Self-Reported - Problematic Smartphone Usage: A Cross Sectional Study

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ABSTRACT

Introduction: The number of smartphone users in India is showing a rapidly increasing trend in the last few years. The expected user base is nearly one in three by 2021 in India. The evidence on compulsive smartphone use is growing making it an addiction along with raising concerns on other mental health issues. The current study aimed to find out the extent of problematic smart phone usage and various variables associated with smart phone addiction in the study population.

Material and methods: A cross-sectional study was conducted on 186 participants. Responses were recorded online through a questionnaire on SAS-SV and analyzed by descriptive statistics.

Results: Study showed 24.2% (45 participants) of study population have smart phone addiction. Male gender, early exposure to smart phone, low income, and residence in a city predicted problematic smart phone usage.

Conclusion: People across ages, residence, occupation, and social strata are involved with smart phone with one in four being problematic smart phone users.

Keywords: Problematic Smart Phone Use; Smart Phone Addiction

INTRODUCTION

Mobile phones were invented primarily as advancement over traditional landline phones as Go phones. Advent of technology and integration of internet facilities have made these go phones as smart phones. Apart from its usage as a primary tool of communication and as a minicomputer, many leisure activities like online gaming, social networking, shopping, movies and music thrust smart phone usage[1]. The number of smartphone users in India is showing, a rapidly increasing trend especially in young, urban populations, with nearly one in three mobile phone users expected to be smart phone users by 2021[2].

Though evidence on compulsive smartphone use is increasing, smart phone use disorder has not been included in ICD10 or DSM5[3]. Reasons for the same could be lack of a consensual definition, a clear pattern of symptoms, and a diagnostic category. Various terms like problematic smart phone use, smartphone use disorder or smartphone addiction (SA) have been used to describe the problematic-smart phone use without bringing them under one umbrella[4,5,6].

Various theories have been proposed to explain smartphone addiction. Billieux et al., associates proposed three pathways to mobile phone use. Foremost, the Excessive Reassurance Pathway where the subjects present high anxiety, low self-esteem experience and a need for reassurance. The second is the Impulsive Pathway, corresponding to low self-control that can result in an antisocial pattern of smart phone use and/or risky mobile phone use behavior. Third, Extraversion Pathway, i.e., when the addictive outcomes are expressed in subjects who have the constant need to socialize with others.[7] Elhai et al. have proposed that mood changes resulting from smart phone use act as positive reinforcement in seeking excessive reassurance or the unwillingness to miss relevant information, corresponding to negative reinforcement in the smart phone use habituation process.[8,9]

The factors associated with addictive behavior are age ranging from 18 to 25 years, female sex, medium and high family income, accessibility to mobile phones, certain personality traits (impulsivity, sensation seeking, low self-directedness, low will power, high neuroticism, low agreeableness, low conscientiousness, extroversion) and other comorbidities like mental disorders and substance abuse disorders.[4,6]

Excessive smartphone use may damage the interpersonal skills in adolescents.[10] Kim et al; found that there is a positive correlation between depression, aggression, and impulsion associated with smartphone addiction.[11] Excessive smartphone use may lead to depression, anxiety and sleep disturbances.[12,13] Smartphone addiction affects social life, communication, and difficulty in concentration.[14]

Though there were previous studies on smart phone addiction, most of them were conducted on adolescents and university students with less studies on general population. Current study includes subjects from all groups thus giving insights into the patterns of usage in the population. The aim of the current study is to find out the extent of problematic smart phone usage and various variables associated with smart phone addiction in the study population

MATERIAL AND METHODS

The current study was a cross-sectional study conducted

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online through a questionnaire using social media. Institutional ethics committee approval was taken. A survey form was created online and sent to the subjects with a disclaimer to participate voluntarily. The recorded data was analyzed by SPSS software. Participants of the study were online volunteers from the general population. A questionnaire was designed to capture socio-demographic data and smart phone usage pattern.

