# Original Article

# Technology Addiction among Treatment Seekers for Psychological Problems: Implication for Screening in Mental Health Setting

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ABSTRACT

**Background:** Technology usage has seen an increase among users. The usage varies from social, personal, and psychological reasons. Users are frequently using to overcome mood states as well as to manage the other psychological states. This work is going to explore the information technology use among subjects with a psychiatric disorder. **Materials and Methods:** A total of 75 subjects were assessed using background data sheet, internet addiction impairment index, video game use pattern, pornography addiction screening tool and screening for mobile phone use, from in-patient and out-patient setting of tertiary mental health setting. **Results:** It showed the presence of addiction to mobile, internet, video game, and pornography. Age was found to be negatively correlated with this addiction. Average usage time had been associated with management of mood states. The addiction to information technology had been associated with a delay in initiation of sleep. **Conclusion:** This work has implication for screening technology addiction among subjects seeking treatment for psychological problems and motivate them to develop the healthy use of technology.

**Key words:** *Addiction, information technology, mental health*

## INTRODUCTION

With the growth of the Internet use over the last two decades, there has been an increase in its usages as well as in the frequency of experienced dysfunctions related to its overuse. Users report loss of control over their Internet use, social problems as well as school and/or occupational difficulties.[1,2] Public health concerns are emerging concerning the propensity of compulsive Internet use developing into pathological behaviors.[3] About 20% and 33% of Internet users engage in some form of online sexual activity.[4] Nearly 80% of online gamers are losing out at least one element of their lives, such as sleep, work, education, socializing with friends,

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family, and interaction with a partner. The younger the players, the longer the time they dedicated to playing online games, leading to further functional impairment in their lifestyle.[5] The excessive use is also associated with the presence of psychological problems.[6] Poor coping and cognitive expectations also mediate the development of the excessive use of internet if other risk factors are present such as depression, social anxiety, low self-esteem, low self-efficacy, and high stress.[7] Depression, social phobia, hostility, and symptoms of ADHD are seen as comorbid condition to problematic internet use.[3,8] Individuals with social anxiety reported a greater feeling of comfort and self-disclosure when socializing online compared to face-to-face communication.[9] About 8% of the pathological users used the internet to meet new people for emotional support and to play interactive games.[10] About 9% of the clinical subjects ($n$ = 300) have problematic usage of social networking sites.[11]

In previous studies conducted in the Indian context has shown problematic to the addictive use of technology. The majority of the subjects had psychological distress as the comorbid condition. Users were also using information technology to manage their psychological distress, to avoid a stressful situation, and way of managing boredom. There is a dearth of information about the pattern of technology use among the psychiatric population as well as its relationship with other sociodemographic variables.

## MATERIALS AND METHODS

### Aim

To explore the information technology use among subjects with psychiatric disorder.

### Study design

Survey method was used to recruit 75 subjects (male/female) from the in-patient and out-patient psychiatric setting of National Institute of Mental Health and Neurosciences, Bengaluru, Karnataka with inclusion criteria of age range of 16 years and above, using internet for the minimum duration of 1 year and ability to read and write English. Subjects with active psychopathology, illiterate, and unwillingness to participate were excluded from the study.

### Tools

Background data sheet developed by the investigator to record sociodemographic details which covers age, sex, socioeconomic status, education, occupation religion, marital status and type of family, details of the psychiatric illness (as per file diagnosis as per International Classification of Diseases-10 [ICD-10] or Diagnostic and Statistical Manual of Mental Disorders criteria) such as duration of illness, nature and course of illness, treatment taken, and premorbid personality traits. information related to technology use, the age at which individual starts using it, type of information technology used, reason to start using information technology, frequency of use, sites accessed, currently accessed sites, individual/group activities, duration of use, having smart phone with internet, availability at home, purpose of using information technology, situation associated with the use of information technology, any history of attempt to reduce the usage of information technology, perception about the usage, relationship of coping (to manage boredom, emotional state etc.)/psychiatric condition with technology use as well as for seeking health information, type of activity; impact of technology use on one's life, care giver perspective and need for change.

Internet addiction impairment index is a twenty items questionnaire based on 5-point Likert scale to assess addiction to internet.[12,13] Internet addiction impairment index can be utilizing to help classify the behavior regarding mild-moderate and severe impairment. The scale covering the degree to which their internet use affecting their daily routine, social life productivity, sleeping pattern, and feelings. Minimum score on this scale is twenty and maximum is 100. The scale showed moderate to good internal consistency. It was validated by its personal and general internet usage.

