Original Article

Technology Addiction Survey: An Emerging Concern for Raising Awareness and Promotion of Healthy Use of Technology

Manoj Kumar Sharma, Girish N. Rao[1], Vivek Benegal[2], K. Thennarasu[3], Divya Thomas[4]

ABSTRACT

Background: Technology use has shown an impact of users' lifestyle. The use has been attributed to psychosocial reasons. This usage manifests as excessive to addictive use of technology. There is a need to explore its addictive potential on large sample study as well as its association with psychosocial variables. It is one of its kind study on wider age group. The present work assessed the magnitude, burden, and sociodemographic correlates of technology addiction in an urban community. **Materials and Methods:** A total of 2755 individuals (1392 males and 1363 females) in the age group of 18–65 years were approached for screening internet addiction and mobile overuse, using house-to-house survey methodology. **Results:** The survey indicated the presence of addiction for 1.3% for internet (2% males and 0.6% females) and mobile phone overuse (4.1%–2.5% males and 1.5% females). It was more common among males. Significant differences were observed in relation to family status for internet and mobile phone use more commonly among single/nuclear families. Technology addictions were found to be more common among single families and lesser in nuclear and joint families. Mobile phone users had psychiatric distress in comparison to users with internet addiction. The study showed negative correlation of age, years of marriage, and numbers of family members with internet addiction and mobile overuse. **Conclusions:** It has implication for raising awareness about addictive potential of technology and its impact on one's lifestyle.

Key words: *Addiction, distress, internet, mobile, psychosocial*

INTRODUCTION

Uncertainty and instability are frequently the norm in today's life. This unpredictability leads to an increased level of discomfort and distress among people as they try to accomplish their day-to-day objectives and achieve

Department of Clinical Psychology, Service for Healthy Use of Technology Clinic, NIMHANS, [1]Centre for Public Health, NIMHANS, [2]Centre for Addiction Medicine, NIMHANS, Departments of [3]Biostatistics and [4]Clinical Psychology, NIMHANS, Bengaluru, Karnataka, India

Address for correspondence: Dr. Manoj Kumar Sharma
Department of Clinical Psychology, Service for Healthy Use of Technology Clinic, NIMHANS, Hosur Road, Bengaluru - 560 029, Karnataka, India.
E-mail: shutclinic@gmail.com

their professional goals. It has further contributed to the use of technological devices such as internet, video game, online chatting, exercise, sex, shopping, and gambling to manage day-to-day activities as well as their mood states. Technology addiction (also called process addiction or "nonsubstance-related addiction.") is a recurring compulsion by an individual to engage in some specific activity, despite harmful consequences, as deemed by the user himself/herself to his/her individual health, mental state, or social life.[1] About 1.5 million people, i.e., 3% of the German population, were believed to be at risk of internet addiction.[2] The rate of problematic internet use in Italian adolescents was 5.4%[3] and 18.3% in pathological internet users among British.[4] Among teenagers aged 13–18 years, 10.2% used the internet moderately and 6% was severely addicted to internet,[5] 5% were compulsive buyers in the U.S.,[6] 8% reported lifetime internet gambling, 3.6% reported weekly online gambling,[7] 70% of all adult content traffic occurs during the 9-to-5 working day timing, and the adult sites were the fourth most visited category while at work,[8,9] while 5% of the workforce struggles with problems related to sexual compulsivity. Among them, 80% were male.[10] Nearly 20% of men and 12% of women reported using the internet at work for sexual pursuits.[11] The prevalence of internet use at workplace reported to be as low as 1% and as high as 39%.[12] Mood disorders (72%), anxiety disorders (38%), and substance abuse (40%) were most frequently observed in patients with sexual addictions.[13]

In Indian context, 5% of youth in the age group of 18–25 years have addictive use of social networking sites and 24% have problematic usage of internet.[14,15]

There is a need to assess the magnitude of technology addiction on a large sample with wider age group in Indian context. Since it was the first of its kind work in India, the present study had focused on the assessment of magnitude and sociodemographic correlates of technology addiction in an urban community.

MATERIALS AND METHODS

Aim
The study aimed to assess the magnitude of technology addiction and its relationship with psychosocial variables

Sample
A total of 2755 individuals (1392 males and 1363 females) in the age group of 18–65 years were approached for the house-to-house survey. The participants with an inability to read and write English or regional language and unwillingness to participate were excluded from the study.

