Patterns of Internet Usage and it's Association with Psychiatric Morbidity Amongst Medical Interns.

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Abstract

Background: Internet Addiction Disorder is characterized by excessive preoccupations, urges or behaviour regarding internet use that leads to distress. People use the internet in order to manage negative mood states. It becomes an escape route to quickly relieve oneself of stress. Internet addiction is associated with depression, anxiety, loneliness, less satisfaction with life, law self-esteem and other psychiatric comorbidities.

Method: The study was conducted in Department of psychiatry at tertiary care hospital.. Informed consent of medical interns was taken, socio-demographic details, purpose of internet usage was noted. Internet addiction test (IAT), depression and anxiety stress scale (DASS), differential loneliness scale (DLS), satisfaction with life scale (SWLS) and Rosenberg self-esteem scale (RSES) was fulfilled. Collected data was subjected to statistical analysis using the SPSS software.

Result: Mean score on the IAT was 24.88. 65% of the respondents were average online users.3% of the respondents experienced frequent problems because of their internet usage. Scores on the IAT correlated positively and significantly with the depression, anxiety and stress domain scores of the DASS. No significant correlation was found between scores on the IAT and SWLS and RSES scores, but significant co relation was found between scores on IAT and DLS scores.

Conclusion: This study suggests that most common reason for using internet is browsing social networking sites and for online entertainment. Problematic internet use in medical interns is associated with higher scores on questionnaires investigating depression, anxiety, stress, loneliness, and lower scores on questionnaires investigating satisfaction with life and self-esteem.

Keywords: Internet addiction, depression, loneliness, self-esteem

Introduction

1970's marked the introduction of internet, and it marked a radical change in the developed countries. Around 40% of the world population has an internet connection today which was less than 1% in 1995. [1] The internet serves to be a platform for social engagement, emotional support, skill development, financial gains, education, and entertainment. However there have been problems with some user's daily functioning and psychosocial well-being. [2]

Dr Ivan Goldberg coined the term "Internet Addiction" in 1995 for pathological compulsive internet use. [3] Internet Addiction Disorder (IAD) is characterized by excessive preoccupations, urges or behavior regarding internet use that lead to impairment or distress. [4] International prevalence rates for internet addiction ranges from 1.5% to 8.2%. [5]

The term Internet Addiction was replaced by Problematic Internet Usage (PIU) in 2007 by Shapira et al. [6] who defined problematic internet use as: (a) a maladaptive preoccupation with internet usage, (b) causing significant distress or impairment resulting from internet usage (c) absence of other psychopathology like mania or hypomania which might account for excessive internet usage.[7,8] The following six factors are characteristic of addiction: salience, mood modification, tolerance, withdrawal, conflict and relapse. [9]

Kimberley S. Young has classified internet addictive behaviors' into 5 types [10]

a) Cyber sexual addiction: using adult websites for cybersex and cyber porn in a compulsive manner

b) Cyber-relationship addiction: Over involvement in online relationships

c) Net compulsions: Day trading, shopping, obsessive online gaming

d) Information overload: Compulsive web surfing or database searches

e) Computer addiction: Obsessive computer game playing

Psycho-Social Factors Associated with Problematic Internet Use

IAD has been associated with low self-esteem, family dissatisfaction and stressful events [11], and few social friends, poor relations with teachers and students, and conflicting familial relationships.[12] Personality factors such as lack of perseverance, psychoticism [13], and neuroticism, sensation seeking and aggressiveness [14] have been found to be associated with internet addiction.

Cognitive Factors Associated with Piu:

Studies suggest that impaired executive control ability is relevant to understand IAD. Dong, Zhou, and Zhao (2011) measured event related brain potentials during a color-word Stroop task and noted that Internet-addicted individuals showed longer reaction time and more response errors on the Stroop task and reduced medial frontal negativity indicating impaired executive control ability. [15] Ko et al. (2010) found participants had no impairments in reward-based decision making but those with IA had higher novelty seeking characteristics as noted previously. [16] Davis' cognitive model is based on the stress-diathesis model. According to this model, situational cues along with potential life stressors can precipitate abnormal behavior in a predisposed individual.