Video game use patterns, to assess individuals video game use pattern in 9-item scale with two self-reported assessment of video game using pattern, and the emotional distress associated with it.[5]

**Table 1: Sociodemographic information of the sample**

| Variable | | |
|---|---|---|
| Age | | |
| Mean | 26.57 | |
| SD | 6.50 | |
| | **Frequency** | **Percentage** |
| Gender | | |
| Male | 45 | 60.00 |
| Female | 30 | 40.00 |
| Marital status | | |
| Married | 17 | 22.67 |
| Unmarried | 57 | 76.00 |
| Divorced | 1 | 01.33 |
| Education | | |
| Secondary | 16 | 21.33 |
| Higher secondary | 21 | 28.00 |
| Technical | 4 | 05.33 |
| Graduation | 23 | 30.66 |
| Postgraduation/professional | 11 | 14.67 |
| Residence area | | |
| Rural | 27 | 36.00 |
| Urban | 48 | 64.00 |

SD – Standard deviation

Pornography addiction screening tool is a twenty items questionnaire based on 5-point Likert scale to assess addiction to pornography and online sexual behavior.[14]

**Table 2: Frequencies and percentages of subjects with psychiatric diagnosis according to International Classification of Diseases-10 (F-code)**

| Primary diagnosis | Categories | Frequency | Percentage |
|---|---|---|---|
| Alcohol dependence syndrome | F10.2 | 7 | 9.3 |
| Cannabinoids dependence syndrome | F12.2 | 1 | 1.3 |
| Mental and behavioral disorders due to use of volatile solvent | F18 | 1 | 1.3 |
| Mental and behavioral disorders due to multiple drug use and use of other psychoactive substances | F19 | 1 | 1.3 |
| Schizophrenia | F20.0 | 8 | 10.7 |
| Undifferentiated schizophrenia | F20.3 | 3 | 4.0 |
| Schizophrenia, unspecified | F20.9 | 1 | 1.3 |
| Schizotypal disorder | F21 | 2 | 2.7 |
| Unspecified nonorganic psychosis | F29 | 2 | 2.7 |
| Bipolar affective disorder, current episode hypomanic | F31.0 | 1 | 1.3 |
| Bipolar affective disorder, current episode manic without psychotic symptom | F31.1 | 1 | 1.3 |
| Bipolar affective disorder, current episode manic with psychotic symptoms | F31.2 | 5 | 6.7 |
| Bipolar affective disorder, current episode severe depression without psychotic symptoms | F31.4 | 1 | 1.3 |
| Bipolar affective disorder, currently in remission | F31.7 | 1 | 1.3 |
| Depressive episode without somatic syndrome | F32 | 2 | 2.7 |
| Mild depressive episode without somatic syndrome | F32.1 | 1 | 1.3 |
| Severe depressive episode without psychotic symptoms | F32.2 | 2 | 2.7 |
| Recurrent depressive disorder, current episode severe with psychotic symptoms | F33.3 | 3 | 4.0 |
| Agora phobia without panic attack | F40.0 | 1 | 1.3 |
| Anxiety disorder, unspecified | F41.9 | 2 | 2.7 |
| OCD predominantly obsessional thoughts or ruminations | F42.0 | 3 | 4.0 |
| OCD mixed obsessional thoughts and acts | F42.2 | 8 | 10.7 |
| Adjustment disorder | F43.2 | 1 | 1.3 |
| Dissociative amnesia | F44.0 | 3 | 4.0 |
| Dissociative motor disorders | F44.4 | 1 | 1.3 |
| Schizoid personality disorder | F60.1 | 3 | 4.0 |
| Dissocial personality disorder | F60.2 | 2 | 2.7 |
| Emotionally unstable personality disorder | F60.3 | 1 | 1.3 |
| Anxious (avoidant) personality disorder | F60.6 | 2 | 2.7 |
| Mixed personality disorders | F61.0 | 1 | 1.3 |
| Unspecified mental disorder | F99 | 2 | 2.7 |
| | Total | 75 | 100.0 |

OCD – Obsessive-compulsive disorder

Screening for mobile phone use evolved screening questions developed for ICMR funded behavioral addiction project will be used.[15] It has domains of control, compulsion, craving, and consequences. It has content validity. These domains are used for screening mobile phone addiction. Score of three and above indicate excessive to addictive use of technology.

