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Socio-Demographic and Lifestyle Factors Associated With Internet Addiction among Medical and Health Sciences Students

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ABSTRACT

Background: New innovations in technology produce large opportunities in communication, information and social interaction. The excess in unwanted use of internet by people led to internet addiction. Psychological, environmental and socio demographic factors in the lives of college students may leave them disproportionately vulnerable to internet addiction. **Aims and objectives:** This study was conducted with objectives to determine the prevalence of internet addiction among medical and health science students and its socio demographic correlates. **Material and methods:** This cross sectional study was conducted on medical and health science students at PSG Institute of Medical Sciences and Research and PSG College of Physiotherapy, Coimbatore. A total of 490 students were selected by simple random sampling. Validated internet addiction scale was used to assess the internet addiction. **Results:** Of the 490 students studied, 140(28.5%) students were having internet addiction. The factors associated with internet addiction were gender(males) ($p < 0.01$) and those take frequent junk food ($p < 0.001$). **Conclusion:** We had observed a high prevalence of internet addiction in medical and physiotherapy students. So strategies for controlling internet addiction is mandatory for healthy and safe use of internet, particularly students studying at professional colleges.

Key Words: Internet addiction, Medical students, Internet addiction score, Young's internet addiction scale, Likert scale

INTRODUCTION

The prevalence of internet addiction has increased dramatically in these decades. The majority cases of internet addiction could be prevented by changes in lifestyle^[1]. Many studies have reported that internet addiction is more common in men than women^[2]. Globally, about half of the population are using internet through smartphones. In developing countries like India, population using internet increases rapidly from 5 million in 2000 to 137 million in 2012^[2]. A research conducted by Indian Market Research Bureau in June 2013, indicates that the internet usage in India has gone up with more and more internet users using the internet on a regular basis^[2]. Nearly 71% of the world internet users are constituted by young people aged 15-24^[3].

The rapid expansion and proliferation of the internet has provided better opportunities for communication, information and social interaction^[2]. Internet technology was originally designed to facilitate communication and research activities, however the dramatic increase in the use of internet in recent years has led to internet addiction which is classified into a disorder by WHO^[4-6]. After effects of internet addiction includes the impairment of academic performance, psychological wellbeing and

interaction with family members, depression, anxiety, sleep disorders and dissociative experience. Studies were also shown that younger internet users were more at risk of becoming internet addicts than older users^[5]. Psychological and environmental factors in the lives of college students may leave them disproportionately vulnerable to internet addiction^[6]. Although there were studies reported on the association of socio demographic and clinical factors associated with internet addiction among college students, the relationship between dietary behaviour and lifestyle factors such as regular exercise, place of origin, education of parents on internet addiction among college students is unclear and more studies are needed.

The aim of the study is to assess the prevalence of internet addiction and its association with socio-demographic and lifestyle factors among medical and health sciences students.

MATERIAL AND METHODS

Study location and design: This cross sectional study was conducted at PSG Institute of Medical Sciences and Research, Coimbatore and PSG College of physiotherapy, Coimbatore during April to July 2019. The study got

approval from Institute Human Ethics Committee and the consent of college and students were procured before the start of the study. With an expected prevalence of internet addiction of 50% and with 10% allowable error of the prevalence, 95% confidence limits and 20% non-response, the required sample size is 500. To meet the required sample size, 50% of the students from each batch (first year, second year, third year and fourth year) were selected by Simple Random Sampling Technique. Informed consent was obtained from each study participant and administered a semi structured questionnaire as the study tool. Thus a total of 490 study participants were recruited from both the colleges.

The study tool has two parts. Part A consisted the socio demographic and lifestyle factors include year of the study, gender (male, female), regular exercise (yes, no), frequent junk food consumption (yes, no), residence (home, hostel, others), origin (city, town, village, others), father's education (below undergraduate, under graduate, postgraduate, others), mother's education (below undergraduate, under graduate, post graduate, others) and gadget (desktop, laptop, mobile, others).

Part B is the validated internet addiction questionnaire to measure internet addiction. The scale comprises of 20 questions, each questions had score ranging from 0-5 (0=never, 1=rarely, 2=occasionally, 3=frequently, 4=often, 5=always)^[7]. Based on these total scores, participants were classified as: normal user (score as: <50) and addicted user (score as: >=50).

The data were analyzed using SPSS version 24. Socio demographic variables and patterns of internet use have been described by frequency tables. The prevalence of internet addiction was described in terms of percentage. The descriptive statistics were calculated based on mean, standard deviation for quantitative variables and percentages for categorical variables. The association between internet addiction and socio demographic variables was assessed using Chi-square test and then performed a Multiple Logistic Regression analysis with internet addiction as dependent variable and independent variables including several socio demographic and life style factors. In all calculations, p value less than 0.05 was considered as statistically significant.

