ORIGINAL ARTICLE

Effect of Internet Addiction on Academic Performance of Medical Students

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ABSTRACT

Objective: To determine the frequency of internet addiction among medical students and its effects on their academic performance.

Study Design: Cross sectional comparative study.

Place and Duration of Study: The study was conducted at Army Medical College, Rawalpindi from 5th January to 15th May 2015.

Materials and Methods: Data collection tool was a closed ended, self-administered questionnaire, 'Young's Internet Addiction Test'. Duly filled questionnaires were returned by 322 MBBS students. The 'Young's Internet Addiction Questionnaire' consists of 20 items with responses on a 5 point Likert scale. The total score which ranged from 20 to 100 was categorised into mild (normal), moderate (problem) and severe internet addiction. Scores $\leqslant$ 49 were classified as normal, 50-79 as moderate, and 80-100 as severe internet addiction. Academic performance of the students was measured as the percent marks obtained in 2nd professional MBBS examination. Students with marks 50 and above were declared as 'pass' and below 50 as 'fail'. Data was analysed using SPSS version 22. Simple linear regression was applied to determine the effect of internet addiction on academic performance.

Results: There were 175 male and 147 female students in the study with mean age of 19.27±1.01 years. Two hundred and sixty-eight (83.2%) students were in normal category, 52 (16.1%) in moderate and 2 (0.6%) in severe category. There was significant difference in the proportion of students who passed or failed the exam in the two categories (normal vs moderate + serious) being low pass and high fail in 'moderate+serious' categories (p=0.02). The mean internet addiction score was negatively correlated with academic performance (p=0.01).

Conclusion: Excessive internet usage by medical students may lead to internet addiction which may adversely affect their academic performance.

Key Words: *Computer, Internet Addiction, Young's Internet Addiction Test.*

Introduction

Information technology revolution of present era is primarily based upon internet. It has permeated into our lives to such an extent that life without internet seems meaningless. Every walk of life, education, research, business, military etc and even day to day chores are heavily dependent on internet.[1] There is tremendous amount of information available on internet which is just a click away. It is horrible for a today's student to think of the academic/research activities without internet. Internet has connected the people from fields of science and education all over the world.[2] Accomplishment of academic goals has become extremely easy in today's technology enabled epoch.[3] Amount of information available on internet is greater than present in world's largest libraries and with just a single click one can have access to the huge databases.[4] However, internet is a double edged sword; its appropriate use can undoubtedly facilitate the academic process like a magic wand whereas inappropriate use can wreak havoc.[5]

Inventors of the internet would have never thought that internet usage could also have a downside, named as bad as 'addiction'. Internet addiction is defined as "inability to stop internet overuse, tendency to perceive offline time as meaningless, excessive irritation and aggression during

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Funding Source: NIL ; Conflict of Interest: NIL
Received: Feb 01, 2016; Revised: Mar 20, 2016
Accepted: May 25, 2016

deprivation".[6] It is also described as internet dependence, pathological internet use or compulsive internet use.[7] Internet addiction can be compared to other types of addictions regarding risks and consequences.[8] It is especially prevalent in college/university students and can accompany or herald other psychiatric disorders.[9] The user feels himself unable to refrain from the use of internet and 'carried away' with it resulting in wastage of time and energy. This leads to substantial deterioration in performance, health and interpersonal relationships. The students are trapped in a vicious cycle which may lead to extremely adverse outcomes.[10] They find refuge in internet and tend to elope from reality.[11] Internet addiction has evolved as a major public health issue in the recent years and has gained attention of the researchers all over the world.[12]

Internet in the form of smart phones and tablets has become an integral part of every student's life.[13] Although a small fraction of students use internet for educational activities in a controlled way, however, a large percentage just keep wasting time by visiting 'non-educational' sites.[14] Research has shown that proportion of time a student spends on internet for educational purpose versus non-educational activity could significantly determine his success.[15] College students, being young and psychologically immature are naturally vulnerable to internet addiction, hence it is the responsibility of society, institutions, teachers and parents to adopt measure which can keep the youth away from this nuisance.[16] There is debate about advantages and disadvantages of internet usage among young students as the research data regarding internet addiction in students and its effects on their academic performance is scant. Hence, the current study was planned to determine the frequency of internet addiction among medical students and its effects on their academic performance.

Materials and Methods

This cross sectional study was conducted at Army Medical College, Rawalpindi from January to May 2015. The study was commenced after getting formal approval from Ethical review committee of Army Medical College. Non-probability convenience sampling was used to include medical students in the study after getting the written informed consent. Data collection tool was a closed ended, self-administered questionnaire, 'Young's Internet Addiction Test' which was developed by Young in 1998. The questionnaire is fully validated with high reliability index.[17] The questionnaire was distributed to 350 students of different classes of MBBS however, duly filled questionnaire were returned by 322 students at a response rate of 92%. The 'Young's Internet Addiction Questionnaire' consists of 20 items with responses on a 5 point Likert scale. The total score which ranged from 20 to 100 was categorised into mild (normal), moderate (problem) and severe internet addiction. Scores $\leqslant$ 49 were classified as normal, 50-79 as moderate, and 80-100 as severe internet addiction. Academic performance of the students was measured as the percent marks obtained in 2nd professional MBBS examination. Students with marks 50 and above were declared as 'pass' and below 50 as 'fail'.