Tools

Subjects were presented with a semi structured questionnaire on socio- demographic data, pattern of smart phone use and Smartphone Addiction Scale short version SAS-SV.

Smartphone Addiction Scale short version SAS-SV, is the short version of the scale developed by Kwon et al; with internal consistency and concurrent validity. This is 10-item self-report instrument with 6 points Likert scale. SAS-SV address the following areas, daily life disturbance, withdrawal, cyberspace oriented relationship, overuse, and tolerance. It has good validity and reliability for the assessment of smart phone addiction. It takes approximately 5-10 minutes to complete the questionnaire. As suggested by Kwon et al, for males a cut off value of 31 and for females cut off value of 33 was taken.[15]

RESULTS

A total of 186 subjects participated in the study. Socio-demographic data and pattern of smart phone usage of the population is tabulated under Tables 1 & 2.

The mean score on SAS-SV was 24.15 with a standard deviation(SD) of 8.44. Based on the cut off score on SAS of >33 in females and >31 in males, 45 subjects (24.2%) had smart phone addiction and 141(75.8%) had no smart phone addiction. The two groups were compared with respect to various variables and the data is presented in Tables 3 and 4. The two groups differ significantly with respect to gender, age at first smart phone use and self- evaluation of smart phone addiction (p<0.05). Income and residence predicted smart phone addiction at p<0.1

DISCUSSION

This is a comprehensive study on smart phone addiction in India. This study includes population across ages 16 to 60 contrary to specific population based studies in the past. 24.5%, nearly a quarter of the study population matches the addiction criteria. In a literature review by Perez et al; the prevalence of Smartphone addiction ranged from 0-38%.[16] Systematic review by Davey et al; estimated the smartphone addiction magnitude in India ranging from 39% to 44%.[10].

In our study males were more addicted than females (P<0.0001). Several studies identified female gender as a risk factor.[17,18,19] Some studies had male preponderance.[13,20,21] No influence of gender was detected in other studies[22]. Further research is needed for a better understanding of the inconsistency in the prevalence of smart phone addiction in males and females.

Self-evaluation of smart phone addiction was significant (p<0.00001), hinting towards the knowledge of being addicted. Thus people who use smart phone excessively know that they are addicted but cannot restrain themselves,

Age in years	16-20	46 (24.73)
	21-30	89(47.84)
	31-40	45(24.19)
	41-50	2(1.07)
	51-60	3(1.61)
	>61	1(0.53)
Gender	Males	119(63.97)
	Females	67(36.03)
Highest educational qualification	Intermediate	28(15.05)
	Graduation	84(45.16)
	Postgraduation	7439.78)
Occupation	Working	98(52.68)
	Unemployed/home maker/retired	22(11.82)
	Student	66(35.48)
Income in Rs	<10000	9(4.83)
	10000-20000	11(5.91)
	20000-50000	36(19.35)
	50000-75000	27(14.51)
	75000-100000	14(7.52)
	>100000	12(6.46)
	Nil	77(41.39)
Stay	Alone	16(8.6)
	With family	111(59.67)
	With friends	31(16.66)
Residence	Metro	42(22.58)
	City	108(58.06)
	Town	26(13.97)
	Village	10(5.37)
Table-1: Socio -demographic data of the sample		

Predominant Purpose of smart phone	Education	12(6.45)
	Entertainment	61(32.79)
	Social networking	64(34.40)
	Phone calls	21(11.29)
	Web surfing	28(15.05)
Weekday use in hours	0-1	14(7.52)
	1-3	65(34.94)
	3-5	53(28.49)
	>5	54(29.03)
Weekend usage in hours	0-1	13(6.98)
	1-3	41(22.04)
	3-5	61(32.79)
	>5	71(38.17)
Age of 1st smartphone	<10	11(5.91)
	10-15	14(7.53)
	15-20	81(53.84)
	21-25	54(29.03)
	25-30	17(9.13)
	31-40	4(2.15)
	>40	5(2.68)
Price of current phone in rupees	<10000	33(17.74)
	10000-20000	78(41.93)
	20000-30000	26(13.97)
	30000-40000	17(9.1)
	>40000	32(17.20)
Self-evaluation of smart phone addiction	Not addicted	104(55.91)
	Addicted	43(23.11)
	Don't know	39(20.96)
Table-2: Pattern of smart phone usage in the population		

