



## A CROSS-SECTIONAL STUDY ON MOBILE USAGE AMONG I MBBS STUDENTS OF KAIMS KARWAR, KARNATAKA

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### ABSTRACT

**Background:** The trend of mobile phone usage has increased at a high rate among teenagers. Addiction to excessive use is hazardous to their health and academic performance.

**Aims and objectives:** Extent of mobile phone use, the purposes, time spent for different purposes, opinion on mobile use, behavioral changes associated and prevalence of symptoms of mobile use among medical students.

**Materials and methods:** A cross-sectional study was conducted on volunteered I MBBS students using mobile phones. Self-reporting proforma was given, consisting of sociodemographic profile, duration of use, purposes for which mobile used and time spent, opinion on usage, behavioral changes associated, and common symptoms experienced.

**Results:** Mobile usage was distraction causing academic hindrance. Behavioural changes in the form of checking mobile early morning, usage while charging and in rest room, keeping mobile under pillow and midnight checking were noted. Students complained of symptoms experienced, commoner were headache, loss of concentration, blurring of vision, discomfort, warmth on ear.

**Conclusion:** Counseling is required to ensure teenagers of minimal and safe usage.

**KEYWORDS :** Hazards, behavioral changes, academic performance

### Introduction:

Mobile phone has been a modern day invention which has managed to reach every part of the world enabling telecommunication across areas where it was not possible before. In the recent years it is not only used as a communication tool but also as a mobile computer which serves us with music player, games, internet, calculator, short message service, alarm clock, video, camera, and many more other perceived benefits as accessibility and social connectivity, reduced loneliness and security in emergency situations (Gupta, Garg, & Arora, 2016) (Balakrishnan, & Raj, 2012). These additional features has attracted people across all walks of life including teenagers and has consequently led to increase in the number of mobile phone users in India. Fixed telephone lines reached 1 billion in 128 years (Gupta et al, 2016), whereas mobile networks reached this milestone within two decades. World wide mobile subscription has reached six billion. In India people belonging to rural and urban areas, literate and illiterate and all age groups are dependent on mobile phones.

Though mobile phones have proved to be life saving and has helped to improve the quality of life in every aspect of an individual, their constant use has raised a serious concern over the negative impact of its usage on the health of the individual. Because they are the low power radio devices that transmit and receive radio frequency radiation in the range of 900-1800MHz (Al-Khlaiwi, & Meo, 2004). There are two ways through which the health can be affected – thermal heating effect caused by holding the mobile phones close to the body and also the non-thermal effect (Balakrishnan et al, 2012). There are studies reporting mobile phones causing headache, sleep disturbances, lack of concentration, burning skin, impairment of memory, brain tumors and high blood pressure (Maier, Blakemore, & Koivisto, 2000). Constant usage and addiction has affected the people physically, socially and psychologically. Inappropriate use of mobile phones by students presents with deleterious effects like usage of mobile phones during class hours disturbing their academic performance, accidents while driving (Walsh, White, & Young, 2008), and behavioral changes in which they think constantly about it when they are not using it or keep on checking their phones missed calls and messages (Gupta et al, 2016).

In spite of some knowledge on ill effects of mobile phone usage, this study aimed to note the extent of mobile use, behavioral changes associated and hazards of mobile use.

### Aims and Objectives:

To note the extent of mobile phone use, the purposes for which it is

used, time spent for different purposes, opinion on mobile use, behavioral changes associated and prevalence of symptoms of mobile use among medical students.

### Materials and Methods:

A cross-sectional study was conducted in Karwar Institute of Medical Sciences, Karwar, Karnataka. As it was the first batch of college the study was done on I MBBS students. Prior approval from Institutional Ethical Committee was taken before starting the study. All 150 students were using mobile phone for one or the other reasons. The intention of the study was explained to students and was assured that their identity will not be disclosed. The students who volunteered to participate were included in the study. The students who were not interested were excluded. Informed written consent was taken of the participants.

Based on earlier studies (Arumugam, Sachi, & Nagalingam, 2014) (Sandström, Wilen, Hansson Mild, & Oftedal, 2001) a composite proforma was prepared in English consisting of sociodemographic profile, duration of mobile use, purposes for which mobile used and time spent respectively, opinion on mobile use, behavioral changes associated, and common symptoms experienced on mobile use. The clarity of contents of proforma was prior assessed by doing a pilot study over staff members of Physiology department and necessary changes were made.