Data was analysed using SPSS version 22. Mean and standard deviation was calculated for numerical variables like age of participants, marks obtained in professional exam, total Likert scale scores whereas frequency and percentage for categorical variables like gender and categories of each item of the questionnaire. Simple linear regression was applied to determine the effect of internet addiction on academic performance. Reliability was determined through internal consistency by applying Cronbach's Alpha test. The alpha value was set at 0.05.

Results

There were 175 male and 147 female students in the study with mean age of 19.27±1.01 years. Table I illustrates frequency and percentage of students falling in each category of internet addiction i.e. normal, moderate and serious. Table II shows cross tabulation of internet addiction categories (moderate + severe) with exam outcome status (pass/fail). The two variables are associated as indicated by the p-value (0.02). Table III shows overall mean score of the instrument along with mean academic performance in terms of percent marks in professional examination. The table also shows significant and inverse correlation between the two variables (r=-0.13, p=0.01). Table IV shows parameters of simple linear regression for prediction of academic performance from internet addiction scores. Academic performance can significantly be

predicted from internet addiction score as is evident from the p-value (0.016). Value of Cronbach alpha was 0.90 reflecting high reliability.

Table I: Frequency of different categories of internet addiction among the students (N=322)

Category	Frequency	Percentage
Normal	268	83.2
Moderate	52	16.1
Severe	2	0.6

Table II: Frequency and percentage of students with different categories of internet addiction (N=322)

Category	Pass	Fail	p-value
Normal	252 (94.0%)	16 (6.0%)	0.02
Moderate + Serious	46 (85.2%)	8 (14.8%)	

Table III: Correlation between internet addiction score and academic performance (N=322)

Variable	Mean±SD	r-value	p-value
Internet addiction	37.59±12.96	-0.13	0.01*
Academic performance (%marks)	60.77±9.18		

Table IV: Simple linear regression analysis of internet addiction as predictor of academic performance (N=322)

Model	B	Standard error	Beta value	t-value	p-value
Constant	60.34	1.56			
Internet addiction	-.095	0.039	-0.134	-2.42	.016*

Discussion

The average internet addiction score of our study (scale average) is about 38 which almost corresponds to 'occasional' category of the Likert Scale. The total internet addiction score ranges from 20 to 100 whereby 20 relates with almost no usage of internet and 100 relates with total internet addiction. The scale average of our study reflects that the use of internet by medical students is occasional and it is overall much away from internet addiction. The same finding is supported when the data was analysed by converting total internet score into the three categories i.e. normal, problem and serious according to 'Young's Internet Addiction' test guidelines. The results revealed that over 80% students were in normal category whereas about 17% had some degree of internet addiction. Academic performance of the students was significantly and negatively correlated with total internet addiction score. This means, the more the students were nearer to internet addiction on the scale, the less was their academic performance as reflected by their marks in the professional examination. When the data were analysed by considering the frequency of students within each category who passed and failed the examination, almost similar picture was seen. Ninety-four percent students in 'normal' category passed the exam and 6% failed whereas about 85% in 'problem plus serious' category passed the exam and 15% failed. The difference in proportion of students who passed or failed the exam in each category was found significant. After analysing the data from multiple perspectives, tests of statistical significance revealed that low academic performance was not by chance but due to the variable under study that is internet addiction. All these factors acting jointly push the students away from books leading to poor academic performance.

Stavropoulos V and colleagues conducted a study to recognizing internet addiction, prevalence and relationship to academic achievement in adolescents enrolled in urban and rural Greek high schools.[18] They also used 'Young's Internet Addiction' questionnaire and found a frequency of 3.1% for seriously addicted students. They found that internet addiction had negative correlation with academic performance as was the finding in our study. However, the frequency of severe internet addiction, they found was higher as compared to our study (0.6%). This may be due to the fact that study conducted by Stavropoulos had a larger sample size as compared to ours (2090 vs 322). The other reason may be that a large percentage of our students especially boys reside in hostels where internet is not provided. Akhtar carried out a study to determine internet addiction in university students and its effects on academic performance.[19] The scale

average of her study was 39.23 and she reported that internet addiction scores were negatively and significantly correlated with grade point average of the students (r=-0.130, p=0.039). The results reported by Akhtar were comparable to our study.

Excessive usage of internet in students leads to internet addiction due to which they cannot spend enough quality time on studies. They lose capacity to concentrate and focus on studies due to late night internet sessions. Even they sacrifice extracurricular activities for internet due to which they remain aloof and their mental and physical health deteriorate. Academic performance of a student depends not only upon his mental/physical health but also the degree of his time/self-management. To extrapolate the findings on to the general population, multicenter studies need to be conducted with a large sample size that is representative of the general population to draw reliable parametric inferences.

Conclusion

Excessive internet usage by medical students may lead to internet addiction which may adversely affect their academic performance. Parents/teachers need to take preemptive measures to avoid this and to remain vigilant especially for students whose academic performance is persistently low as internet addiction may be one of the reasons.

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