## Procedure

Subjects were taken from the in-patient/out-patient psychiatric setting of NIMHANS Bengaluru, Karnataka. Prior consent was obtained from the concerned treating team as well as from the user. The process and objectives of the study were explained to the patients and informed consent was sought. Confidentiality of the information was assured. The sociodemographic information were filled as per the information given by the patient and care givers as well as from the case file. The internet addiction questionnaire, video game use pattern questionnaire, Facebook intensity questionnaire, pornography addiction test, and screening questionnaire for mobile phone addiction were administered in individual setting.

## Statistical analysis

The data were coded for the computer analysis and Statistical Package for Social Science 16.0 version (2008) was used to carry out the analysis of the quantitative data. Descriptive statistics such as mean, standard deviation percentage, and frequencies were used to analyze the demographic data as well as the details of psychiatric condition. Pearson's product moment correlation was computed to examine the association between the variables. Pearson's Chi-square test was computed to examine the significance of the relation among the variables. All the figures have been rounded off to two decimal places and for the level of

**Table 3: Pattern of information technology addiction among sample**

| Types of addiction | Frequency | Percentage |
|---|---|---|
| Mobile phone addiction | | |
| Score of 3 and above | 14 | 18.67 |
| Internet addiction | | |
| Mild | 9 | 12 |
| Problematic | 12 | 16 |
| Severe | 0 | 0 |
| Total | 21 | 28 |
| Pornography addiction | | |
| Proneness to addiction | 6 | 8 |
| High risk to addiction | 5 | 6.67 |
| Addicted to pornography | 3 | 4 |
| Total | 14 | 18.67 |
| Video game addiction | 11 | 14.67 |

significance probability level of 0.05 and 0.01 are used.

**Table 4: Pattern of duration of psychiatric illness and premorbid personality of sample**

| Duration of the psychiatric illness | In years | |
|---|---|---|
| Mean | 6.400 | |
| Median | 5.000 | |
| Mode | 2.0 | |
| SD | 4.8463 | |
| Minimum | 0.5 | |
| Maximum | 21.0 | |
| **Premorbid personality** | **Frequency** | **Percentage** |
| Well adjusted (without any personality disorder traits) | 38 | 50.67 |
| Difficult to adjust and individuals with personality disorder traits (like anxious, impulsive, eccentric dramatic traits, and with difficult childhood temperament) | 37 | 49.33 |

SD – Standard deviation

## RESULTS

The mean age of the sample was 26.67 with the standard deviation of 6.5. The age distribution was 16 years to 40 years. The sample had 45 males (60%) and 30 females (40%). 17 were married (22.67%), 57 were unmarried (76%), and 1 was divorced (1.33%). All the subjects had 10 and more year of education. 36% were from the rural area and the 64% were from the urban area [Table 1].

Table 2 shows the diagnosis of the sample population and its frequency, 32 different diagnoses in different frequencies were taken. The diagnosis was made according to the ICD 10 criteria. Frequency and percentage vary significantly in every category. Percentage of a pattern of psychiatric illness was from 1.3% to 10.7%.

**Table 5: Relationship between average time using for the internet per day and the situations associated with the usage of internet**