Tools
- Sociodemographic profile data sheet: It was prepared by the researcher for collecting sociodemographic information on psychosocial variables related to technology addiction
- Internet addiction test: It is a 20-item questionnaire-based test on 5-point Likert scale to assess addiction to internet. The test had moderate-to-good internal consistency. It was validated by personal and general internet usage[16,17]
- Mobile involvement questionnaire: It is an 8-item questionnaire to assess the pattern of mobile use. Each item was assessed using Likert scale, the maximum score was 56. Scoring suggests that higher the score, higher the use in the present study; based on this pilot work, score of 40 and above was taken as overusers[18]
- General Health Questionnaire – 5: This is a screening tool with validity of sensitivity of 86% and specificity of 89% with a cutting point of 2.[19]

Procedure
A total of 2755 individuals (1392 males and 1363 females) in the age group of 18–65 years (18–20; 21–25; 26–30; 31–35; 36–40; 41–45; 46–50; 51–55; 56–60; and 61-65) were approached for administration of schedule in this house-to-house survey for screening internet addiction and use of Facebook from urban localities chosen based on the representative group of socioeconomic status in East Bengaluru, Karnataka, India. During the initial phase, there were many rejections from the participants. They were approached again and explained about the need of the study. At least three attempts were made to develop contact with the residents before they were considered as dropout. The present study had obtained NIMHANS Institute's Ethic Committee's approval.

Statistical analysis
All the nominal and ordinal measures were analyzed using the suitable statistical procedure such as frequency and percentage. Comparative analysis was carried out by Pearson's correlation coefficient, subgroup analysis; ANOVA and Chi-square test were also carried out.

RESULTS

2755 individuals were enrolled for the exploration of technology addictions from the urban localities of East Bengaluru, India. The mean age of the sample was 36.48 years, with standard deviation (SD) of 12.999. The maximum percentage of sample was in the age range of 18–20 years. Nearly 50.5% of the participants were males and 49.5% were females.

Sample includes single (7.5%), married (66.7%) widowed (5.1%), and divorced or separated (0.6%) members. Among the married members, the mean

for years of marriage was 10.452, with SD of 11.67854; all members had education level above higher secondary/preuniversity education. Only 9.9% of the members had primary education. About 1051 participants reported that they are using Facebook as social network media with a mean of 20.48.

Table 1 shows the observed technology addictions with 1.3% for internet (2% males and 0.6% females) and cell phone (4.1%–2.5% males and 1.5% females).

Table 2 shows significant difference among males and females with respect to age, years of marriage, health aspects, mobile phone use, internet addiction, and Facebook usage with $P = 0.001$. Males had high mean scores than females for these addictions.

Table 3 reflects the pattern of behavioral addiction across family status: single > nuclear > single parenting > joint; mobile overuse: single > nuclear > joint.

Table 4 indicates the significant difference among family pattern in relation to psychiatric distress, internet addiction, and mobile phone use.

Table 5 indicates the presence of psychiatric distress among mobile phone users.

Table 6 refers to negative correlation of age, years of marriage and numbers of members in the family with internet addiction and mobile overuse.

Qualitative data indicated that 3.3% of internet users and 5% of mobile users of surveyed population showed motivation to change their pattern of use. Almost 6.8% of mobile overusers and 5.3% with internet addiction had psychiatric distress.

DISCUSSION AND CONCLUSIONS

This study reports the presence of addiction for internet (1.3%–2% males and 0.6% females) and cell phone (4.1%–2.5% males and 1.5% females) [Table 1]. A total of 1051 participants reported that they are using Facebook as social network media with a mean of 20.48. It was more common among males [Table 2]. Significant differences were observed in relation to family status for internet and mobile phone use with more common among single/nuclear families. Technology addictions were found more common among single families and lesser in nuclear and joint families [Tables 3 and 4]. Mobile phone users had psychiatric distress in comparison to users with internet addiction [Table 5]. The study showed negative correlation of age,

Table 1: Frequency of technology addiction

Items	Frequency	Percentage
Internet addiction	36/2754	1.3 (2% males and 0.6% females)
Cell phone overuse	111/2754	4.1 (5% males and 3.1% females)

