

Internet Addiction and Its Association with Psychopathology in Medical Students of JNIMS, Imphal, Manipur

Haobijam Nirendrakumar Singh¹, Tonjam Hemchand Singh², Anshuman Sewda³, Agatha Gangmei⁴

^{1, 4} Department of Community Medicine, JNIMS, Manipur, India. ² Department of Psychiatry, JNIMS, Manipur, India. ³ Institute of Health Management Research, IIMR, Jaipur, India.

ABSTRACT

BACKGROUND

Internet becomes an indispensable means for basic and optimal survival along with career advancement in present context and at the same time this widely used tool has addictive property; this property may, further, lead to many psychosocial problems in health. This study intended to evaluate the relationship and the risk of Internet addiction and their psychosocial wellbeing among medical students in Manipur.

METHODS

This is a cross-sectional study conducted among medical students and interneers in JNIMS. The study duration was from 8th September 2014 to 5th October 2014. There was universal coverage of the students and interneers. The tools used in the study were self-administered questionnaires including demographic profiles, Internet addiction test and DASS-42 (Depression, Anxiety and Stress). Data entry and analysis were done with SPSS version 22; A P-value of < 0.05 was considered to be significant.

RESULTS

The response rate was 83.89 %; as the Internet addiction scores increased among the students there was increase in prevalence of depression, anxiety and stress in them. The relationships were found to be highly significant (P = 0.000).

CONCLUSIONS

There was a significant association between Internet use and psychosocial problem among the medical students in JNIMS. The study couldn't comment on the causality of the depression, anxiety and stress against Internet addiction among the students and interneers. Therefore, a further study is recommended for finding out the temporal association.

KEYWORDS

Internet Addiction, Reliability, Validity and Depression

Corresponding Author:

*Dr. Tonjam Hemchand Singh,
C/o. Dr. Thokchom Imoba Singh,
Khuyathong Pukhri Achouba Mapal
Nagamapal Road, Eklavya Premedical
Coaching Centre, Imphal West - 795004,
Manipur, India.
E-mail: hnirendra10@gmail.com*

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BACKGROUND

Internet, now, is a new and vital tool that evolves every day in everyone's life across the world; its use and misuse happens more among young people.¹ Internet addiction has been used explosively not only in India but also in the whole globe for the last one decade, so it is a concern for every one of us. Excessive use of Internet amounts to the level of addiction or dependence. People use it for education, entertainment and sharing information throughout the globe instantly. It has become more accessible in homes, schools, colleges, libraries and Internet cafes; access is further aided with increasing affordability of home computers and high-speed connections over the last decade.²

Students pursuing MBBS course use Internet as a source of health-related information and means for further academic pursuance. In spite of its widely perceived merits, many psychologists and educators opined of its negative impacts, especially its over-use or misuse relating to an individual's physical and psychological problems.¹

Use of Internet by students is a way to cope or adapt to overwhelming developmental stressors or precipitating factors. Students including those pursuing MBBS might be having many psychological and environmental factors in their lifetime and this behaviour may lead them vulnerable to addiction or dependence on Internet. It becomes quite obvious and reflects that many mental distresses such as depression, impulse control disorder and loss of self-esteem are associated to Internet addiction or dependence. In other way, those developmental stressors in an individual's life, along with free accessibility on different Internet services, might have contributed to vulnerability among college students to Internet dependency behaviour. Face-to face social interaction through online social contact and wrong formation of identity with their fake-identities online became particularly non-adaptive outcomes from use of Internet among college students. Greenfield suggested that as many as 6 % of Internet users may suffer negative outcomes such as marital disruption, decreased school performance, increased financial expenditures on Internet shopping, or illegal activity.³

In response to excessive use of Internet worldwide or globally along with cropping of many upcoming or new generation gadgets, the term 'Internet addiction' is emerging as a risk for significant behavioural dependence or addiction pandemic which demands global attention and to be tackled early. Internet addiction refers to an individual's inability to control his or her use of it including any online-related & compulsive behaviour which causes marked distress and functional impairment in daily life.⁴

The term 'addiction', though traditionally used to describe a physical dependence on substance⁵, has been applied to the overuse of the Internet. Internet addiction disorder is described as excessive computer use that interferes with daily life and can impair daily function.^{6,7} Internet addiction is characterised as type of addiction or dependence and many people are suffering from it and very difficult to control themselves when they are using the Internet. This phenomenon results in serious impairments in

psychosocial functioning.⁸ Internet addiction is considered as a psychiatric disorder in the forthcoming DSM-V.⁹