| | Situations of internet use (%) | | | | Total (%) | Pearson Chi-square value | *P* |
|---|---|---|---|---|---|---|---|
| | To feel good | Avoid negative emotions | As cooping | Others | | | |
| Average time spending on internet per day | | | | | | | |
| <30 min | | | | | | 44.866 | 0.000** |
| *n* | 15 | 0 | 0 | 17 | 32 | | |
| Average time | 46.9 | 0.0 | 0.0 | 53.1 | 100.0 | | |
| Situations | 34.1 | 0.0 | 0.0 | 94.4 | 42.7 | | |
| 30 min<1 h | | | | | | | |
| *n* | 4 | 0 | 0 | 1 | 5 | | |
| Average time | 80.0 | 0.0 | 0.0 | 20.0 | 100.0 | | |
| Situations | 9.1 | 0.0 | 0.0 | 5.6 | 6.7 | | |
| 1<2 h | | | | | | | |
| *n* | 5 | 3 | 0 | 0 | 8 | | |
| Average time | 62.5 | 37.5 | 0.0 | 0.0 | 100.0 | | |
| Situations | 11.4 | 27.3 | 0.0 | 0.0 | 10.7 | | |
| 2<3 h | | | | | | | |
| *n* | 3 | 0 | 0 | 0 | 3 | | |
| Average time | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 | | |
| Situations | 6.8 | 0.0 | 0.0 | 0.0 | 4.0 | | |
| 3<5 h | | | | | | | |
| *n* | 4 | 1 | 1 | 0 | 6 | | |
| Average time | 66.7 | 16.7 | 16.7 | 0.0 | 100.0 | | |
| Situations | 9.1 | 9.1 | 50.0 | 0.0 | 8.0 | | |
| 5<7 h | | | | | | | |
| *n* | 3 | 3 | 0 | 0 | 6 | | |
| Average time | 50.0 | 50.0 | 0.0 | 0.0 | 100.0 | | |
| Situations | 6.8 | 27.3 | 0.0 | 0.0 | 8.0 | | |
| 7 h< | | | | | | | |
| *n* | 10 | 4 | 1 | 0 | 15 | | |
| Average time | 66.7 | 26.7 | 6.7 | 0.0 | 100.0 | | |
| Situations | 22.7 | 36.4 | 50.0 | 0.0 | 20.0 | | |
| Total | | | | | | | |
| *n* | 44 | 11 | 2 | 18 | 75 | | |
| Average time | 58.7 | 14.7 | 2.7 | 24.0 | 100.0 | | |
| Situations | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | | |

** $P<0.01$

Table 3 indicates the presence of addiction for mobile phone (18.67%), internet addiction (16%), pornography (4–6.67%), and video games (14.67%).

Table 4 shows the duration of illness of the sample ($n$ = 75), varies from 6 months to 21 years, and the mean is 6.4 years with the standard deviation of 4. 85 years. About 49.33% had personality characterized by difficulty in adjustment and personality traits.

**Table 6: Relationship between internet addiction and sleep (delay in the initiation of sleep)**

| | Sleep (%) | | Total | Pearson Chi-square value | *P* |
|---|---|---|---|---|---|
| | Affected | Not affected | | | |
| Internet addiction | | | | | |
| Mild | | | | 8.191 | 0.017** |
| *n* | 10 | 44 | 54 | | |
| Internet addiction | 18.5 | 81.5 | 100.0 | | |
| Sleep | 50.0 | 80.0 | 72.0 | | |
| Moderate | | | | | |
| *n* | 3 | 6 | 9 | | |
| Internet addiction | 33.3 | 66.7 | 100.0 | | |
| Sleep | 15.0 | 10.9 | 12.0 | | |
| Severe | | | | | |
| *n* | 7 | 5 | 12 | | |
| Internet addiction | 58.3 | 41.7 | 100.0 | | |
| Sleep | 35.0 | 9.1 | 16.0 | | |
| Total | | | | | |
| *n* | 20 | 55 | 75 | | |
| Internet addiction | 26.7 | 73.3 | 100.0 | | |
| Sleep | 100.0 | 100.0 | 100.0 | | |

Level of significance $^{**}P<0.01$

Table 5 shows that 58.7% of individuals in the overall sample reported that they were spending more time with information technology to "feel good." 14.7% were using to avoid any negative emotions, 2.7% (2 people) were using to cope with the situations and the 24% of the total sample spending time for other purposes like to get general information or as the part of career and academics. Use of information technology to avoid negative emotions/as a method of coping was more among users who had a 5 h or more usage per day.

Table 6 shows that disturbance of sleep was (delay in initiation of sleep) more in moderate to severe category of use.

Table 7 shows that age had negative correlation with the duration of the illness, the average time spending on internet, internet addiction, mobile addiction, video game use, and pornography addiction. Duration of illness did not have any significant association with technology addiction. Average time spending per day on the internet showing a positive correlation with the mobile phone, Internet, videogame, and pornography addiction. Mobile phone addiction had significant positive correlation with internet, video game use, and pornography addiction. Internet addiction had a positive correlation with the video game addiction and pornography addiction.

