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A COMPARATIVE ANALYSIS OF INTERNET USAGE AMONG FIRST YEAR UNDERGRADUATE AND FIRST YEAR POSTGRADUATE MEDICAL STUDENTS IN A TERTIARY CARE MEDICAL UNIVERSITY.

Psychiatry

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ABSTRACT

Medical students of the present generation have lived in the omnipresence of internet throughout their life. Internet user population world-wide has increased from 360 million in December 2000 to 3.885 billion in June 2017; this show's that worldwide internet penetration is 51.7% of population. Medical students are vulnerable group like any other young age person. This study compared the usage pattern of undergraduate and postgraduate medical students. There were variation , related to the device most commonly used , the data plan taken number of hours spent and the primary purpose of the internet use among the two groups. In both the groups the most common trigger for internet use was boredom, indicating towards the common link with other addictions. Internet use was also affected by other substance use like tobacco and alcohol.

KEYWORDS

INTRODUCTION:

Medical students of the present generation have lived in the omnipresence of internet throughout their life. This makes them a primary suspect for the addiction related disorders of the internet. The idea that problematic computer use meets criteria for an addiction, and therefore should be included in the next iteration of the *Diagnostic and Statistical Manual of Mental Disorders*(*DSM*), 4th edition Text Revision (APA, 2000) was first proposed by Dr. Kimberly Young, PhD in her seminal 1996 paper(Young,1996). Since then Internet gaming disorder has been included in section III of the DSM-5 under addiction disorders, which was released in 2013 (APA,2013)

The American Society of Addiction Medicine (ASAM) recently released a new definition of addiction as a chronic brain disorder, officially proposing for the first time that addiction is not limited to substance use (ASAM, 2011). All addictions, whether chemical or behaviour related, share certain characteristics including salience, compulsive use (loss of control), mood modifications and the alleviation of distress, tolerance and withdrawal, and the continuation despite negative consequences (Griffith, 2000).

Internet user population world-wide has increased from 360 million in December 2000 to 3.885 billion in June 2017; this show's that worldwide internet penetration is 51.7% of population (World Internet Users statistics, 2017). With a growth rate of 976.4% from 2000-2017.According to the same statistical reports, 5,000,000 internet users in India from year 2000 saw a step increment to 462,124,989 internet users in June, 2017. With a current internet penetration in India of 34.4% population of which India is the second largest 23.8% contributor of users in Asia after China (Asia Internet Usage Stats,2017)

Among the Asian countries China and South Korea have identified Internet addiction as a significant public health threat and both countries support education, research and treatment (Block, 2008). Surveys in the United States and Europe have indicated prevalence rates varying between 1.5% and 8.2% Weinstein , Lejoyeux 2010). Other reports place the rates between 6% and 18.5% (Young et al.2011) Addiction activates the "reward centre" of the brain (Gabor 2010). When activated, dopamine release is increased. Over time, the associated receptors may be affected, producing tolerance or the need for increasing stimulation of the reward centre to produce a "high". Internet use may also lead specifically to dopamine release in the nucleus accumbens (Bai et. al. 2010)

An internet addiction and association with psychopathology in Indian adolescent was done on a young school teenagers (Goel et al. 2013) and another among other professional course students (Sharma et. al. 2014). There are not many studies from India nevertheless among medical students. None other article has done a comparative analysis between undergraduate and postgraduate students about various socio-demographic variables related to internet use disorders, so we did this study to fill the knowledge and understanding gap.

AIMS AND OBJECTIVES:

1. To study the socio-demographic variables of internet usage among first year undergraduate and first year postgraduate medical students.
2. To associate the internet usage patterns among the first year undergraduate and first year postgraduate medical students.
3. To study factors affecting the internet usage among the target population.

METHODOLOGY:

Study Design: A cross sectional study was carried out among the first year undergraduate and first year postgraduate medical students, enrolled in the year 2016, in Himalayan Institute of Medical Sciences, Dehradun.

Study Period: 1st May, 2017 to 31st September, 2017.

Study Population: First year undergraduate and first year postgraduate medical students.

Sample size: 60 first year undergraduate medical students 60 first year postgraduate medical students.

Sampling method: Continuous sampling method was used. The semistructured performa along with the internet addiction test was distributed individually, to the selected students and the necessary instructions were given.