Social Networking Sites (SNS):

Studies have suggested that 55% - 82% of teenagers and young adults use SNSs on a regular basis. [17] The most popular SNS as of today are Facebook, WhatsApp and Instagram. Other social media platforms like Twitter, Pinterest, LinkedIn saw significant increase in the year 2013-2014 in the proportion of online adults who used these sites.[18] The overall usage of SNSs

increased by two hours per month to 5.5 hours and active participation increased by 30% from 2009 to 2010.

Psychiatric Co Morbidity Associated with Piu:

Many people uses internet to manage negative mood states like stress, loneliness, depression and anxiety. It becomes an escape route to quickly relieve oneself of stress. [19]

Depression and Anxiety:

According to Young's study depression was a significant factor in the development of Pathological Internet Use (PIU) as the analysis of the Beck's Depression Inventory (BDI) scores yielded results similar to that of prior studies conducted in this domain. It has also been hypothesized that those with depression have an affinity towards electronic communication owing to the anonymity granted by electronic means of communication. This may in part help them to overcome interpersonal difficulties. [20] Prior research suggests that individuals who are socially anxious are more vulnerable to PIU. [21]

Loneliness:

In 2000, Morhan-Martin and Schumacher [22] assessed 2777 college students using the UCLA Loneliness Scale. It was found that 8% of the samples had pathological internet use and those with pathological internet use were found to have more loneliness on the UCLA loneliness scale as compared to non-pathological users of the internet.

Satisfaction with Life:

Life satisfaction is a global assessment of person's quality of life according to his / her chosen criteria. Judgments of satisfaction are dependent upon a comparison of one's circumstances which is thought to be an appropriate standard. It is important to point out that the judgement of how satisfied people are with their present state of affairs is based on comparison with a standard which each individual sets for him or her and is not externally imposed. [23] Study showed lower life satisfaction was a significant predictor of problematic internet usage. [24]

Self Esteem:

Self-esteem is a personal judgment of the worthiness that is expressed in the attitudes the individual holds towards himself. Studies have found a negative relationship between problematic internet usage and self-esteem. Griffith hypothesizes that the usage of internet helps them to feel better as they take a different personality and social identity while being online. [25]

Internet addiction also associated with sleep disturbance [26], ADHD, personality disorders, psychosis [27], academic and job problem [28], obsessive and compulsive disorder [29], substance use disorder [30] and relationship problems.

Aim of The Study

Amongst medical interns,

- To assess patterns of internet use and co relation of internet addiction with depression, anxiety, and stress.

- To assess co relation of internet addiction with life satisfaction, self-esteem and loneliness

Material and Methods

The study was conducted in Department of psychiatry.

Type of Study: Cross sectional, hospital based, observational study

Inclusion Criteria:

- Medical interns posted in the department of Psychiatry

Sample size: 100 medical interns

Procedure:

Medical interns at Medical College and Hospital were recruited for the study. Informed consent was taken. Data were

collected by pre-tested, pre structured questionnaires.

Socio Demographic form:

This form is designed to collect personal details like age, sex, religion, residential address, type of family setting, socio economic status and purpose of internet use.

Internet Addiction Test (IAT):

The Internet Addiction Test was developed by Kimberly S. Young in 1996. Young developed a scale based on the DSM-IV criteria for pathological gambling and it measures the extent of an individual's problems due to internet usage in daily routine, social life, productivity, sleeping patterns and feelings. The psychometric properties of the IAT show that it is a reliable and valid measure that has been used in further research on Internet addiction. The IAT is a 20-item Likert questionnaire. To assess the level of addiction, rating is done on a five-point Likert scale:

0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often,

5 = Always

After all the questions have been answered the numbers for each response are added to obtain a final score. The higher the score range, greater is the level of addiction:

Mild: 20-49 points (Average online users), Moderate: 50-79 points (occasional or frequent problem, Severe: 80-100 points. (Problematic internet use)

Depression and Anxiety Stress Scale:

The DASS is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety, and stress. The DASS was developed by researchers at the University of New South Wales. Each of the three DASS scales contains 14 items, divided into subscales of 2-5 items with similar content. Subjects are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week. Scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items. The reliability scores of the scales in terms of Cronbach's alpha score rate the depression scale at 0.91, the anxiety scale at 0.84 and the stress scale at 0.90 in the normative sample.