## DISCUSSION AND CONCLUSIONS

This study indicates the trend toward the presence

**Table 7: Correlation between different sociodemographic variables and internet addiction**

| | Age | Duration of illness | Average time spending internet | Mobile phone addiction | Internet addiction | Video game use pattern | PAST |
|---|---|---|---|---|---|---|---|
| Age | | | | | | | |
| Correlation | 1 | 0.428** | −0.391** | −0.332 | −0.494** | −0.399** | −0.334* |
| Significant (two-tailed) | | 0.000 | 0.001 | 0.259 | 0.000 | 0.007 | 0.043 |
| Duration of illness | | | | | | | |
| Correlation | | 1 | −0.077 | −0.118 | −0.163 | −0.036 | 0.048 |
| Significant (two-tailed) | | | 0.509 | 0.312 | 0.162 | 0.761 | 0.683 |
| Average time spending on internet | | | | | | | |
| Correlation | | | 1 | 0.484** | 0.839** | 0.674** | 0.553** |
| Significant (two-tailed) | | | | 0.000 | 0.000 | 0.000 | 0.000 |
| Mobile phone addiction | | | | | | | |
| Correlation | | | | 1 | 0.680** | 0.340** | 0.374** |
| Significant (two-tailed) | | | | | 0.000 | 0.003 | 0.001 |
| Internet addiction | | | | | | | |
| Correlation | | | | | 1 | 0.621** | 0.559** |
| Significant (two-tailed) | | | | | | 0.000 | 0.000 |
| Videogame use | | | | | | | |
| Correlation | | | | | | 1 | 0.272* |
| Significant (two-tailed) | | | | | | | 0.018 |
| PAST | | | | | | | |
| Correlation | | | | | | | 1 |
| Significant (two-tailed) | | | | | | | |

**Correlation is significant at 0.01 level; *Correlation is significant at 0.05 level. PAST – Pornography Addiction Screening Tool

of addiction to the mobile phone (18.67%), internet addiction (16%), pornography (4–6.67%), and video games (14.67%) among subjects seeking treatment for psychiatry problems [Table 3]. Age has a negative correlation with internet addiction, video game addiction mobile addiction, and pornography. A similar trend has been seen in other studies. The mean age of the sample was 26.67 with the standard deviation of 6.5 [Tables 1 and 7]. Duration of illness of the sample ($n$ = 75), varies from 6 months to 21 years, and the mean is 6.4 years with the standard deviation of 4. 85 years. 49.33% had personality characterized by difficulty in adjustment and personality traits [Table 4]. Use of information technology was seen to avoid negative emotions/as a method of coping was more among users who had a 5 h or more usage per day [Table 5]. Moderate to the severe use of information technology was associated with a delay in initiation of sleep [Table 6]. Age had negative correlation with the duration of the illness, the average time spending on internet, internet addiction, mobile addiction, video game use, and pornography addiction. Duration of illness did not have any significant association with technology addiction. Average time spending per day on the internet showing a positive correlation with the mobile phone, internet, videogame, and pornography addiction (VII). A similar trend was corroborated by other studies. Internet addiction was seen more commonly among young people.[16] Internet addiction is emerging as a major lifestyle issue among 12–18 age groups.[17] individuals belonging to the age group of 20–29 used the internet more, while internet addiction scores of the individuals belonging to the group of 19 and below was higher than other groups and that this situation varied according to gender.[18] Problematic internet use showed the correlation of 75% with depression; 57% with anxiety, 100% with symptoms of ADHD; 60% with obsessive-compulsive symptoms and 66% with hostility/aggression. Problematic internet use has association with depression and ADHD.[3] The adolescents who play more than 1 h of console or Internet video games may have more or more intense symptoms of ADHD or inattention than those who do not.[19]

People with low self-esteem, self-efficacy, and vulnerability to stress are more prone to have a general internet addiction.[7] Boredom proneness is seen as an important factor for increasing online sexual activities gaming.[20,21] Sleep deprivation seems to be one of the major problematic effect of internet addiction and late night logins.[22,23]

The present work documents the presence of information technology addiction among subjects with psychiatric problems. Addiction to internet and pornography is also associated with delay in the initiation of sleep. Although the obtained prevalence is low in comparison to international prevalence, it can be addressed in a large sample study. The present communication gave trend toward association of age/average time spent per day with addiction to information technology; use of information technology as a coping method. It has limitations in the form of the absence of corroboration from the caregivers. The present work has implications in term of screening the technology addiction as comorbid condition among the psychiatric population. The future work can focus on exploring the psychosocial correlates among subjects with psychological problems, caregiver issues related to the handling of addictive use of information technology as well as evolving the intervention for the promotion of the healthy use of technology.

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**Conflicts of interest**
There are no conflicts of interest.

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