Selection Criteria-The study was conducted after obtaining an approval from the Institutional Review Board and permission was sought from college authorities. Ethical clearance was also taken from the Institutes medical Ethics committee. Consent was taken individually from each participant.

INCLUSION CRITERIA:

Students willing to participate in the study voluntarily after giving valid written consent

EXCLUSION CRITERIA:

1. Students, who are not willing to give their consent.
2. Students, who has any psychiatric disorder.
3. Students, who are younger than 18 years of age.

The Procedure:

1. On a one to one interaction basis the purpose of the study was explained to the subject.
2. The consent of the subject was taken to carry forward the research

regarding their internet usage.
3. The height and weight was measured for all the subjects.
4. The subject was asked to fill in an Internet Addiction Test Jang KS, 2008 along with a provided Semi-structured performa.

METHOD OF STATISTICAL ANALYSIS:

The data was collected and a master chart was prepared. This data was then analysed using appropriate statistical techniques, with the help of SPSS version 22.0 software for Windows were used for statistical analysis. Data were assessed for normality distribution by Shapiro Wilk test and histograms where appropriate. Nominal variables were expressed as numbers and proportions whereas continuous variables were presented as mean and standard deviation. Unpaired Student's t-test or One way Analysis of Variance (ANOVA) were used to compare means of different variables and Pearson's correlation coefficient was applied to correlate time spent on social media with average cumulative grades of students. P<0.05 was considered statistically significant.

Tools:

1. **Semi-Structured Performa:** A semi structured performa, developed specially for this study, in a questionnaire format, comprising of questions catering to the socio-demographic variables, factors that may affect the internet usage and consequences that may arise due to excessive internet use. Data was collected from those using internet for at least since last 6 months.
2. **IAT (Internet Addiction Test):** Internet Addiction Test (IAT) is a reliable and valid measure of addictive use of Internet, developed by Dr. Kimberly Young. It is a 20 item 5 point likert scale consisting of 20 items that measures mild, moderate and severe level of Internet Addiction. The scoring is done from 0 (does not apply) to 5 (always). Total interest addiction scores are calculated, with possible scores for the sum of 20 items ranging from 20-100. The scales shows very good consistency, with an alpha coefficient of 0.93 in the present study Jang KS, 2008.

According to Young's criteria, total IAT scores of 20-39 represent average users with complete control of their interest use, scores 40-69 represent overt users with frequent problems caused by their internet use, and scores 70-100 represent interest addicts with significant problems caused by their internet use.

RESULTS AND DISCUSSIONS:

1.SOCIODEMOGRAPHIC CRITERIA:

(i)Gender: In the present study, out of the selected120 participants, 59 participants were males (49.1%) and 61 participants were females (50.3%). Out of which addiction ratio of male to female was 1.36. Thus, males were more addicted to internet in comparison to females. For the purpose of social networking, online gaming, pornography and online movies/series watching activities. Similar results have been found by other studies on Indian adolescents(Goel et. al. 2013). In a Finnish study, men had significantly higher mean score on the Internet Addiction Test (IAT) than did women (Korkeila et al. 2009). It was suggested males are more likely to use the internet to fuel other addictions such as gambling and gaming associated with problematic internet use(Griffith 2000)

TABLE : 1

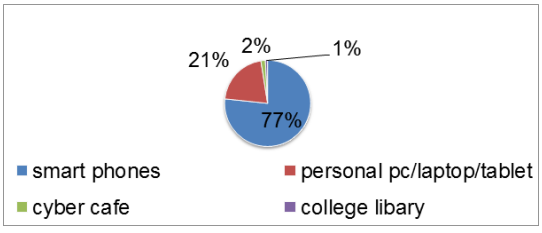
Background	Urban	Rural
Average user	90	4
Possible addict	23	2
Addict	1	-

(iii) Background : It was found that people hailing from rural background preferred to spend more time online rather than going outdoors compared to urban hailers(IAT9)with a significant value of (p=0.006). Also on analysis of this question on the semi structured performa in relation to the IAT total score a significant value of p=0.05 was observed. This could be due to comfort issues and familiarity. Rural hailers might spend time online with their family and feel safer in the virtual world compared to the natural environment of urban hailers.