Table 2: Pattern of behavioral addiction and gender

Variables	Female			Male			F	Significance
	Mean	SD	*n*	Mean	SD	*n*		
Age	36.97	13.646	1363	36.49	12.255	1392	3.717	0.054
Years of marriage	11.8924	11.5701	1363	10.4559	11.6186	1392	41.425	0.00
GHQ-total	0.74	1.17	1363	0.68	1.338	1392	6.046	0.014
Mobile phone addiction	1.25	3.757	1363	1.74	2.96	1392	56.47	0.00
Internet addiction	0.57	2.884	1363	1.02	1.848	1392	91.669	0.00
Monthly expense for mobile phone	287.79	684.253	1157	392.27	352.464	1392	79.098	0.00

SD – Standard deviation; GHQ – General Health Questionnaire

Table 3: The percentages scores between family pattern and technology addictions

Addictions	Total, *n* (%)	Family status			
		Nuclear, *n* (%)	Single, *n* (%)	Joint, *n* (%)	Single parenting, *n* (%)
Internet	36 (1.3)	25 (1.3)	3 (2.1)	7 (1.1)	1 (1.8)
Mobile	110 (4)	81 (4.2)	6 (4.3)	23 (3.7)	0

Table 4: The association between family pattern, psychiatric distress, and technology addictions

Tests	Family status									
	Nuclear		Single		Joint		Single parenting		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	*n*	F	Significance
GHQ total	0.66	1.215	0.8	1.364	1.63	1.959	0.68	1.258	2755	14.1	0.000
Internet addiction	2.31	3.456	0.99	2.359	1.36	2.799	1.02	2.468	2755	14.2	0.000
Mobile phone use	17.64	10.689	8.24	8.844	9.36	10.199	9.78	9.821	2755	36.43	0.000

SD – Standard deviation; GHQ – General Health Questionnaire

Table 5: Association between technology addictions and health aspects

Variable Addictions	Health aspects		Total	Significance level
	Distress absent	Distress present		
Mobile phone				
Present	3.5% (79)	6.8% (33)	4.1% (112/2755)	0.001
Absent	96.5% (2190)	93.2% (453)	95.9% (2653)	
Internet				
Present	1.3% (30)	1.2% (6)	1.3% (36/2755)	0.545
Absent	98.7% (2239)	98.8% (480)	98.7% (2719)	

Table 6: The correlation of different sociodemographic variables and technology addictions

Variables	Correlation	Mobile	Internet
Age	Pearson's correlation	−0.257**	−0.261**
Years of marriage	Pearson's correlation	−0.231**	−0.254**
Number of members in house	Pearson's correlation	−0.059**	−0.054**

**.001 and *.05

years of marriage, and number of members in the family with internet addiction and mobile overuse [Table 6].

Qualitative data indicated that 3.3% of internet users and 5% of the mobile users of surveyed population showed motivation to change their pattern of use. Nearly 2.1% of internet users and 4.1% of mobile users showed their intention to change the monthly expenses for the same. Almost 6.8% of mobile overusers and 5.3% with internet addiction had psychiatric distress.

It was corroborated by the available work that 24.6% of problematic users in the age group of 18–25 years have psychiatric distress.(14) Whereas 5% of youth in the same age group has addictive use of social networking sites.[15] A study among 3399 Norwegian adults in the age group of 16–74 years reported the prevalence of internet addiction as 1.0% and an additional 5.2% were at-risk internet users. Internet addiction and at-risk internet use were strongly dependent on gender and age with highest prevalence among young males.[20] Dependent internet users included larger proportion of men than women (71% men and 29% women) than the nondependent users.[21] Males were more likely to be pathological users (12% vs. 3%) than females, whereas females were more likely to have no symptoms (28% vs. 26%) or have limited symptoms (69% vs. 61%) of behavioral pathology than males.[22] Internet addiction was more common among men than women.[23] The youth in the age group of 18–21 years reported loss of control in relation to usages of social networking.[24] Treatment seeker for mental health problems at a tertiary hospital had comorbid addiction to mobile, internet, video game, and pornography.[25]

