Original Research Article

Internet addiction and ADHD, are they significantly related?

Shobhit Piplani[1]*, Shashi Bhushan[1], Bheemsain V. Tekkalaki[2]

[1]Jawaharlal Nehru Medical College, KLE Academy of Higher Education and Research, Belagavi, Karnataka, India
[2]Department of Psychiatry, KLE Academy of Higher Education and Research, Belagavi, Karnataka, India

Received: 16 October 2018
Revised: 20 December 2018
Accepted: 09 January 2019

*Correspondence:
Dr. Shobhit Piplani,
E-mail: shobhitpiplani@aol.com

ABSTRACT

Background: There has been marked rise in use of internet over the last decade, with increasing internet use people are more prone to psychological disorders. This has markedly hit the population of young adults as they are the ones who maximum use internet. These users are also prone to develop Attention deficit hyperactive disorder(ADHD) and other behavioural problems.
Methods: The study was conducted by the Department of Psychiatry, 900 (design effect=2) students were randomly selected (620 from Medical College and 280 from Dental College). Out of 900, 618 students answered the questionnaire completely which included Young's Internet Addiction Test (IAT) and the Adult ADHD Self-Report Scale (ASRS-v1.1). Subjects who came positive for ASRS were asked to undergo a test for DSM-V. Independent t-test was used to assess the outcomes and p<0.05 was considered significant.
Results: The mean age of the participants were 20.03±1.45 years. It was found that people from age group 19-20 were addicted the most (240 students), coming next were from age group 21-22 (162 students). The prevalence rate of self-reported ADHD symptoms using the ASRS screener was 20.2%. Out of these ADHD suspects 39(31.45%) were moderately addicted and 73(58.87%) were mildly addicted, and this association was found to be statistically significant (p<0.001).
Conclusions: Thus, with modernization it is seen that internet use has dramatically increased, which has various kinds of behavioural, psychological, mental effects on one's life. Moreover, students who were more addicted to internet were found to be more susceptible to ADHD.

Keywords: ADHD, Internet addiction, Health sciences, Students

INTRODUCTION

Internet addiction a newly emerging disorder in both developing and developed countries, [1] but IA is still not listed as a clinical entity in the fifth edition of diagnostic and statistical manual of mental disorders (DSM-5). In community, adolescents have been found to spend more time on the Internet than adults, predisposing themselves to internet addiction because of this they are more prone in developing attention-deficit hyperactivity disorder, depressive symptoms, anxiety disorder, low self-esteem, impulsivity, social anxiety, shyness and suicidal tendencies.[2-5]

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental and behavioural disorder which is diagnosed mostly in childhood.[6] Its recognizable features are attention deficit, hyperactivity and impulsiveness, which can cause poor social, academic and occupational performance in the future.[7] According to recent studies, there has been an increase in the prevalence of childhood ADHD to 11% in 2011.[8] Although initially regarded as a

childhood condition, much evidence points to ADHD as being a neurodevelopment disorder that persists into adulthood although the symptoms may be somewhat modified with age.[7] Many researchers have found no dissimilarity in social satisfaction and psychological welfare in college students with ADHD compared to controls. While other researchers found that ADHD in students is associated with poor quality of life and adjustment issues, substance abuse, depression and below par academic performance.[9]

There has been plenty of researches done on internet addiction on children, adults, community levels but there has been large differences in the prevalence of Internet addiction due to diverse study designs, different assessment methods, and sampling from different sub-populations across the world.[3,10,11] Moreover, there are only few studies done in world which associates internet addiction with ADHD specially in students of health sciences and giving a comparative view.

The purpose of the present study was thus (i) to determine the prevalence of Internet addiction amongst students of health sciences (aged 17-23 years); (ii) to elucidate the relation between the level of Internet addiction and ADHD.

METHODS

Participants

The present study which was descriptive in design, was conducted in a South Indian Medical and Dental College from November 2016 to September 2017 with population size of 900 in the city of Belagavi of age group 17-23.

Tools

Participants were asked to fill a structured Performa which contained demographic details, academic performances, drug history and their family history. They answered Young's internet addiction test (IAT) and the Adult ADHD self-report scale (ASRS-v1.1). Subjects who came positive for ASRS were asked to undergo test for DSM-V.

Measure of internet addiction

The internet addiction test (IAT; Young, 1998) is a 20-item 5-point likert scale that measures the severity of self-reported compulsive use of the internet. Total internet addiction scores are calculated, with possible scores for the sum of 20 items ranging from 20 to 100. The scale showed very good internal consistency, with an alpha coefficient of 0.93 in the present study.