(iv) Educational status and prevalence: Using Young's original criteria the users were divided into groups: 78.33% as moderate users (out of 94 who fell in this criteria 48 were PG and 46 were UG students), 20.83% as possible addicts (out of 25 who fell in this criteria, 11 were PG and 14 were UG students), and 0.83% as severely addicted. Previous Indian studies have reported a prevalence of 18.88% in undergraduate medical students, in Mangalore (Goel et. al.2013). Similar studies on medical students in China have reported a prevalence of 16.2% (Lui et al 2010). The studies that have estimated prevalence of internet addiction have come up with varying results (0.9-38%) depending on the criteria used and the sample studied (Yoo et al 2010; Yoo et al 2004). The reasons for huge variations in the prevalence rates could be as follows: difficulty in conceptualising internet addiction, heterogeneity of population studied, lack of availability of standard diagnostic criteria, studies failing to differentiate between essential and nonessential internet use, and non consideration of psychiatric co-morbidity (Jang et al 2008;Chou et al. 2000; Kaltiala-Heino et al 2004) .

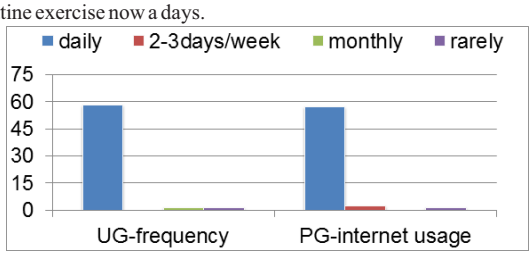
2.INTERNET USAGE PATTERNS:

(I) Device : It was found that majority of the people use internet on their smartphones, due to ease of accessibility, affordability and ease of carrying around compared to their personal laptops and tablets(p=0.01).A similar analysis taken by the Asian journal showed that 94.2% used internet enabled mobile and 32.2% used internet on laptops/computers (Aggarwal et al 2015). However a study conducted in Mangalore observed that 62% UG medical students access internet on computer showing a change in trend with greater advent of different applications and greater features in the smart phone over the years(Unnikrishnan et al 2008)



GRAPH: 1

(ii) Frequency of usage: Asian study conducted in 2015, showed that 78% of study subjects used internet daily(Aggarwal et al 2015). Study conducted at AIIMS Jodhpur, observed 51.20% students were using internet daily(Singh et al 2013) However, the present study shows a 95.8% daily users showing an increment in the daily interest users along the years with a significant value of p=0.01.This can be attributed to greater urge to stay updated, advent of e-reading, e-books, compet-itiveness in fields of journalism, banking and gaming, etc. The implication of this is that much of the internet usage is considered a routine exercise now a days.



(GRAPH:2)

(iii) Hours of usage on an average day: In the previously conducted similar studies, most of the users 41.07% spend 1-2 hours daily on internet surfing (Aggarwal et al, 2015). However, in the present study maximum people use internet at least for 2-4 hours on an average basis which is significant with a p=0.027. This could be due to faster. speed of internet along with decreased cost of network charges especially in the era of JIO network(A recent internet providing company providing unlimited internet free of charge). As a study conducted in northern India found that the most common reason for dissatisfaction among internet users was slow speed of data transfer(Lal et al 2006)

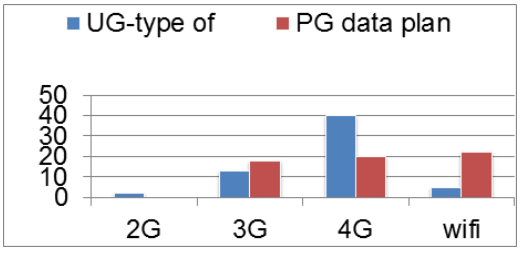
TABLE:2

Hours	>4hours	2-4 hours	1-2 hours	<1hour
Average user	15	34	29	16
Possible addict	9	12	4	-
Addict	1	-	-	-

(iv) Internet Data plan: Present study shows that maximum undergraduate are 4G plan users whereas postgraduate students use wifi and 4G network on an almost equal basis. Since, it is difficult for

the hostellers to afford and carry a wifi device along with them, it is easier for them to rely on their personal 4G network. However, PG students have a greater freedom in carrying their personal devices and modem usb around. Also on analysis of this question on the semi structured performa in relation to the IAT total score a significant value of p=0.02 was observed. No other study has made an analysis on these terms before.