SCORE:

Depression domain:

0-9   normal

10-13   mild depression

14-20   moderate depression

21-27   severe depression

More than 28 extremely severe depression

Anxiety domain:

0-7   normal

8-9   mild Anxiety

10-14   moderate Anxiety

15-19   severe anxiety

20 and above extremely severe anxiety

Stress Domain:

0-14   normal

15-18   mild stress

19-25   moderate stress

26-33   severe stress

34 and above extremely severe stress

Differential Loneliness Scale:

The Differential Loneliness Scale (DLS) by Schmidt and Sermat (1983) measures the extent to which a person is satisfied or unsatisfied by each of the four specific social relationships called romantic or sexual, friends, relations with family and relations with the extended group or community. The DLS is a 20-item scale with true or false questions. Schmidt and Sermat reported alpha Cronbach's coefficients between 0.89 and 0.92 for the DLS without clarifying the fidelity of the subscales.

Satisfaction with Life Scale:

The Satisfaction with Life Scale (SWLS) was developed to assess satisfaction with the respondent's life as a whole. The scale comprises five statements which are answered on a seven point basis- from strongly agree to strongly disagree.

Scores:

5-9   extreme dissatisfaction.

10-14   dissatisfaction

15-19   below average life satisfaction

20-24   general satisfaction but some areas very much merit improvement

25-29   lives of respondents with this score may not be perfect but things are mostly good.

30-35   high levels of satisfaction.

Rosenberg Self Esteem Scale:

The scale is a ten item Likert scale with items answered on a four point scale- from strongly agrees to strongly disagree. The scale was developed by a prominent sociologist Dr. Morris Rosenberg. The scale measures state self-esteem by asking the respondents to reflect on their current feelings. The RSES presented high ratings in reliability areas, internal consistency was 0.77, minimum coefficient of reproducibility was at least 0.90 (M. Rosenberg, 1965).

Data Analysis:

The collected data was subjected to statistical analysis using the statistical package for the social science (SPSS) software. Spearman correlation coefficient was used to find out if the association between IAT and the variables of psychiatry morbidity like depression, anxiety, stress, loneliness, satisfaction with life and self-esteem was statistically significant. Mann Whitney U test was used to find if the difference between males and females for IAT, depression, anxiety, stress, loneliness, satisfaction with life and self-esteem was statistically significant. The p value of less than or equal to 0.05 was used as a cut off for measuring significance.

Results

Table 1: Socio demographic variables

Socio-demographic Variables		Frequency
Age (Mean & SD)		22.88 ± 0.88
Sex	Male	40
	Female	60
Religion	Hindu	94
	Muslim	4
	Christian	2
	Others	0
Family Type	Nuclear	91
	Joint	9

The mean value of age of the interns was 22.88 with standard deviation of 0.88

Table 2: Purpose of internet usage

Purpose of Internet Usage	Yes	No
Social Network	96	4
News	81	19
Entertainment	91	9
Online chatting	75	25
Online games	27	73
Blogging	8	91

Educational	90	10
E-MAIL	72	28
Others	26	74

All the respondents used internet for more than one purpose with browsing the social networking sites being the most common purpose followed by browsing the web for online entertainment.

Table 3: Internet addiction test (IAT)

		N=100
IAT		**24.88 (Mean) ± 12.71(SD)**
IAT-Cat	Normal	32
	Average Online Users	65
	Occasional / Frequent	3
	Problematic	0

=Mean score on IAT was 24.88 indicating that most (65%) of the respondents were average online users. These scores indicate that users may surf the web a bit too long at times but exercise control over their surfing. Three of the respondents experienced occasional or frequent problems because of their internet usage.