RESULTS

A total of 490 students were studied and there were 197(40.2%) males and 293(59.7%) females. 120 students were from 1st year, 134 students were from second year, 132 students were from third year and 104 students were from final year. Out of 490 students studied, 140 (28.5%) students were having internet addiction (Table 1). It was observed that males were reported more internet addiction than females (p<0.001). Students consuming junk food frequently were also more addicted than who were not frequently consuming (p<0.001) (Table 2). In the Multivariate analysis gender (males) (p<0.001) and those frequently consuming junk foods (p<0.001) were significantly associated with internet addiction (Table 3).

Table 1: Distribution of the students studied

Year of study	College of physiotherapy			College of medicine			Total
	Male	Female	Total	Male	Female	Total	
First year	13	32	45	38	37	75	120
Second year	17	33	50	29	55	84	134
Third year	20	30	50	36	46	82	132
Fourth year	14	31	45	30	29	59	104
Total	64	126	190	133	167	300	490

Table 2: Association of internet addiction with socio demographic and life style factors in univariate analysis

Variables	Number	Percentage	Chi-square	P-value	
Class*	MBBS	98	32.7	6.358	0.012
	Physiotherapy	42	22.1		
Year	First year	33	27.5	7.76	0.051
	Second year	36	26.9		
	Third year	49	37.1		
	Fourth year	22	21.2		
Gender*	Male	74	37.6	13.053	0
	Female	66	22.5		
Junk food*	Yes	87	42.6	33.931	0
	No	53	18.5		
Exercise	Yes	42	31.6	0.809	0.368
	No	98	27.5		
Residence	Home	44	27.2	0.605	0.739
	Hostel	88	28.9		
	Others	8	34.8		
Origin	City	72	30	0.496	0.92
	Town	39	27.1		
	Village	27	27.6		
	Others	2	25		
	Below UG	28	20.6		
Father's education	UG	46	32.45	6.102	0.107
	PG	60	30.8		
	Others	6	35.3		
Mother's education	Below UG	37	24.2	2.102	0.35
	UG	49	30.4		
	PG	54	30.7		
Gadget	Desktop	5	45.5	2.243	0.523
	Laptop	11	28.2		
	Mobile	119	28.6		
	Others	5	20.8		

*=Significant with p value<0.05

Table3:Association of internet addiction with socio demographic and life style factors in multivariate analysis

Variables	Adjusted odds ratio	95% CI		
		Lower	Upper	
Class	MBBS	1	-	
p=0.276	Physiotherapy	1.337	0.793	2.256
Year	First year	1	-	
P=0.116	Second year	1.389	0.71	2.716
	Third year	1.385	0.713	2.688
	Fourth year	2.117	1.123	3.991
Gender*	Male	1.964	1.251	3.083
p=0.003	Female	1	-	
Junk food*	Yes	2.961	1.928	4.546
p=0.000	No	1	-	
Exercise	Yes	1.017	0.628	1.645
p=0.946	No	1	-	
Residence	Home	1	-	
p=0.526	Hostel	1.045	0.644	1.698
	Others	1.823	0.64	5.191
Origin	City	1	-	
p=0.970	Town	0.912	0.542	1.534
	Village	1.045	0.578	1.892
	Others	0.811	0.129	5.095
Father's education	Below UG	1	-	
p=0.431	UG	1.684	0.84	3.375
	PG	1.398	0.638	3.066
	Others	2.081	0.597	7.258
Mother's education	Below UG	1	-	
p=0.971	UG	0.926	0.478	1.795
	PG	0.921	0.446	1.903
Gadget	Desktop	1	-	
p=0.510	Laptop	0.669	0.153	2.927
	Mobile	0.691	0.187	2.561
	Others	0.318	0.06	1.695

*=Significant with p value<0.05

DISCUSSION

Internet addiction has been found important as a new and increasing global problem. The consequences of Internet addiction has a huge impact on students, physically and mentally, including changing the lifestyle in order to spend more time on the internet, neglecting their own health, avoiding of major life activities, reducing the social relations, ignoring the family and friends^[8-10]. The prevalence of internet addiction varies from 2% to 18% worldwide and from 0.3% to 11.8% in India^[3,11-17]. The world has witnessed an explosive growth of internet users; globally more than half of the population is using the internet^[18-20]. Internet user population has increased from 360 million in December 2000 to 2.4 billion in June

2012^[21]. In Asia it has grown from 114 million internet users on December 2000 to 1.07 billion in June 2012^[21].