According to Young's criteria, total IAT scores 20-39 represent average users with complete control of their internet use, scores 40-69 represent over-users with frequent problems caused by their internet use, and scores

70-100 represent internet addicts with significant problems caused by their internet use.

Adult ADHD self-report scale (ASRS-v1.1)

Adult ADHD self-report scale-V1.1 Screener (ASRS-V1.1): The 6-item ASRS-V1.1 was designed as a tool to help screen for ADHD in adults (aged 18 years and older). The 6 questions are consistent with the DSM-IV criteria and address the manifestation of ADHD in adults. The paper version requires 1–2 min to complete. Respondents are required to use a 5-item scale to indicate the frequency of occurrence of symptoms (0=never; 1=rarely; 2=sometimes; 3=often; 5=very often). According to convention, if the respondent has 4 or more responses marked in the dark-shaded boxes of the copyrighted paper-version of the Screener (or in Part-A of the ASRS Symptom Checklist), then the current symptom profile of the individual is considered to be highly consistent with ADHD diagnosis in adults.
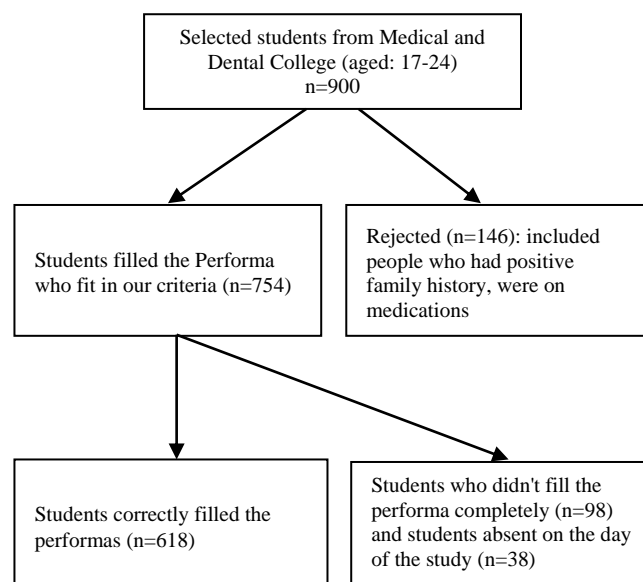
DSM-V

Figure 1: Flowchart of DSM-V.

Statistical analysis

Descriptive analysis was carried out by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. Data was also represented using appropriate diagrams like bar diagram, pie diagram and box plots.

The association between categorical explanatory variables and quantitative outcome was assessed by comparing the mean values. The mean differences along with their 95% CI were presented. Independent sample t-test/ ANOVA/Paired t- test was used to assess statistical significance. Correlation between quantitative

explanatory and outcome variables was assessed by calculating person correlation coefficient and the data was represented in a scatter diagram.

The association between explanatory variables and categorical outcomes was assessed by cross tabulation and comparison of percentages. Odds ratio along with 95% CI is presented. Chi square test was used to test statistical significance.

P<0.05 was considered statistically significant. IBM SPSS version 22 was used for statistical analysis

Ethical approval

The study was approved by the institutional ethics committee (Reference No.-MDC/DOME/181).

RESULTS

In the present study 900 students were enrolled in the study(from all the batches of MBBS and BDS), out of which 98 people didn't filled the form completely, 46 students were excluded on the basis of the criteria mentioned and 38 students were absent on the day when the study was carried out.

The SPSS version 22.0 was used for statistical analysis of the data collected and p<0.05 was considered statistically significant. On using Internet addiction test (IAT) Young's original criteria, the users were divided into three groups: 19.48% as moderately addicted, 61.16% as mildly addicted, and 19.48% as not addicted. Significant usage differences were evident based on the gender of user. Females in comparison to males were significantly more likely to be addicted (x^2=5.3, p=0.071).

Table 1: Demographic details and categorical outcomes of all the data used in the study.

Variables	Outcomes
Total students	618
Sex wise	**Percentage (%)**
Male	38.19
Female	61.81
Age wise	
MBBS	74.59
BDS	24.1
Mean age±standard deviation	20.03±1.46
Age distribution (in years)	
17-18	14.24
19-20	48.87
21-22	31.88
23-24	5.02
Adult ADHD	
Positive	7.28
Negative	92.17
Internet addiction score	33.58±16.39
Internet addiction interpretation	
Moderately addicted	19.48
Mildly addicted	61.16
Not addicted	19.48

On finding association of internet addiction with study group of population it was found that MBBS students were more addicted to internet in comparison to BDS students(x^2=10.054, p=0.007).

On using adult ADHD ASRS it was found that total number of 45 students were suspects positive out of 618 students. It was found that internet addiction showed significance association with positive ADHD students (x^2=10.952, p=0.004).