Table 4: Depression and anxiety stress scale

DASS		
DEPRESSION (Mean & SD)		**6.06 ± 5.85**
Depression Categories	Normal	76
	Mild	10
	Moderate	12
	Severe	1
	Extremely Severe	1
ANXIETY (Mean & SD)		**5.82 ± 4.51**
Anxiety Categories	Normal	71
	Mild	12
	Moderate	11
	Severe	5
	Extremely Severe	1
STRESS (Mean & SD)		**9.32 ± 7.08**
Stress Categories	Normal	82
	Mild	7
	Moderate	8
	Severe	2
	Extremely Severe	1

Mean score for DASS in the domain of depression is 6.06 indicating a normal score. Ten among the total number of respondents had mild depression and twelve among the total number of respondents had moderate depression. Two respondents had severe depression. Mean score for DASS in the domain of anxiety was 5.82 indicating a normal score with SD of 4.51. Twelve respondents had mild anxiety, eleven had moderate anxiety, five had severe anxiety & one respondent had

extremely severe anxiety. Mean score for DASS in the domain on stress was 9.32 indicating a normal score with SD of 7.08. Seven respondents had mild stress, eight had moderate stress, two had severe and one had extremely severe stress respectively.

Table 5: Differential loneliness scale (dls)

Domains	Mean	Std Deviation
Romantic / Sexual relationship	2.37	1.43
Friendship	1.53	0.88
Relationship with Family	0.81	0.93
Relationship with larger group	1.54	0.97
Total Score	6.26	2.66

High scores on differential loneliness scale indicate a high degree of loneliness. Highest mean score was observed on the romantic/sexual relationship domain.

Table 6: Satisfaction with life (SWLS) and Rosenberg self-esteem scale (RSES)

SWLS		25.05 ± 6.41
	Extremely Dissatisfied	2
	Dissatisfied	4
	Slightly below average	14
	Average	24
	Satisfied	30
SWLS-Category	Highly satisfied	26
RSES		20.23 ± 4.65

On SWLS four of the respondents were dissatisfied while the remaining two were extremely dissatisfied with their lives. On RSES higher scores indicate greater levels of self-esteem. Mean scores on RSES was 20.23 and standard deviation was 4.65

Table 7: Co relation of internet addiction test (IAT) with depression anxiety and stress scale (DASS)

		Depression	Anxiety	Stress
IAT	Spearman correlation coefficient	0.202^{*}	$**$ 0.377	$**$ 0.259
	Sig.	0.044	0.000	0.009
**. Correlation is significant at the 0.01 level				
*. Correlation is significant at the 0.05 level				

Scores on the IAT correlated positively and significantly with the depression, anxiety, and stress domain scores of the DASS indicating that those with a greater degree of dependence on the internet had more depression, anxiety and stress levels as compared to those with a lesser degree of internet dependence.

Table 8: Co relation of internet addiction test (IAT) with differential loneliness scale (DLS), satisfaction with life scale (SWLS) and Rosenberg self-esteem scale (RSES)

		DLS	SWLS	RSES
IAT	Spearman correlation coefficient	0.238^{*}	-0.075	-0.187

	Sig.	0.017	0.460	0.063
**. Correlation is significant at the 0.01 level				
*. Correlation is significant at the 0.05 level				

No significant correlation was found between scores on the IAT and SWLS and RSES scores, but significant co relation was found between scores on IAT and DLS scores indicating that those with higher dependence on internet had more feelings of loneliness.

Discussion

Present study examines the patterns of internet usage and its association with psychiatric morbidity.

Patterns of Internet Usage and Motivations for Use of Internet

Internet serves as a very attractive medium that contains a large amount of information and can be easily accessed. Previous research has shown that the motivations or common reasons for internet usage include checking mails, accessing news, communicating with friends and families, downloading films and music, chatting with new people, online shopping, blogging and playing online games, information gathering and using chat rooms. [1]

In the present study, the most common reason for using the internet was for browsing Social Networking Sites (SNSs). This was followed by using it for online entertainment. Educational purpose was the third most common reason for using the internet. This was followed by reading news online, online chatting, and playing online games. The less common reasons were using the internet for online shopping, online banking, watching pornography and blogging.