Researchers described different manifestations in people suffering from Internet addiction. These include preoccupation with Internet use,^{10,11} being online most of the time, compulsive use of Internet, believing that everything appears to be boring without Internet, increased irritability if disturbed while online, decreased communication with others, and increased depressive behaviours.¹² Several studies depicted that people spending much time online were likely to be suffering from sleeplessness^{12,13} and their interpersonal relationships were too compromised.¹⁴ The studies had shown that Internet addiction in people's life could cause insomnia, malnourishment, inter-personal relationships problems, depression, anxiety and many behavioural and emotional problems.

Different researches in Western and Asian Country appreciated the risk of addiction or dependence on Internet among the younger generation or younger people in increasing trend. The raising phenomenon affects people with varying frequency around the world by producing negative impacts on their academic performance, relationship, financial and occupational aspects.¹⁵

There are a number of emotional factors relating to addiction of Internet among college students. Of these, depression, anxiety, and stress are most remarkably associated with Internet addiction among these students. Different studies on relationship between depression and Internet addiction demonstrated that the misuse or overuse of the Internet resulted in an impairment of the social and occupational functioning of an individual and around. Indulging in the phenomenon could displace valuable time of people by compromising quality moments with family and friends, further leading to smaller social circles and higher levels of loneliness and stress. Many other studies also documented its impacts as neglect of academic responsibility, work, and domestic responsibilities, disruption of relationships, social isolation, and financial problems.¹⁶

Physical, social & psychological health has been seriously affected by overuse of Internet. It leads to poor academic performance, sleep deprivation, headache, eyestrain, poor dietary habits and many other psychological disorders like alcohol abuse, attention deficit hyperactivity disorder, depression and anxiety etc.¹⁷ It has also been proposed that some personal, familial, social characteristics has been strongly associated with addiction for example male gender, initial course years, permanently logged in status, peer influence, preference for virtual interaction with friends; and using the online chats, obscene videos, virtual friendship and online shopping, time spent on Internet, assessing method of Internet, speed, accessibility, and content of information.¹⁸

Internet addiction, ultimately, may contribute to anxiety and stress causing troubles in communication and interaction with others in a healthy, positive and meaningful way. It is becoming very pertinent that the studies are to be taken up in the field to explore the ever-increasing problem of Internet addiction among medical students with the aim to evaluate the addiction of Internet in medical students and

it's psychopathological effects among medical students so that possible different strategies for the reduction of the addiction could be formulated, thus leading to healthful productive life. Therefore, the paper attempts to understand the prevalence and relationship of Internet addiction to psychosocial pathology like depression, anxiety and stress among medical students in a Government Medical College, Manipur.

METHODS

The study was a cross-sectional design among the medical students of Jawaharlal Nehru Institute of Medical Sciences, Manipur from 8th September 2014 to 5th October 2014.

Sample size and sampling: We intended for universal coverage of the students along with internees in the institute. More than 98 % of the participants were residing in the hostel while the remaining were day-scholar.

Data collection: After explaining about the study, the students were asked for voluntary participation. All the questionnaires were distributed in the classroom to consented students, those absent were contacted and provided the questionnaires in hostel or on next meeting after explaining and seeking their consent. However, for internees, the questionnaires were provided in the hostel or workplace personally after consenting for voluntary participation. On next day, filled forms were collected after checking; whether the participant filled the questionnaire fully; if not fully filled, participants were requested to fill the required area. We excluded students who dropped out from the college / deceased, refused to give consent, were unable to respond due to sickness, unavailable even after three attempts of visit.

The questionnaire contained three parts:

1. Socio-demographic profiles.
2. Young's Internet addiction test (YIAT-20).
3. Depression, anxiety and stress scale (DASS-42).

Young's 20-items scale for Internet addiction (YIAT-20)¹⁹ was applied to assess the prevalence of Internet addiction. This questionnaire measured on the five-point Likert Scale. Young's IAT, developed for screening and measuring levels of Internet addiction, had been the most widely used and well-tested for its psychometric properties. The items of the IAT, each rated from 1 (rarely) to 5 (always), include compulsive behaviour related to use of the Internet, the occupational or academic difficulties, lack of competence at home, problems in interpersonal relations, and emotional problems.

