 2017 in the College of Medicine, Ibn Sina University, Alban Jadeed Hospital, Khartoum, Sudan, after being approved by ethical committee. Activities commonly underwent by medical students during clinical phase (5th year medical student's courses) were selected; Sample size was determined by the following formula:

$$Sample\ Size = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + (\frac{z^2 \times p(1-p)}{e^2 N})}$$

Where: Population N: Size, e: Margin of error, Z: z-score, e: percentage, put into decimal form, population size was: 1309, margin of error = 5, Z-score = 1.96, e=0.5, the calculated sample size was: 298, but due to time restriction and imminence of exam times only 263 were obtained. The 298 was divided on the percentage each year comprises from the population size. A self-administered structured (close questioned) questionnaire will be used to collect the data from the research respondents containing demographic data, Internet Addiction Test and Patient Health Questionnaire-9. Young's Internet Addiction Test (IAT) is a self-rated scale developed for screening and measuring level of internet addiction, it contains twenty questions related to internet usage to be scored on Likert scale from 1 (rarely) to 5 (always). A total score of <20 represent normal user, between 20 and 49 represent mild addiction, between 50 and 79 represent moderate addiction, between 80 and 100 severe addiction. Its validity and reliability have been shown in previous studies [6]. Patient Health Questionnaire-9 (PHQ-9) is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders. The PHQ-9 is the depression module, which scores each of the 9 DSM-IV criteria as "0" (not at all) to "3" (nearly every day). It has the 9-item depression module from the full PHQ. Major depression is diagnosed if 5 or more of the 9 depressive symptom criteria have been present at least "more than half the days" in the past 2 weeks, and 1 of the symptoms is depressed mood or anhedonia with scores from 0-27, PHQ-9 scores of 5, 10, 15, and 20 represented mild, moderate, moderately severe, and severe depression and a PHQ-9 score > or = 10 had a sensitivity of 88% and a specificity of 88% for major depression [7]. Data will be entered and analyzed through the use of statistical package for the social sciences (SPSS) version 21.

Results

From the 270 questionnaires filled after being distributed to the students, 260 were taken to further analysis while 10 were omitted due to incompletion, of the 260 students 11(44.6%) were Males and 142 (54.6%) were Females, with 82% of the students being in the age group of 16 to 22 years, among participants 75 (28.8%), 33 (12.7%), 62 (23.8%), 45 (17.3%), 26 (10%) and 19 (7.3%) were in the 1st, 2nd, 3rd, 4th, 5th and 6th year students respectively, among the students 42 (16.2%) had no internet addiction symptoms, 80 (29.7%) had internet addiction, 138 (53.1%) were average online users with mild addiction symptoms, 75 (28.84%) had moderate internet addiction and only 5 (1.92%) had severe internet addiction with male mean being 39.13 ± 17.79 and females having a mean of 40.14 ± 19.19 with P=0.667 which indicates no relationship between internet addiction and gender. As for depression 123 (47.3%) had major depressive symptoms (score >10), 78 (30%) only had minor symptoms, 75 (28.8%) had mild depression 32 (12.3%) suffers from moderately severe depression 16 (6.2%) suffered from severe major depression. Results showed a female preponderance with a P<0.001, also 64 (24.6%) have had thoughts that they'd be better dead or thoughts of self-mutilation. When correlating internet addiction and depression results using Pearson's correlation coefficient we find P<0.000 which indicates a significance. Depression seems to correlate significantly with: sex (female), age, curricular year (especially first year), death idealization and thoughts of self-mutilation (p<0.000), history of depression (p<0.05). No correlation between depression and: Family history of depression, being the eldest or youngest, place of current stay, number of friends,

having a chronic disease, purpose of using the internet, internet speed and internet access location. Internet addiction seems to correlate with: Age, curricular year, death idealization and thoughts of self-mutilation (p<0.000) location of internet access, having a chronic disease and history of depression (p<0.05). But internet addiction does not correlate with: Sex, being the eldest or the youngest, current place of stay, number of friends, purpose for using the internet and internet speed.

Discussion

In the current study we found depression prevalence to be 47.3%, which is much higher than indicated (27.2%) in the meta-analysis of a 196 cross-sectional study, even higher than the Korean study which included nationwide medical student (2.9% to 10.3%) but both agree on the correlation of female gender and depression, but was comparable but less than a study conducted in Pakistan which had a rate of 60% also higher than a study in Sweden with prevalence of 12.9% but both the current study and this one agree that females have a higher rate of depression but all of these studies showed numbers greater than that of the general population, this could be due to sampling bias, or actual number since studies have shown African American were at a greater risk of getting depression [2,8-10]. Depression was found to be correlated with: Sex (female), age, curricular year (especially first year) which conforms with the Swedish study and the sex factor conforms with all other studies but no correlation was found with: being the eldest or youngest, family history of depression, place of current stay, number of friends, having a chronic disease, purpose of using the internet, internet speed and internet access location which conforms the previous studies [2,9,10]. As for internet addiction the prevalence was (29.7%) which is less than an Indian study done on medical students also with prevalence of (58.87%) but contrary to the current study it shows male preponderance, also less than an Iranian study with prevalence of 40.7% and also shows male preponderance which does not conform to the current study, in another Iranian study it had the prevalence of (10.8%) which is lower than the current study and also had a females preponderance which is not true in the current study [11-13]. The relationship between depression and internet addiction in this study was confirmed with a p<0.01 which indicates a great significance which conforms with the Iranian study, and the Korean study which also confirms the relationship of depression and internet addiction in medical students, in general population and adolescent also the relationship is confirmed [12,14-17] (Figure 1).

Conclusion

This study showed that the prevalence of depression was 47.3% which is about 10 folds of the general population, shows female and
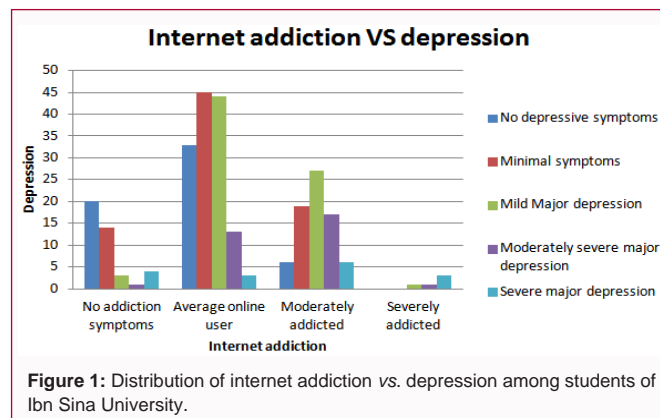

Figure 1: Distribution of internet addiction *vs.* depression among students of Ibn Sina University.

fresh year student association, internet addiction had a prevalence of 29.7% which showed no association between gender and internet addiction but showed association with curricular year, and the current study also reveals a significant association between Internet addiction and depressive symptoms which is alarming.

Ethical Approval

The case at hand has already been approved by the authors' Institution's Medical Research and Ethics Committee at the Research Center. Verbal consent was gained from each participant before filling the questionnaire and assurance of confidentiality of the results.

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