

## AWARENESS AND PERCEPTION OF HAZARDS OF MOBILE PHONE AMONG UNDERGRADUATE MEDICAL STUDENTS

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### Abstract

**Background:** Mobile phone, a device of great potential is in everyone's hands nowadays, although it is a boon for better communication, there have always been arguments and research concerning frequent use and its long term effects. The aim is to investigate the level of awareness and perception of the dangers associated with cell phone use among undergraduate medical students. **Materials and Methods:** The study was done by distributing 'perception questionnaire' to 100 students of 2<sup>nd</sup> year and 50 students of 3<sup>rd</sup> and 4<sup>th</sup> year students of MBBS. An informed verbal consent was taken from all the participants who answered it. The questionnaire comprised of 17 questions related to the duration of use, purpose of using, awareness and perception of adverse effects and the precautionary measures taken to prevent them. **Results:** Most of the students are using mobile since more than four years. The main purpose of using mobile among medical students was social media (98 students; 65.33%) followed by communication (97 students; 64.67%) and studies (57 students; 38%). Most students [111; 74.0%] agreed that entertainment was their prime benefit of using mobile phone, 38 students [25.33%] agreed that usage of mobile is rejuvenating, 52 students [34.67%] agreed that it improves their knowledge, 48 students [32%] agreed on the advantage of photo and videography and 28 students [18.67%] were for the benefit of shopping and booking tickets respectively. The prevalence of various health hazards ranked in decreasing order among students were vision problems, 82 students (54.67%) followed closely by sleep disturbance, 80 students (53.33%). Headaches were also a significant concern, with 76 students (50.67%) reporting them. Lack of concentration was reported by 59 students (39.33%), while earaches were experienced by 25 students (16.67%) and lastly loss of memory was observed by 18 students (12%). Regarding usage of mobile phone during class hours or clinical posting, students gave a mixed response, i.e, 54% of students agreed on their usage while remaining denied which had a dramatic impact on their academic performance. **Conclusion:** Mobile phone has added new dimensions after its invention. As observed use of mobile phone is increasing and unjustified use may result in problems. This study mainly concentrates on problems arising due to excess cell phone use.

## INTRODUCTION

The mobile phone has become a widely embraced and practically ubiquitous means of communication on a worldwide scale, with enthusiastic acceptance seen in both developed and developing countries. India has the second most substantial number of mobile connections globally, behind only China. This is shown by the fact that there are over 90 mobile

connections per 100 individuals in the country.<sup>[1]</sup> Over the last decade, mobile phones have undergone a transformation from being primarily used for interpersonal communication to being a technology that facilitates group communication.<sup>[2]</sup> The ability for mobile phones to function as smartphones has been made possible via the integration of mobile Internet capabilities and the significant growth in computer power. Smartphone use is propelled by a diverse range of recreational pursuits, such as

engaging in mobile games, streaming music, and uploading photos and videos on popular social networking platforms like Facebook, Twitter, WhatsApp, and Instagram, among others. The prevalence of smartphone use in emerging nations, such as India, is seeing a notable surge, particularly among the younger demographic residing in metropolitan areas. It is projected that about one-third of mobile phone users would own smartphones by the year 2021.<sup>[3]</sup>

The ever changing world always has new things in its cradle and that is modern world's greatest invention "mobile phone". Over last two decades, mobile phones have been evolving rapidly in functionality and propagation. In recent days life seems to be miserable without mobile phone. It has become a device of personal digital assistance with features such as internet browsing, E mail access, global positioning system navigation, motion sensor, wireless internet connectivity, desktop synchronization, voice recognition, high quality camera, various social networking apps, games etc.<sup>[4]</sup> All these functions collectively turn mobile phone in to a portable computer. Undoubtedly mobile phones have revolutionized our lives. If mobiles are in right hands, then they are marvel. At the same time, overutilization can be harmful. It's been said that over usage of mobile phones can negatively affect emotions and increase stress levels. As the mobile phones are usually held close to the ear and viewed continuously it has adverse effects on hearing, vision, memory, concentration, headache and other functions. It is also a source of distraction, interruption and dependency. Few studies suggest that harmful radiations from mobile phone can even cause cancer but still under research. The dependency towards mobile phone is said to cause sleep deprivation and increased stress affecting them academically.<sup>[5,6]</sup> Talking or texting, using a mobile phone while driving, is a major distraction leading to an accident.<sup>[7,8]</sup>