In a study conducted by Maryam Salehi and colleagues, amongst problematic internet users, the common reasons for using the internet were chatting with new people, communicating with friends and families and online gaming. [31] In the present study, there were only three respondents with problematic internet usage. Therefore, we could not correlate problematic internet usage with the reasons for its usage, although the pattern of use was found to be same.

Problematic Internet Usage:

In the present study, mean score on the IAT was 24.88. Sixty-five percent of the respondents were average online users. These scores indicate that users may surf the web a bit too long at times but exercise control over their surfing. 32% of the respondents were normal users. Only 3% of the respondents experienced occasional or frequent problems because of their internet usage. In the previous studies, prevalence rates for problematic internet usage have varied from 1.5% to 8.2%. [5] The prevalence in the United States varies from 0.3% to 0.7% [32]. A major survey of 11 European countries found a prevalence rate of 4.4%. [33]

Psychiatric Morbidity:

PIU has been associated with depression, anxiety, substance use disorders, OCD [34], ADHD [35], sleep disturbance [26], loneliness [22], academic problems [28],personality disorders, psychosis [27] and physical hazards [10]. However, the present study examined the association of internet and social media usage with depression, anxiety, stress, loneliness, life satisfaction and self-esteem.

Depression Anxiety and Stress:

As hypothesized in the milieu of other studies [34,27,21] that those respondents with higher scores on the IAT would have greater levels of depression, anxiety and stress. As hypothesized, scores on the IAT correlated positively and significantly with

the depression, anxiety, and stress domain scores of the DASS indicating that those with a greater degree of dependence on the internet had more depression, anxiety and stress levels as compared to those with a less degree of internet dependence. In a study, Young reported that depression was significant factors in the development of Pathological Internet Use. [20] Studies have also established a bidirectional relationship between depression and problematic internet usage.

Black et al. found that the lifetime prevalence of mood disorder and major depression was 33% and 15% respectively in those with problematic internet use.[27] In the present study, 12% of the respondents had mild anxiety, 11% had moderate anxiety, 5% had severe anxiety and only 1% had extremely severe anxiety. These findings are similar to those of previous studies. [21]

These results suggest that those respondents with higher anxiety and stress levels are more likely to indulge in excess use of the internet and other social media including Facebook and WhatsApp. This could be because these media are used as a method of coping with stress and reducing anxiety. On the other hand, excess use of these platforms can lead to higher anxiety and stress levels as more time is spent in the use of these platforms with the consequent neglect of other social activities.

Life Satisfaction:

As hypothesized in the milieu of other studies [36,24] that respondents with higher scores on the IAT would have lesser life satisfaction. However, in the present study no significant correlation was found between scores on the IAT and SWLS scores. These findings are different from the previous studies which have found that respondents with problematic internet usage had lower life satisfaction. It is possible that people with lesser life satisfaction seek out more social platforms

as these platforms ensure instant gratification. This may be the reason why those respondents who had greater dependence on social media like Facebook and WhatsApp had lesser life satisfaction.

Loneliness:

As hypothesized in the milieu of other studies [22] respondents with high scores on IAT correlated significantly with DLS scores indicating that those with greater dependence on internet had greater feelings of loneliness.

Self Esteem:

As hypothesized in the milieu of a study [25], those respondents with higher scores on IAT would have lower self-esteem levels. No significant correlation was found between scores on IAT and BFAS with self-esteem levels. These findings are different from those of previous studies which have found lower self-esteem levels in respondents with problematic internet use. [37]

Conclusion

This study in medical interns suggest that the most common reason for using internet is browsing social networking sites and for online entertainment. Problematic internet use in medical interns is associated with higher scores on questionnaires investigating depression, anxiety, stress, loneliness and lower scores on questionnaires investigating satisfaction with life and self-esteem.

Limitation

1) No control population was used. Attempting to study psychiatric morbidity among a control population not using internet and various social media would have given a clearer picture.

2) Only single point assessment of the possible psychopathologies was done.

3) The findings of the result cannot be generalized as a specific group

(medical interns) was selected.

4) The study was limited by a small sample size.

Conflict of interest: There is no conflict of interest in this study.

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