The participants were asked to assemble in the Lecture hall on one day morning in the month of October 2016. The proforma was distributed to the participants. The contents of the proforma were explained by one of the author to all the participants in common. They were asked to mark appropriately for each question in the proforma. Queries regarding the different aspects in the proforma of each student were addressed separately by rest of the authors. They were asked not to discuss among each other and to mark promptly for each question without hesitation. Adequate time as required by the participants was given for completing the proforma and later it was collected.

The data was compiled in Microsoft excel sheet. It was analyzed by applying appropriate statistical tests by using Microsoft excel 2010.

### Results:

Out of 150 I MBBS students 129 volunteered to participate in the study. There were 74 male and 55 female students. The average duration of mobile usage was about 22 months.

31 students (24%) used mobile for more than 2hr, 65 (50.3%) used for 1-2hr and 33 (25.5%) used less than 1hr.

89(68.9%) reported maximum mobile usage time to be <1hr, 31(24%) reported to be 1-2hr and only 9 (0.06%) reported to be >2hr.

119 (92.2%) used only one mobile while 10 reported to use more than one.

86(66.6%) reported to use more than one sim card while 43 (33.3%) used one sim card.

Apart from making phone calls mobile is used for different purposes. Common purposes for which the study group used were Academics and Information using wikipedia, Social media, Watching UTube videos, Connecting with people by using facebook, whats app, Online music and Online Gaming.

In this study group, 111(86%) used mobile for hearing music of which 27(20.93%) spent more than 1hr for music. 18(13.9%) reported that they do not use mobile for hearing music. 40 (31%) used mobile for gaming of which 7(5%) spent more than 1hr. 89 (68.9%) reported that they do not use mobile for gaming. 123(95.3%) used mobile for internet of which 57(44.1%) spent more than 1hr. 6 (4%) reported that they do not use mobile for internet.

**Table 1. Hours of mobile usage for music, gaming and internet**

Hrs of usage	Music(%)	Gaming(%)	Internet(%)
<1hr	84	33	66
1-2 hr	22	4	38
>2 hr	5	3	19
Donot use	18	89	6

N=129

Though majority of students reported mobile usage to be beneficial for studies (124), required to get connected with people (117), felt technology should be utilized (124), usage can be restricted (105) yet they felt mobile usage as distraction (76) and even hinder academics (61).

**Table 2. Opinion on mobile usage**

Opinion on usage	Yes	No
1.Academic hindrance	61 (47.2%)	68 (52.7%)
2.Mobile phones are distractions	76 (58.9%)	53 (41%)
3.Benifical(studies)	124 (96.1%)	5 (3.9%)
4.Technology should be utilized	124 (96.1%)	5 (3.9%)
5.Usage can be reduced/stopped	105 (81.3%)	24 (18.6%)
6.Required to get connected with people	117 (90.6%)	12 (9.3%)

N=129

**Table 3. Behavioural changes on mobile usage**

Behavioural changes	Yes	No	Paired t test
1.Keeping mobile under pillow	27 (20.9%)	102(79.06%)	p value <0.005*
2.Midnight checking of mobile	20 (15.5%)	109 (84.4%)	
3.Check first in the morning	67 (51.9%)	62 (48.06%)	
4.Usage during Class hrs	1 (0.7%)	128 (99.2%)	
5.Usage in restroom	33 (25.58%)	96 (74.45%)	
6.Usage while driving	4 (3.1%)	125 (96.8%)	
7.Usage while charging	53 (41%)	76 (58.9%)	

N=129

Highly significant behavioural changes were associated with mobile usage in the study group. Commoner behavioural changes were checking mobile first in the morning (51.94%), usage while charging (41%), usage in rest room (25.5%), keeping mobile under pillow (20.9%), midnight checking of mobile (15.5%). Since the study group was elite group very few students reported mobile usage while driving (3%) and during class hrs (0.8%).

Majority of students (89%) were aware of side effects of Mobile usage.

But still they are obsessed of mobile use. Due to continued mobile use study group reported symptoms experienced atleast once in a week during last one year attributed to mobile usage. Prevalence of commoner symptoms associated with mobile usage among the study group were Headache (45.74%), Loss of concentration (42.64%), Blurring of vision (22.48%), Discomfort (21.71%), Warmth on ear (20.16%), Dizziness (16.28%), Memory loss (16.28%), Fatigue (12.4%), Warmth behind ear (12.4%), Impaired hearing (7.75%), Burning skin (4.65%).