## MATERIALS AND METHODS

This is an observational cross sectional study conducted among undergraduate medical students of SSIMS&RC, Davangere, Karnataka. The study was done by distributing 'perception questionnaire' to 150 students of MBBS. IInd year MBBS students were approached at the end of the lecture and were briefed about the purpose of study and questionnaires were distributed after taking informed verbal consent. About 100 participants answered it. The remaining 50 of them were distributed to 3rd and 4<sup>th</sup> year students of MBBS. The questionnaire comprised of 17 questions related to the duration of use, purpose of using, awareness and perception of adverse effects and the precautionary measures taken to prevent them. The forms were then collected and subjected to analysis. Perception of health hazards and outcomes

were compared by gender, no. of hours of mobile phone use.

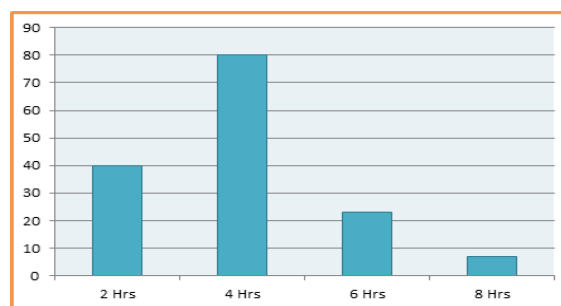
### Statistical Analysis

The data was analyzed using statistical SPSS software version 17. Percentage and chi-square test are the statistical tests applied.

## RESULTS

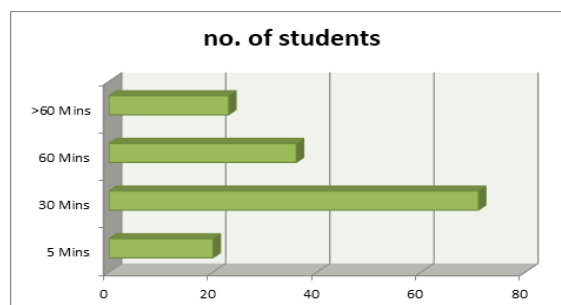
Most of the students had been using mobile since more than 4 years [38.7%].

Out of 150 students, majority of the them [53.3%] used mobile phone for an average of 4 hours per day followed by 2 hours [26.67%], 6 hours [15.3%] and 8 hours [4.7%] per day. (Fig.1)



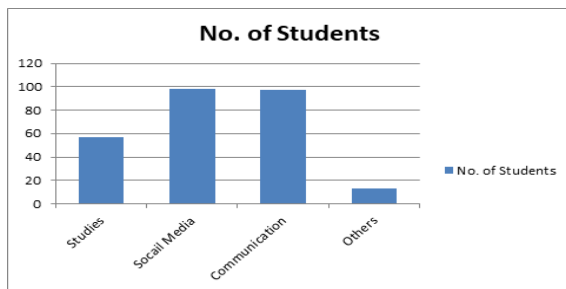
**Figure 1: Number of hours mobile phone used by the students**

71 students [47.3%] spent less than 30 minutes per day talking over mobile phone, while 36 students [24%] spent less than an hour, remaining 20[13.3%] and 23[15.3%] students spent less than 5 minutes and more than an hour talking over mobile phone respectively. (Fig. 2)



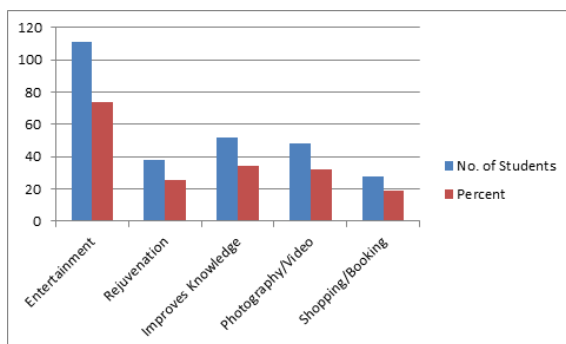
**Figure 2: Time spent talking over Phone/ Day**

The main purpose of using mobile among medical students was social media (98 students; 65.33%), communication (97 students; 64.67%) and studies (57 students;38%). (Fig.3)



