

# Smartphone Addiction among Students of Medical University in South India: A Cross-Sectional Study.

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## ABSTRACT

**Background:** Smartphone has become an integral part of our daily living. The problem of smartphone addiction is growing across the world especially among students. **Aim:** This study was conducted to know the magnitude of smartphone addiction among students of the medical university. **Methods:** It is a questionnaire based cross section observational study conducted at Yenepoya University campus, Mangalore, Karnataka State, South India, from July 2017 to November 2017 involving 328 students from all constituent colleges of University looking at smartphone usage among students. **Results:** 328 students from all constituent colleges of University were taken as study sample; it had 48.2% males and 51.8% females. The mean age of the sample was  $21.1 \pm 3$  years. All the students are using a smartphone. 46% of students using smartphone 4-6 hours per day and main use of smartphone were for social networking. Based on cut off values, 36.8 % of students were addicted to smartphone. Nearly half of the male students and a quarter of female students were addicted to smartphone. **Conclusion:** The problem of Smartphone usage/addiction has reached an alarming level. There is need to create awareness of the problem and plan effective intervention strategies.

**Keywords:** Addiction, medical students, smartphone.

## INTRODUCTION

Smartphone has become an important device in current day living. Smartphone differs from regular phones as it has advanced features other than voice calling like internet access, social networking, games and many others. Smartphone has a variety of applications which contains information, communication, education, and entertainment. With the advent of technology, smartphone has become a necessity of life. However, every technological invention has brought both comforts and problems.<sup>[1]</sup> Nowadays people are spending most of their time in using smartphone ignoring other areas of life.

Many terms are given for increased smartphone usage as 'smartphone addiction', 'mobile phone addiction', 'problematic mobile phone use' etc. Lin et al; considered smartphone addiction as a form of technological addictions.<sup>[2]</sup>

Griffith viewed technological addictions as a subset of behavioral addictions.<sup>[3]</sup> Behavioural addictions include substance-related to alcohol and nonsubstance-related like gambling, internet addiction etc. Behavioural addictions share common features like failure to resist an impulse, drive to perform the act, similar neurobiology and reward pathway.<sup>[4]</sup>

Literature review suggests that problem of smartphone addiction is growing fast. According to the literature review by Perez et al; the prevalence of Smartphone addiction ranged from 0-38%.<sup>[5]</sup> Systematic-review by Davey et al; estimated the smartphone addiction magnitude in India ranged from 39% to 44%.<sup>[6]</sup> It was found that smartphone addiction was more prevalent in younger adolescents when compared with young adults (19 years and older).<sup>[7]</sup> The prevalence of smartphone addiction was quite high among students.<sup>[8,9]</sup> There is a gender difference in smartphone addiction, few studies showed that smartphone addiction was more common in males and some studies showed that it is more common in females.<sup>[9,10]</sup>

Smartphone addiction has significant risks and consequences on physical and mental health.<sup>[11]</sup> Research shows that excessive smartphone use may damage the interpersonal skills in adolescents.<sup>[6]</sup> Study in Korea by Kim et al; found that there is a

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positive correlation between depression, aggression, and impulsions associated with smartphone addiction.<sup>[12]</sup> It has been showed that excessive smartphone use may lead to depression, anxiety and sleep disturbances.<sup>[13,14]</sup> Smartphone addiction affects social life, communication, and difficulty in concentration.<sup>[15]</sup> Review of cell phone addiction revealed that it generally coexists with other substance addiction such as alcohol and tobacco.<sup>[9]</sup> This study was conducted with the aim of knowing the magnitude of Smartphone addiction among medical University students.

**MATERIALS AND METHODS**

**Study design and setting:** This was a cross-section observational study conducted for a period of 6 months from July 2017 to November 2017. This study was carried out at Yenepoya University which is a deemed university located in Dakshina Kannada district, Mangalore, Karnataka state, India. It contains Yenepoya medical college, Yenepoya dental college, Yenepoya nursing college, Yenepoya College of physiotherapy and pharmacy as its constituent colleges.