**Table 4. Symptoms experienced atleast once in a week during last one year attributed to mobile usage**

Commoner symptoms	Prevalence in %
1.Dizziness	16.28
2.Discomfort	21.71
3.Loss of concentration	42.64
4.Memory loss	16.28
5.Fatigue	12.40
6.Headache	45.74
7.Warmth behind ear	12.40
8.Warmth on ear	20.16
9.Burning skin	4.65
10.Impaired hearing	7.75
11.Blurring of vision	22.48

N=129

**Discussion:**

Mobile phone usage has increased drastically since one decade in Indian population. Usage of smartphones among younger generation has increased rampantly not just for calling but for multiple purposes. The present study was a cross-sectional study done over I MBBS students of KAIMS, Karwar, Karnataka.

All I MBBS students were using mobile phone and 129 volunteered to participate in the study. Similar trend of use was seen in earlier studies(Gupta et al, 2016) (Sharma, Sharma, Sharma, & Wavare, 2015). Average duration of mobile phone usage was about 22 months. 74.4% spent more than 1hr and 25.6% spent less than 1hr on mobile phone every day.

22.5% students were using more than one mobile, rest were using one mobile. With the option of 2 sim slots in the mobile phone 66.7% were using 2 sim cards and rest were using 1. Only 6 reported to use mobile phone for calling but rest were using smartphones. As mobile phones are for multiple purposes apart from calling, use of more than one sim could be due to various competitive plans offered by the network providers. One sim could be used as primary number for social contacts and the other used for netpack. It also could be due to social insecurity that they intend to use one for family and other for friends. Similar multiple mobile and multiple sim use by students is noted in earlier studies (Arumugam et al, 2014).

Common purposes for which the study group used mobile apart from calling were Academics and Information using wikipedia, social media, watching UTube videos, connecting with people by using facebook, whats app, Online music and Online Gaming. Similar purpose of use was noted in earlier studies. (Jamal, Sedie, Haleem, & Hafiz, 2012) (Saied, Elsabagh, & El-Afandy, 2017).

Apart from calling, mobile phones are being used for online and offline gaming, for hearing online and offline music, for internet. 44.2% of the study group used internet for more than 1hr, 20.9% used for music for more than 1hr and only 5.4% used for gaming for more than 1 hr. Compared to earlier study (Gupta et al, 2016) internet use for longer duration is less in this study group.

**Opinion on mobile phone usage**

With the improvement of technology mobile phone is beneficial for studies and getting connected with people instantly. Study group felt mobile usage as a distraction and it could even hinder their academics. Yet they felt addicted use of mobile could be restricted. Earlier self-reported studies have shown similar academic hindrance (Jamal et al, 2012) (Singh, Gupta, & Garg, 2013). Leisure boredom and sensation seeking are motives in adolescents with higher addictive mobile phone use tendencies (Leung, 2008). Distraction through technology is cause for compulsive gaming, surfing or smartphone use (Foerster, Roser, Schoeni, & Rösli, 2015).

### Associated behavioural changes with mobile usage

With the growing trend of addictive mobile use certain behavioral changes are noted among adolescents. People feel insecure without mobile phone. There is increased prevalence of nomophobia because of increased dependence on smartphones. (King, Valença, Silva, Sancassiani, Machado, & Nardi, 2014). Behavioural changes in the study group were in the form of checking mobile first in the morning, usage while charging, usage in rest room, keeping mobile under pillow, midnight checking of mobile. Being aware of consequences only 3% reported usage while driving. Usage during class hours was negligible. Such behavioural changes are noted in earlier studies (Arumugam et al, 2014) (Dixit, Shukla, Bhagwat, Bindal, Goyal, Zaidi, & Shrivastava, 2010).

### Hazards of Mobile usage

Earlier studies have reported and enlisted various symptoms complained by mobile users (Sandström et al, 2001) (Meo, & Al-Dreess, 2005). The symptoms complained are due to thermal and non-thermal effects of mobile phone exposure. (Al-Khlaiwi et al, 2004). Even sleep is affected due to mobile use during bedtime (Saxena, Shrivastava, & Singh, 2014). Being aware of various hazards the study group are addicted to mobile use. Commoner symptoms were headache, loss of concentration, blurring of vision, discomfort, warmth on ear

In spite of being elite study group and experiencing the hazards of mobile phone usage, their dependence on these phones mobile phone use seem to be not less than the general population.

**Conclusion:** The obsession of mobile phone usage among medical students could produce behavioural changes, distract and disturb their academic performance which could be tackled enough by counseling them regarding appropriate mobile phone usage.

**Limitations of the study:** The present study was conducted among MBBS students. To generalize the trend of mobile usage in teenagers and in general population the results have to be confirmed by doing larger group study.

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