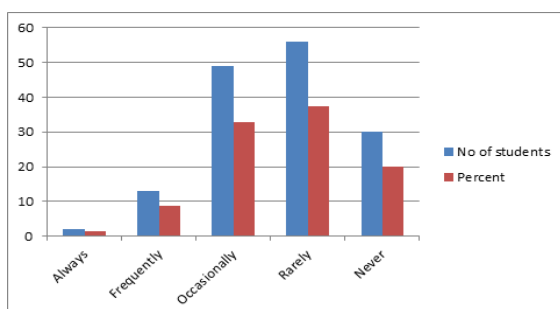
**Figure 3: Important purpose of using mobile phone.**

Most students [111; 74.0%] agreed that entertainment was the prime benefit of using mobile phone, 38 students [25.33%] agreed that it is rejuvenating, 52 students [34.67%] agreed on improving their knowledge, 48 students [32%] for the usefulness of photography/video making and 28 students [18.67%] agreed for shopping/booking tickets as their prime benefit respectively. (Fig. 4)



**Figure 4: The benefit of using mobile phone**

Majority of the students reported that they rarely [37.3%] or occasionally [32.7%] used mobile phone while walking or driving. (Fig.5).



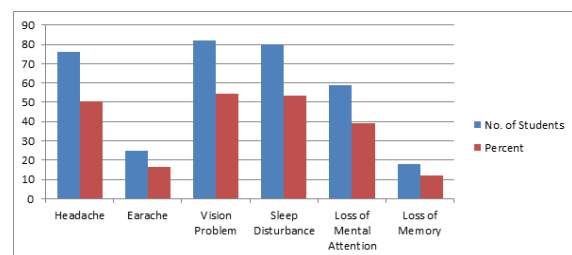
**Figure 5: Use of mobile phone while walking or driving.**

## DISCUSSION

Mobile phone has reached every aspect of the community and it has a special presence in the lives of young people especially college students. After knowing the frequency of usage of mobile phone among medical students what is important is the “quality of Apps”. The popularity of mobile phones may be attributed to their significant function in contemporary society, including communication, money transactions, and online entertainment. Consequently, this has led to a notable surge in the

Only 21 students [14%] faced problem using mobile while walking or driving. Some of the problems reported are colliding with opposite person, lack of focus on road, falling down etc.

Majority of subjects [134; 89%] admitted that they were aware of possible health hazard due to use of mobile phone. The prevalence of various health hazards, ranked in decreasing order of frequency in the present study were vision problems, 82 students (54.67%) followed closely by sleep disturbance, 80 students (53.33%). Headaches were also a significant concern, with 76 students (50.67%) reporting them. Lack of attention was experienced by 59 students (39.33%), while earaches observed in 25 students (16.67%) and lastly loss of memory reported by 18 students (12%). (Fig. 6)



**Figure 6: Perception of various health hazards by medical students.**

Out of 150 students, 69 students [46%], frequently used mobile with earphones plugged in to listen to music or watch videos. Half of the students [75; 50%] denied about their usage while connected to charger but some students [28;18.7%] used during emergency situation. 48 students (32%) reported that their quality of sleep was affected occasionally due to excessive mobile usage.

Nearly half of students [49.3%] used mobile phone occasionally while studying and only 3% of students used always while studying thus leading to the above problems.76 students [50.7%] felt that mobile use is a disturbance during their studies. Regarding usage of mobile phone in the classroom/practicals or clinical posting, students gave a mixed opinion i.e; 54% reported about the occasional use of mobile and others denied.

utilisation of mobile phones. According to a research conducted in Hong Kong, it was estimated that around 38.5% of individuals exhibited signs of mobile phone addiction.<sup>[9]</sup> A study conducted in 2016 involved the recruitment of 1,441 undergraduate students from Wannan Medical College. The objective of the study was to evaluate the prevalence of mobile phone addiction among medical students. The researchers utilised the Smartphone Addiction Scale (SAS-SV) to assess this phenomenon. The findings indicated that 29.8% of the medical students exhibited signs of smartphone addiction and its adverse effects. Furthermore, a breakdown by gender

revealed that 29.3% of females and 30.3% of males were identified as having Smartphone addiction.<sup>[10]</sup> In the present study, the mean age of participants in the present study ranged from 18 to 22 years where females were higher in number comprised of 80/150 (53 %) of the total respondents and males 70/150 (47%). Long et al performed a research including a sample of 1062 college students who were regular Smartphone users. The study revealed that the prevalence of mobile phone addiction among this group of students was found to be 21.3%.<sup>[11]</sup> which was similarly observed in the present study where mobile phone addiction was observed in approximately 23% of students. Out of them 134(89%) were aware of the health hazards, of which 63/70 (90%) students were male and 71/80 (89 %) were females.