		Addiction	No addiction	
Age in years	16-20	31	15	P=0.17
	21-30	66	23	
	31-40	39	6	
	>41	5	1	
Gender	Males	54	32	P=0.0001
	Females	87	13	
Highest educational qualification	Intermediate	23	5	P=0.56
	Graduation	61	23	
	Post graduation	57	17	
Occupation	Working	76	21	P=0.69
	Unemployed/home maker/retired	16	6	
	Student	49	18	
Income in Rs	<20000	10	10	P=0.08
	20000-50000	29	7	
	50000-75000	22	6	
	>75000	21	5	
	Nil	59	17	
Stay	Alone	16	5	P=0.73
	With family	101	30	
	With friends	24	10	
Residence	Metro	38	4	P=0.076
	City	76	32	
	Town	19	7	
	Village	8	2	
Table-3: Comparison of two groups with respect to socio demographic variables				

indicating compulsion.

Age at first smart phone use is also an important risk factor for addiction (p<0.05), thereby earlier the exposure more is the risk similar to other addictions. Sahin et al. found that exposure to smart phone at an age <13 years poses high risk for problematic use.[23] This amounts to a great importance, as toddlers are getting exposed to smart phones increasingly. Screen time of children has significantly increased compared

		Addiction	No addiction	
Predominant Purpose of smart phone	Education	12	0	P=0.27
	Entertainment	43	18	
	Social networking	48	16	
	Phone calls	17	4	
	Web surfing	21	7	
Weekday use in hours	0-1	13	1	P=0.14
	1-3	53	12	
	3-5	38	15	
	>5	37	17	
Weekend usage in hours	0-1	12	1	P=0.22
	1-3	34	7	
	3-5	45	16	
	>5	50	21	
Age of 1st smartphone	<15	14	11	P=0.05
	15-20	63	18	
	21-25	41	13	
	>25	23	3	
Price of current phone in rupees	<10000	24	9	P=0.87
	10000-20000	59	19	
	20000-30000	19	7	
	30000-40000	12	5	
	>40000	27	5	
Self-evaluation of smart phone addiction	Not addicted	92	12	P<0.00001
	Addicted	18	25	
	Don't know	31	8	
Table-4: Comparison of two groups with respect to smart phone usage				

to past, consuming their outdoor/play time. This is resulting in impaired social and interpersonal skills from an early age hampering their relationships, academics and ability to deal with situations going forward.

An interesting observation evolved during the study. Urban population has easier access to high speed internet making them more vulnerable to problematic smart phone use. But people in metros are less addicted compared to all. The order of addiction goes in this format cities>towns>villages>metros, this probably can be explained by the busy lifestyle in metros, and advent of high speed internets in remotest of the places through digitalization.

People in low income group are more addicted compared to other groups (p<0.08) consistent with study by Sahin et al.[23] Other studies show addiction in high income groups.[24] This observation can be due to availability of smart phones and internet services even at lower prices. Entertainment is at hands distance at a lower price making them prey to addiction.

Limitations
1. Cross sectional study
2. Online survey format
3. Early ages (toddler) who are at high risk can't be included
4. Limited sample

CONCLUSION

No statistically significant difference was found with respect to educational status, occupation, social status, purpose of usage, day of the week, or price of current smart phone. Price of smartphone did not predict addiction as most of them have basic features of internet, social networking and gaming. Education had no relation to smart phone addiction as most of the functions on smart phone can be done with minimum educational background.

People across ages, residence, occupation, social strata are involved with smart phone as now phones are not just only for communication rather an important means of entertainment too.

Future studies including patents/guardians into study as proxy for their children to assess the prevalence of addiction would show more insights into the newer age adolescent behavioural problems.

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