The scale reflects the greater the level of addiction higher the score range with varying ranges as normal: 0 - 30 points, mild: 31 - 49 points, moderate: 50 - 79 points, and severe: 80 - 100 points. Different literatures well-documented the excellent psychometric properties of the questionnaire. Young's diagnostic questionnaire is the first global psychometric measure and used extensively & frequently across many studies globally; the tool itself is self-completed and has been validated on adult and adolescent populations, and has good internal consistency, reliability as well as concurrent validity.

A meta-analysis study in 2012, from a large sample of studies was conducted to determine the overall reliability of YIAT20, the mean differences showed more reliable in college students. The overall Cronbach's alpha computed from the studies was 0.889 [95 % confidence interval (CI) 0.884 - 0.895]. The standard deviation of the alpha was low, at 0.049.

DASS-42 Scale²⁰

The depression, anxiety and stress scale is a 42-item questionnaire. This tool comprises of three different self-reporting scales which are designed in order to measure three negative emotional states like depression, anxiety and stress. Each of these three scales include 14 different items and further divided into subscales of 2 - 5 items having similar content. The depression scale is intended to assess hopelessness, dysphoria, self-deprecation, devaluation of life, anhedonia, lack of interest / involvement and inertia. The anxiety scale too is intended to measure autonomic arousal, situational anxiety, skeletal muscle effects, and subjective experience of any anxious affect. The stress scale (items) is again sensitive to different levels on chronic non-specific arousal. It is intended to assess nervous arousal, difficulty in relaxing, being easily upset / agitated, irritable or over-reactive and becoming impatient. Respondents are needed to respond in a 4-point severity / frequency scales in order to rate the extent at which they were experiencing each state in the past week.

0 = Did not apply to me at all

1 = Applied to me to some degree for some of the time

3 = Applied to me to a considerable degree or for good part of time

4 = Applied to me very much or most of the time

Scores on depression, anxiety or stress are calculated after adding the scores on different relevant items. The depression scale items in the tool are 3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38, 42. Different items on anxiety scale are 2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40, 41. The items on stress are 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, 39. The index on severity-rating is given below.

	Depression	Anxiety	Stress
Normal	0 - 9	0 - 7	0 - 14
Mild	10 - 13	8 - 9	15 - 18
Moderate	14 - 20	10 - 14	19 - 25
Severe	21 - 27	15 - 19	26 - 33
Very severe	28 +	20 +	34 +

Table 1. Index on Severity-Rating

The score of each of the respondents are evaluated over each of the sub-scales.

Statistical Analysis

Data entry and analysis was done using IBM SPSSv22. Data were described using statistics like mean, standard deviation, percentage etc. whereas they were analysed using analytical statistics like chi-square. In analysis, P-value of less than 0.05 was taken as significant.

RESULTS

The total number of eligible students was 571, out of whom 92 were non-respondents. Therefore, 479 students were included in analysis of our study giving a response rate of 83.89 %. The mean age and Internet addiction scores were 22.31 years and 34.12 (mild) respectively. The average scores with standard deviation of DASS-42 depression, anxiety and stress were 8.25 (7.194), 8.35 (6.442) and 11.80 (7.884) respectively.

The baseline information regarding socio-demographic characteristics, educational level and Internet addiction test scores were already given in the previous study (link).

As the Internet addiction score increased, there was increased prevalence of depression among the students and the severity of depression was also increased accordingly. The relationship is found to be statistically significant ($P = 0.000$). The prevalence and severity of anxiety among the students by using DASS-42 score was found to be in increasing order at the increasing score of Internet addiction. It is more obvious among severe and very severe anxiety levels. The relationship is found to be highly significant ($P = 0.000$). When the scores of Internet addiction test were increasing, there was recognised increase of stress and its severity among the students and the relationship was found to be highly significant ($P = 0.000$).