Table 2: Association of ADHD with internet addiction interpretation of study population (n=618).

Internet addiction interpretation	ADHD		Chi square	P value
	Positive N (%)	Negative N (%)		
Moderately addicted	17 (37.78)	103 (17.98)		
Mildly addicted	23 (51.11)	355 (61.95)	10.952	0.004
Not addicted	5 (11.11)	115 (20.07)		

DISCUSSION

Numerous studies related to prevalence of internet addiction amongst young adults of different courses has been done, but with increase in use of internet all these years it becomes necessity to see how internet addiction comparatively varies in MBBS and BDS students separately.[12,13] With increase in internet usage there has been high prevalence of behavioural changes, psychological manifestations.[14] Thus, in our study it was found a positive association (p=0.004) of internet addicted subjects with ADHD positive subjects.

Goel et al after conducting the study in different medical colleges found the increasing prevalence of internet addiction in medical colleges, Anderson et al stated increase prevalence of internet addiction amongst male as did Goel et al.[15,17]

But surprisingly in our study we found that females were more addicted to internet as compared to male, this could possibly be due to increasing social or peer dynamics

Although we found that with increasing internet users there has been increasing prevalence of ADHD amongst

students, but it is still to look upon the exact cause behind this dilemma, that is ADHD the real factor leading to increase in internet addiction or is it internet addiction causing increase ADHD amongst students.[16] There is need to study retrospectively the genetic makeup by analysing their parents ADHD levels and linking it to the high values of internet addiction scores.

CONCLUSION

Over the past few years with internet use has drastically increased affecting life of people both mentally and socially. Moreover, students who were more addicted to internet were found to be more susceptible to ADHD.

REFERENCES

1. Zhang MWB, Lim RBC, Lee C, Ho RCM. Prevalence of Internet Addiction in Medical Students: a Meta-analysis. Acad Psychiatry. 2017;42(1):88-93.
2. Christakis DA. Internet addiction : a 21 st century epidemic ? BMC Med. 2010;8(1):61.
3. Yoo HJ, Cho SC, Ha J, Yune SK, Kim SJ, Hwang J, et al. Attention deficit hyperactivity symptoms and internet addiction. Psychiatry Clin Neurosci. 2004;58(5):487-94.
4. Bahrainian SA, Alizadeh KH, Gorji OH, Khazaee A. Relationship of Internet addiction with self-esteem and depression in university students. J Prev Med Hyg. 2014;55(3):86-9.
5. Lee SY, Park E, Han K, Kim SJ, Chun S, Park S. The Association of Level of Internet Use with Suicidal Ideation and Suicide Attempts in South Korean Adolescents : A Focus on Family Structure and Household Economic Status. Can J Psychiatry. 2016;61(4):243-51.
6. Gentile JP, Atiq R, Gillig PM. Adult ADHD: Diagnosis, Differential Diagnosis, and Medication Management. Psychiatry (Edgmont). 2006;3(8):25-30.
7. Shashi B, Shobhit P, Bheemsain T. Adult Attention Deficit Hyperactivity Disorder in Health Science Students of India. 2018;6(5):47-51.
8. Stefanatos GA, Baron IS. Attention-deficit/hyperactivity disorder: a neuropsychological perspective towards DSM-V. Neuropsychol Rev. 2007;17(1):5-38.
9. Bhushan S, Piplani S, Tekkalaki B V. Internet addiction and performance of health science students. 2018;5(9):3824-8.
10. Thomas R, Sanders S, Doust J, Beller E. Prevalence of Attention-Deficit/Hyperactivity Disorder : A Systematic Review and Meta-analysis. Pediatrics. 2015;135(4): 994-1001.
11. Chaudhari B, Menon P, Saldanha D, Tewari A, Bhattacharya L. Internet addiction and its determinants among medical students. Ind Psychiatry J. 2015;24(2):158-62.
12. Weiss MD, Baer S, Allan BA, Saran K, Schibuk H. The screens culture : impact on ADHD. Atten Defic Hyperact Disord. 2011; 3(4):327-34.
13. Green AL, Rabiner DL. What do we really know about ADHD in college students? Neurotherapeutics. 2012;9(3):559-68.
14. Wilens TE, Spencer TJ. Understanding attention-deficit/hyperactivity disorder from childhood to adulthood. Postgrad Med. 2010;122(5):97-109.
15. Goel D, Subramanyam A, Kamath R. A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. Indian J Psychiatr. 2018;55(2):140-3.
16. Thapar A, Stergiakouli E. An Overview on the Genetics of ADHD. Xin Li Xue Bao. 2008;40(10):1088-98.
17. Anderson KJ. Internet use among college students: An exploratory study. J Am Coll Health. 2001;50:21–6.