**Participants:** Students of Yenepoya University and its constituent colleges were approached randomly after their class hours during free time. Questionnaire along with consent form was circulated to students. Students who provided written informed consent and completed the questionnaire were taken as the study sample.

Ethical clearance was taken from the institutional ethical committee to conduct the study.

**Assessment tools**

Data was collected using specially designed proforma which contained age, sex, the course of study. Few questions were designed to assess smartphone usage. Questions concerning the following were - Do you have mobile phone Yes/No, Is it smartphone Yes/No, Daily smartphone usage time 1) less than 1 hour 2) between 1-3 hours 3) 4-6 hours 4) 7-9 hours 5) more than 9 hours, main usage of smartphone other than calling and text messages. 1) social networking 2) entertainment 3) news 4) games 5) research and homework 6) all the above, do you check your phones at night when you get up from sleep- Yes/No, Do you feel distressed when you forget your phone elsewhere- Yes/No. Smartphone addiction was assessed using the Smartphone Addiction Scale short version SAS-SV. This 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 smartphone 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.<sup>[16]</sup>

Results were analyzed using Microsoft Excel and Statistical Package for the Social Sciences (SPSS) version 22.

**RESULTS**

Socio-demographic details: 328 students were included in the study from different colleges of the university. The Study sample contained 48.2% (158) males, 51.8% (170) females. Study sample contained males and females almost in the same ratio. 144 (43.9%) students from medical college, 90 (27.4%) students from BSc courses, 60 (18.3%) students from dental college and 34 (10%) students of postgraduate courses as shown in [Table 1].

**Table 1: Details of the study population.**

Variables		n (%)
Sex	Male	158 (48.2)
	Female	170 (51.8)
Courses	MBBS (Medical)	144 (43.9)
	BDS (Dental)	60 (18.3)
	BSc (Graduate)	90 (27.4)
	Post Graduate Medical	29 (8.8)
	Post Graduate Dental	5 (1.5)

**Table 2. Responses to questions.**

Response		n (%)
Do you have mobile phone?	YES	328 (100)
	NO	0
Is it smart phone?	YES	328 (100)
	NO	0
Daily smart phone usage time	< 1 hour	10 (3)
	1-3 hours	105 (32)
	4-6 hours	151 (46.0)
	7-9 hours	46 (14.0)
	More than 9 hours	16 (4.8)
Main use of smart phone other than calling and Text message	Social networking service	151 (46.0)
	Entertainment	112 (34.1)
	News	37 (11.2)
	Games	26 (7.9)
	Research and homework	67 (20.4)
	For all above	136 (41.4)
Do you check your phones at night when you get up from sleep?	YES	167 (50.9)
	NO	161(49.1)
Do you feel distressed when you forget your phone elsewhere?	YES	194 (59.1)
	NO	134 (40.9)

**Table 3: Smart phone addiction based on SAS-SV scores**

Gender (Cut off value)	n	Percentage
Male (>31)	81	51%
Females (>33)	40	23.5%
Total	121	36.8%

The responses to specially designed questions are described in [Table 2]. Smartphone addiction in males and females based on cut off values is

illustrated in [Table 3]. The responses to smartphone addiction scale short version SAS-SV is shown in [Table 4].