In the present study we observed that total duration of mobile phone usage is approximately 4 hours per day (54 %). Most of the students (47.3%) spent less than 30 mins per day talking over mobile phone in the present study which is in concordance with the study on medical students of Malaysian university where the average call duration among majority of subjects was 32.2 mins. Other study done on Saudi medical students showed less than 30 mins.<sup>[12,13]</sup> Another study conducted among medical students of Pondicherry showed 59 mins.<sup>[14]</sup> Introduction of unlimited free calls and SMS and other low tariff plans for internet have all resulted in increased duration of usage by the youngsters. The main purpose of using mobile phone in recent times among students is communication and social media which is similarly noted in our study while a few use it for academic purpose. The prime benefit of using mobile phone among medical students is entertainment followed by improvement in knowledge and photography.

Accidents are common among car/bike drivers, pedestrians and even trains which causes mass casualty.<sup>[15,16]</sup> In the present study about 42% of students attend call/SMS while driving or walking, whereas in other studies in India it was reported as 24.1 % and 25 % which has significantly increased due to cell phone addiction. About 14% of the students in our study had experienced problem in doing so whereas in other study it was 10%. Though students were aware of hazards of using cell phone while driving still the impulse or urgency to attend call leads to such accidents like colliding with the opposite person.

In our study, there is no significant difference of perception of health hazards like earache, sleep disturbance, vision problem and loss of memory between males and females; however headache and loss of mental attention was significantly higher in females. Majority of the students (86.66%) were willing to take precautionary measures to avoid health risks due to excessive use of mobile phone. As the importance of the mobile phone usage as part of the daily life outweighs the side effects students may ignore problems faced by it. Those who occasionally

(4.6%) and rarely (6.0%) used mobile phone faced more problem while driving/walking than frequent users (1.33%). Routine habit of using mobile phone for communication and social networking has led to psychological dependence and addiction among medical students. In a study done among medical students in Tamil Nadu 72.4% of the participants had poor sleep quality. The present study reported 32% of students having disturbed sleep as few only used phone during night times. The relationship between number of hours of usage and quality of sleep was not statistically significant in the present study. Sleep deprivation will result in increased stress level with poor academic performance among medical students.<sup>[17]</sup>

Nearly 95.3 % of students use mobile phone while studying with 49.3% students using occasionally. However only 50.7% students felt that mobile phone is disturbing their studies which is higher compared to other study where only 37.4% complained about disturbance due to mobile phone. 54% of students accepted that they use mobile phone during class hours while remaining denied of using. From the above it shows that significant number of students are getting distracted due to mobile phone which is affecting their studies.<sup>[18]</sup>

Owing to the danger of mobile blasts which has become common recently, 50% of students never use mobile phone while charging while others use it rarely (26%) or occasionally (18.7%). As the students are very much addicted to mobile, they use it even when the battery is low, that is when the electromagnetic radiations are very high resulting in health hazards. Speaking on mobile with charger connected can result in penetration of radiations to the brain causing headache and irritability. Heating of phones due to longer duration of usage can also result in bursting. Today many young people are losing their hearing at an alarming rate due to excessive noise exposure from portable stereo earphones. These devices may be capable of inducing a permanent bilateral sensorineural hearing loss especially if they are used at a volume setting of four or above for extended periods. In the present study nearly 46% of students used earphones frequently and 29% used occasionally. Certain studies have shown that using earphones for prolonged time may have effect on hearing. The different health related parameters were compared with the daily mobile phone use. There was no significant relationship found for daily mobile use of a longer duration.

#### **Limitations of the study**

It was done on a small group of students, however some more evaluation of health hazards has to be carried out on large population of youngsters to prove its definite impact.

Conflict of interest among authors - None.

## CONCLUSION

Mobile phone has added new dimensions after its invention. As observed use of mobile phone is increasing and unjustified use may result in problems. This study mainly concentrates on problems arising due to excess cell phone use. Prevention is better than cure, therefore health education strategies should be targeted to youth to prevent harmful effects of this great invention.

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