GRAPH:3



4. OTHER FACTORS AFFECTING INTERNET USAGE:

(i)Romantic Relationships: On analysing the semi-structured performa it was found out, that 63.3% of PG (Pearson chi square 31.86) and 38.3% of UG (Pearson chi square 32.50) currently in a relationship.Out of all the subjects in a romantic relationship 46 people were average internet users, 14 people were possible addicts and 1 was an addict.Maximum who were in relationship had their partner staying in their vicinity despite which they showed excessive internet usage. Thus, location of the partner did not affect the internet usage patterns of the participants significantly.

TABLE:4

Type of relationship	Long distance	Partner in vicinity	Not in relationship
Average user	19	26	49
Possible addict	6	8	11
Addict	-	1	-

(ii) Alcohol Consumption: Participants having one addiction are more prone to other addiction due to their activation of reward-pleasure system in the brain.Shown in this study with a significant value of p=0.03.

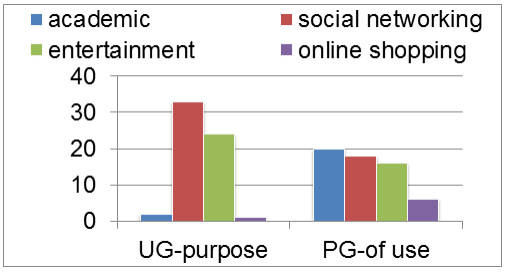


TABLE:5

Alcohol consumers	Regular basis	Weekly basis	Monthly basis	Occasionally	Not at all
Averageuser	1	4	18	27	44
Possible addict	3	3	4	6	9
Addict	-	-	1	-	-

(iii) Smoking or any kind of nicotine consumption: Participants having one addiction are more prone to other addiction due to their activation of reward-pleasure system in the brain.Shown in this study with a significant value of p=0.01.

TABLE:6

Nicotine Consumer	Regular basis	Weekly basis	Monthly basis	Occasionally	Not at all
Average user	6	1	1	9	77
Possible addict	4	-	-	4	17
Addict	-	-	-	-	1

(v)Trigger: In the present study boredom 55% and no specific cause 33% were the major triggers of internet usage. Thus indicating towards a purposeless internet surfing to pass time. Shown in this study with a significant value of p=0.02.

Trigger	Stress	Boredom	Peer pressure	None
Average user	7	53	2	32
Possible addict	5	12	-	8
Addict	-	1	-	-

Implications:

There may be both short term as well as long term implications of this study:

1. This study will give us a better understanding of all the factors that makes some one prone to excessive internet usage leading to Internet addiction.
2. It may support the global consensus to include internet related disorders in the upcoming ICD-11 or in the text revisions of DSM 5.
3. This study will also help us understand the interplay of factors and the consequences of excessive internet usage among the youth.

Limitations:

The limitations faced during this study are as follows:

1. The sample size of 120 students was quite small. This was due to a limited number of seats for postgraduate first year students. For proper analysis equal number of undergraduate and postgraduate students, 60 each were analysed.
2. There was no control group in the above study.
3. Many confounders were found during statistical analysis.
4. Internet Addiction Scale, was the only validated scale but it was not up to date as many questions did not match the present usage patterns, which could have pointed more towards addiction.

CONCLUSION:

Results concluded from this study were that:

1. Comparison between UG and PG shows that:

- UG prefer mobile whereas PG's prefer both mobile phones and their personal tablet/ laptop for internet surfing.
- More PG's were in a relationship compared to UG's, out of which UG's tend to form more relationships online.Thus, had a long distance relationship whereas PG's has their partner in the vicinity.
- PG's accessed internet more for academic purposes while UG's did so for social networking.
- More UG's accessed internet for about 2-4 hours on a regular basis while PG's accessed it for under 1-2 hours on an average basis.
- Most common trigger for internet use was boredom.
- More UG's had access to 4G data plan while more PG's preferred Wifi.

2. On basis of prevalent internet addiction:

- Significant values were observed for :
- Sociodemographic criteria: Background especially rural hailers.
- Internet usage patterns: Device used which was mostly mobile phones, frequency greater of daily users, data plan used for 4G most commonly.

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