**Table 4: Responses to the questions of SAS-SV**

Items	Strongly disagree 1 n(%)	Disagree 2 n(%)	Weakly disagree 3 n(%)	Weakly agree 4 n(%)	Agree 5 n(%)	Strongly agree 6 n(%)
1 Missing planned work due to smart phone use	42 (12.8)	99 (30.2)	21 (6.4)	53(16.2)	83(25.3)	30(9.1)
2 Having a hard time concentrating in class, while doing assignments, or while working due to smart phone use	42(12.8)	103(31.4)	29(8.8)	43(13.1)	101(30.8)	10(3)
3 Feeling pain in the wrists or at the back of the neck while using a smart phone	106(32.3)	86(26.2)	56(17.1)	46(14.0)	24(7.3)	10(3)
4 Won't be able to stand not having a smart phone	92(28)	105(32)	36(11)	35(10.7)	53(16.2)	7(2.1)
5 Feeling impatient and fretful when I am not holding my smart phone	89(27.1)	151(46)	26(7.9)	30(9.1)	29(8.8)	3(0.9)
6 Having my smart phone in my mind even when I am not using it	122(37.2)	112(34.1)	55(16.8)	18(5.5)	13(4)	8(2.4)
7 I will never give up using my smart phone even when my daily life is already greatly affected by it.	81(24.7)	114(34.8)	62(18.9)	39(11.9)	25(7.6)	7(2.1)
8 Constantly checking my smart phone so as not to miss conversations between other people on Twitter or Face book	84(25.6)	67(20.4)	45(13.7)	48(14.6)	74(22.6)	10(3)
9 Using my smart phone longer than I had intended	30(9.1)	38(11.6)	34(10.4)	92(28.0)	89(27.1)	45(13.7)
10 The people around me tell me that I use my smart phone too much.	53(16.2)	90(27.4)	35(10.7)	59(18.0)	60(18.3)	31(9.5)

All the participants in the study had a mobile phone and all were using Smartphone. 46% of the students were using mobile phone for 4-6 hours and 14 % of students were using 7-9 hours in a day. 41% of the students were using smartphone for many purposes like social networking, entertainment, news, games and research work other than voice calling and text messages. 46% of the students using Smartphone for social networking like facebook, Instagram, Whatsapp, and Twitter etc. Few, 8% of students were using it for games. 51% of the students reported that they would check the phone at night when get up from sleep. 60% students reported that they would feel distressed at work if they forget to bring along their phone

**DISCUSSION**

This study was conducted to know the magnitude of smartphone addiction among students of medical University. Mean age of the study population was 21.1 ± 3 years. A study by Sosyl in Turkey showed that smartphone phone addiction was common in

students around 20 years old.<sup>[15]</sup> Study sample represents students from medicine and allied branches in the University. In another study done in the same campus on postgraduate students by Shettar et al; showed that 26 % of students had facebook addiction and also showed that there is a positive correlation between severity of Facebook addiction and extent of experience of loneliness.<sup>[17]</sup> Based on the cutoff values for SAS-SV given by Kwon et al; for males more than 31 and females more than 33, smartphone addiction was present in 36% of the students. This is similar to the results of Indian meta-analysis on assessment of smartphone addiction by Davey et al; which showed 39- 44%(6). Another study by Chen et al; in China showed the prevalence of smartphone addition among medical college students was 29.8%.<sup>[18]</sup> 51% (81) male students are addicted to smartphone and 23.5% (40) female students were addicted to Smartphone. In our study smartphone addiction was more in males, similar to the study by Bisen S et al[10]; however it is in contrast to few other studies where it showed that smartphone addiction was more in females.<sup>[9,13]</sup>

46% of the students using smartphone for social networking like facebook, Instagram, Whats App and Twitter etc. Few, 8% of students were using it for games. A study by Tang et al studied the addiction pattern among students in United States, China and Singapore, showed that students from countries China and Singapore was more addicted to Internet and Social networking and less for Games when compared to United States.<sup>[19]</sup> These results are similar to our study where it showed smartphone use was more for social networking and less for games. The possible explanation for every one having smartphone and its increased usage among the university students could be due to the free uninterrupted availability of Internet facility everywhere in the campus. This study strengthens the previous studies on prevalence of smartphone addiction among young students. Strengths of the study are it has a fairly good sample size, focussed on students where the problem is high and sample represents students from a medical University. The limitations are that the results cannot be generalized to the general population. Future studies are needed in this area on general population with interventional programmes.

## CONCLUSION

This study showed the magnitude of smartphone addiction in students of a Medical University. Smartphone addiction is a growing public health problem across the world particularly in developing countries like India where youth population is high. Smartphone addiction causes a significant effect on physical and psychological health. Hence there is definite need to identify students with Smartphone addiction and plan intervention strategies.

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