This study documents the presence of technology addiction in the Indian community. It has implications for studying the pattern of technology addictions and evolving program for enhancing community awareness at school/college/community level and preparation of resource materials on technology addiction.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Young K. Internet addiction: The emergence of a new clinical disorder. Cyberpsychol Behav 1996;3:237-44.
2. Wölfling K, Bühler M, Leménager T, Mörsen C, Mann K. Gambling and internet addiction: Review and research agenda. Nervenarzt 2009;80:1030-9.
3. Pallanti S, Bernardi S, Quercioli L. The shorter PROMIS questionnaire and the internet addiction scale in the assessment of multiple addictions in a high-school population: Prevalence and related disability. CNS Spectr 2006;11:966-74.
4. Niemz K, Griffiths M, Banyard P. Prevalence of pathological Internet use among university students and correlations with self-esteem, the General Health Questionnaire (GHQ), and disinhibition. Cyberpsychol Behav 2005;8:562-70.
5. Lam LT, Peng ZW, Mai JC, Jing J. Factors associated with Internet addiction among adolescents. Cyberpsychol Behav 2009;12:551-5.
6. Goodman A. Neurobiology of addiction. An integrative review. Biochem Pharmacol 2008;75:266-322.
7. Ladd GT, Petry NM. Disordered gambling among university-based medical and dental patients: A focus on internet gambling. Psychol Addict Behav 2002;16:76-9.
8. Branwyn G. How the Porn Sites Do It. The Industry Standard; 1999. Available from: http://www.thestandard.net. [Last retrieved and Last accessed on 2011 Aug 01].
9. Goldberg A. Monthly Users Report on MSNBC for April 1998. Washington, DC: Relevant Knowledge; 1998.
10. Delmonico DL. Reflections from corporate America: One view on compulsive sexual behavior in the workplace. Sex Addict Compulsivity 2002;9:167-71.
11. Cooper A, Scherer C, Boies SC, Gordon B. Sexuality on the internet: From sexual exploration to pathological expression. Prof Psychol Res Pr 1999;30:154-67.
12. Ames GM, Grube JW, Moore RS. The relationship of drinking and hangovers to workplace problems: An empirical study. J Stud Alcohol 1997;58:37-47.
13. Kafka MP, Hennen J. A DSM-IV Axis I comorbidity study of males (n=120) with paraphilias and paraphilia-related disorders. Sex Abuse 2002;14:349-66.
14. Shyam HR, Sharma MK, Palanichamy T. Exploration of technology use pattern among teenagers and its relationship with psychological variables. ASEAN J

Psychiatry 2016;17:239-49.

15. Barthakur M, Sharma MK. Problematic internet use and mental health problems. Asian J Psychiatr 2012;5:279-80.
16. Young KS. Internet addiction: The emergence of a new clinical disorder. Cyberpsychol Behav 1998;1:237-44.
17. Widyanto L, Griffiths M. Internet addiction: A critical review. Int J Men Health Addict 2006;4:31-51.
18. Walsh SP, White KM, Young R. Needing to connect: The effect of self and others on young people's involvement with their mobile phones. Aust J Psychol 2010;62:194-203.
19. Shamasunder C, Sriram TG, Murali Raj SG, Shanmugham V. Validity of a short 5-item version of the general health questionnaire (G.H.Q). Indian J Psychiatry 1986;28:217-9.
20. Bakken IJ, Wenzel HG, Götestam KG, Johansson A, Oren A. Internet addiction among Norwegian adults: A stratified probability sample study. Scand J Psychol 2009;50:121-7.
21. Scherer K. College life on-line: Healthy and unhealthy internet use. J Coll Stud Dev 1997;38:655-65.
22. Morahan-Martin J, Schumacher P. Incidence and correlates of pathological internet use among college students. Comput Hum Behav 2000;16:13-29.
23. Mohammad Beygi A, Ghazavi A, Mohammad Salehi N, Ghamari F, Saeidi A. Effect of internet addiction on educational status of Arak University of Medical Sciences students. Arak Med Univ J 2009;12:95-102.
24. Subathra V, Nimisha MM, Hakeem L. A study on the level of social network addiction among college students. Soc Sci 2013;3:354-6.
25. Das A, Sharma MK, Thamilselvan P, Marimuthu P. Technology addiction among treatment seekers for psychological problems: Implication for screening in mental health setting. Indian J Psychol Med 2017;39:21-7.