IAT Scores	DASS-42 Depression (%)				P-Value
	Normal	Mild	Moderate	Severe + Very Severe [§]	
0 - 30	160 (80.4)	17 (8.5)	17 (8.5)	5 (2.5)	0.000*
31 - 49	125 (60.7)	30 (14.6)	41 (19.9)	10 (4.8)	
≥ 50	29 (39.2)	14 (18.9)	15 (20.3)	16 (21.6)	

Table 2. Cross-Tabulation of DASS-42 Depression against IAT Score

* Indicates statistically significant association at $P < 0.05$
[§]Severe and very severe categories were clubbed together for analysis

IAT Scores	DASS-42 Anxiety (%)				P-Value
	Normal	Mild	Moderate	Severe + Very Severe	
0 - 30	136 (68.3)	17 (8.5)	34 (17.1)	8 (4)	0.000*
31 - 49	92 (44.7)	20 (9.7)	60 (29.1)	21 (10.2)	
≥ 50	29 (39.2)	4 (5.4)	17 (23)	12 (16.2)	

Table 3. Cross-Tabulation of DASS-42 Anxiety against IAT Score

* Indicates statistically significant association at $P < 0.05$

IAT Scores	DASS-42 Stress (%)				P-Value
	Normal	Mild	Moderate	Severe + Very Severe [§]	
0 - 30	164 (82.4)	20 (10.1)	9 (4.5)	6 (3)	0.000*
31 - 49	144 (79.9)	17 (8.3)	34 (16.5)	11 (5.3)	
≥ 50	36 (48.6)	12 (16.2)	15 (20.3)	11 (14.7)	

Table 4. Cross-Tabulation of DASS-42 Stress against IAT Score

* Indicates statistically significant association at $P < 0.05$
[§]Severe and very severe categories were clubbed together for analysis

DISCUSSION

In the present study, the mean age and Internet addiction scores were 22.31 years and 34.12 (mild) respectively. The average scores with standard error of DASS-42 depression, anxiety and stress were 8.25 (7.194), 8.35 (6.442) and 11.80 (7.884) respectively. When there was increase in

Internet addiction scores, there was increased prevalence and severity of depression among medical students in JNIMS. The prevalence and severity of anxiety among the students was increased at the increased level of Internet addiction scores. There was an increased prevalence and severity of stress among the students when the scores of Internet addiction also increased. The three relationships were found to be highly significant ($P = 0.000$).

According to Sharma P et al. (2016), there was significant correlation between stress among adolescent students studying 8th - 12th standards with Internet addiction while no significant relationship between depression and anxiety with Internet addiction. The difference in findings regarding depression and anxiety from present study could be because of the difference between the age and course pursued by the participants along with the tool used; DASS-21 against DASS-42 in ours.²¹

Kumar R studied among engineering students that Internet users had higher anxiety level as compared to those of non-users. The result of DASS-42 depression was a mean (SD) of 6.78 (5.48). In the present study, we found significant association between Internet addiction scores and depression, anxiety & stress. The mean score of depression (SD) was 8.25 (7.194). The difference in findings could be because of the difference in courses and their sampling method; convenient type against universal coverage in our study.²² Ahmet A et al. (2011) reported the positive correlation between Internet addiction using online cognition scale (OCS) with depression, anxiety and stress from DASS-42. The same relationship was found in our study as well; however, they had used different tool for Internet use. But intent of the study was similar and thus, the findings were comparable.¹

Gupta A et al. (2018) studied Internet addiction and mental correlates among undergraduate college students of a university in Northern India and reported that they found a strong positive association between depression or anxiety or stress with Internet addiction. This finding was in conformity with our study as well.²³

Lodha P (2018) studied 482 young males and females at the age range of 15 - 29 years, at least completed VIII th grade and knew English; across India by using mixed sampling methods of snowball & convenience. She found that the average scores (SD) of Internet addiction, depression, anxiety and stress were 39.80 (2.878), 5.98 (5.090), 5.33 (4.324) and 6.50 (4.516) respectively. It was further reported that there was no association between Internet addiction and depression, anxiety & stress. However, in our study, we found the significant association between Internet addiction scores with scores of depression, anxiety and stress. The difference could arise from different characteristics of the participants like age, socio-demographic profiles, courses pursuing and tool i.e. DASS-21 against DASS-42.²⁴

CONCLUSIONS

There was a significant association between Internet use and psychopathological condition of the medical students.

However, we further recommend a study in order to find out the temporal association between the selected variables so that further preventive measures may be taken up in order to avert the problem arising from Internet use.

Limitations of the Study

We are unable to find out the temporal association between the Internet addiction and depression, anxiety & stress.

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.

Financial or other competing interests: None.

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