Gender has a statistically significant association with internet addiction in this study. The finding has been corroborated by many previous researches explained this gender difference with a reason that males involve more in online activities such as gaming, gambling, pornography etc.^[2,10-19]. In general, men are more likely to enjoy searching for information of personal interest other than the requirements of work^[20-23]. Men seemed to enjoy interactive online games more than women, which draw upon power and dominance. Men seem to enjoy the aspects of violence and dominance in such interactive games^[24-27]. Cyber sex is another area men seemed more attracted to than women. In general, men were more openly drawn to the sexually explicit material accessible through the internet^[28-30].

One of the more important finding that is revealed through our study is that junk food addicts are more likely to be internet addicts than normal people. Previous studies do not give us any effective results on the relation of junk food consumption and internet addiction. These junk food are nutritionally poor and this is universally recognized as they have very little or no vitamins, minerals and proteins and rather have a high content of salt sugar and calories that can lead to numerous health conditions when ingested in large quantities. Though it is universally accepted that these "junk food" cause numerous health issues both on a short term and long term basis, a large population of people have been found addicted to it^[31-34]. The brain has perceives the food we eat in an unique way. Evolution has been a major contributor in the fact that the entire human race as a whole are more likely to ingest carbohydrates and fats when compared to vitamins, minerals and proteins as it provides an immediate energy supply and contributes to increased blood sugar levels but due to the increasing sedentary lifestyle of people, this is leading to be a major risk factor. It has been demonstrated that when some food is ingested and it reaches the GIT, impulses are immediately sent to the brain. A vast segment of nerve supply is found connecting the brain and CNS to the gut^[31]. In the brain exists a pathway called the reward pathway, the reward pathway involves several parts of the brain, the ventral tegmental area (VTA), the nucleus accumbens, and the prefrontal cortex. When activated by a rewarding stimulus (e.g., food, water), information travels from the VTA to the nucleus accumbens and then up to the prefrontal cortex. It has been found that the gastrointestinal tract sends signals to the brain's reward circuits every time junk food is consumed. In the presence of calories in the gastrointestinal tract triggers the release of dopamine, the major chemical transmitter acting on the reward circuitry. A particular lipid messenger in the gut, known as oleoylethanolamine (OEA), controls the brain's perception of reward value when it comes to food.^[31] A recent study by Tellez, et al. found that the brain's reward circuitry is highly sensitive to the energy content of foods, independent of sensory properties such as flavour^[31]. It means that calorie sensing in the gastrointestinal tract is an important

activator of this brain's reward circuitry, and thus can cause alterations in gastrointestinal physiology. Thus the consumption of junk food leads is presumed to trigger the reward circuitry of the brain and found to have same effect on the reward circuitry just like addictive drugs like cocaine and heroin. Brain's reward circuitry was active in people those frequently consuming junk food, which make them vulnerable to internet addiction^[31-36]. For susceptible people, eating junk foods can lead to full-blown addiction, which shares the same biological basis as addiction to abusive drugs.

Our study has some limitations. First, the prevalence of internet addiction is difficult to establish accurately because of limitations related to the population screened, the unwillingness of subjects to participate and unreliability on the history of internet usage revealed by study subject and hence its accuracy is unknown. Second, we have not collected the information from the students studying at Government colleges. Third, since the students were asked to report details of exposure and use to internet, recall bias cannot be ruled out. Another limitation of the study is that since there was self-reporting of data and hence social desirability bias can also be present.

Despite these limitations, our study has several strengths. The main strength of the study includes scientific selection of variables. We have selected students from various classes and that also selected both from medical and allied health sciences students. Thus we studied a heterogeneous representation of college students. Sampling bias has always been a major drawback of many of the earlier studies. This study has tried to minimize this bias by not sending the questionnaire by email or group networks instead the investigators went to the class and collected the required information. We have used a validated questionnaire and questionnaires were answered anonymously and the investigators were kept away from the classrooms where information was being collected.

Conclusion

In conclusion results from our study suggest that internet addiction was observed in one third of the subjects. The explosive growth of the internet in the last decade had a huge impact on communication and inter-personal behavior. The present study unfolds that internet addiction in the majority of medical students is a dark reality that requires timely remedial action of detection of internet addiction therefore assumes greater importance in professional institutions such as medical colleges. It is essential to develop strategies for the prevention of internet addiction. As an emerging global issue, awareness should be created among the students to reduce the occurrence of internet addiction behaviour and for promoting their healthy growth^[33-37]. Further analysis of internet addiction with usage patterns will be reported in a subsequent paper.

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