

## Original Research Article

# Smart phones for medical undergraduates: friend or foe?

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### ABSTRACT

**Background:** Smart phones are truly a boon for us in all aspects of our life. It helps mankind to lead a faster and easier life, but the same devices used to get things done are now the gatekeepers of an infinite number of distractions and sources of instant gratification. Even though, there is an ocean full of information a click away, we fail to utilize it for something resourceful. Increased media consumption, multi screening and social media usage reduce the ability to focus on tasks and duties which have a much higher priority.

**Methods:** A cross sectional study was conducted with a validated questionnaire among 200 undergraduate MBBS students of a deemed to be medical university.

**Results:** Among the ninety-eight per cent of the students who own a smartphone, all have access to the internet. Seventy-seven per cent of the students use these gadgets on a very regular basis throughout the day and among them only forty-six per cent were found to be using it for academic purposes.

**Conclusions:** Through this study, it has become more discernible that smart phones have paved its way for a reckless future, though if used wisely it would become a blessing in disguise. The ever-changing medical fraternity could really benefit from this discovery but alas, a tool made to make our lives easier is weighing us down with its addictive and time-consuming features.

**Keywords:** Academic, Electronics, Medical, Smart phones, Undergraduates

### INTRODUCTION

Smart phones are a group of hand-held devices which fall under the multi-purpose mobile computing category. Mobile computing enables human-computer interaction wherein the computer is expected to be transported during normal usage for transmission of data, voice and video calls.<sup>1</sup> Smart phones have become an integral part of human's life with its sophisticated features of facilitating communication at a higher level with video calls, their powerful on-board computing capability, capacious memories, large screens, on-board personal management tools, high quality cameras and open operating systems that encourage application (apps) development. It is precisely said that nowadays humans have the entire world in the palm of their hands. These

handheld devices have become an essential platform that yields the latest information of medical services to mankind.<sup>2</sup> With the evidence bases updates available just a click away, the invention of a smart phone is definitely something that the young medical fraternity can benefit from but do the undergraduate medical students use it for the development of their academic knowledge or do they just get carried away by the worldly fantasies. This study was carried out with the aim to assess the utility of smart phones in medical undergraduates.

The aim was to study the effects of smart phones on medical undergraduates and the objectives were to assess the pattern of smart phone usage among medical undergraduates, to assess the amount of time a student use smart phones for educational purposes.

**METHODS**

The current questionnaire based cross sectional study was carried out among 200 medical undergraduates distributed through 2<sup>nd</sup> to final year of the MBBS course, in Jawaharlal Nehru Medical College which comes under Datta Meghe Institute of Medical Sciences (DMIMSU), a deemed to be university in Wardha district of Central India, over a period of 2months from September 2018 to November 2018. The institutional ethical committee clearance was obtained before the commencement of the study.

A set of questionnaires consisting of 9 questions concerning different areas such as the current role of smart phone in a student’s life, the nature of utilization, time spent on the gadgets and the effects of smart phones in today’s medical undergraduates were made. These questions were validated by IEC, School of Health Professional and Educational Research of the university (SHPER) of the university and also from the Department of Preventive and social medicine.

Two hundred randomly selected students who wanted to participate eagerly distributed from 2<sup>nd</sup> year MBBS through Final year MBBS, after signing due consent forms were included. Students who refused to take part in the study were excluded.

After data collection, statistical analysis was done using descriptive statistics and results were described in form of percentage and frequencies.

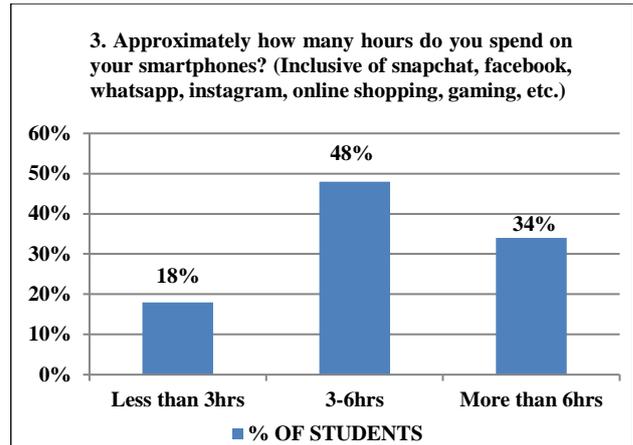
**RESULTS**

This recent study held among a few medical undergraduates of Datta Meghe Institute of Medical Sciences proves that smartphones do have a negative take on young medicos. Among the 200 students who took part in this survey, 98% own a smartphone, only a mere 2% did not possess a smartphone but even that was compensated using tablets or any other device that had all kind of built in android features. All 200 students have constant access to the internet as well (Table 1).

**Table 1: Smartphone usage and internet availability.**

Questions	Yes	No
1. Do you own a smart phone?	98%	2%
2. Do you have access to the internet?	100%	-

It was truly intriguing to note that 48% of the students who answered the questionnaire spend about 3-6hours on their cell-phones and yet another 34% spend over 6hours on their devices. It had come to a numerical value as less as 18% who spend less than 3hours on their gadgets. The android time consumption included daily activities such as browsing, online shopping, gaming, usage of social networking sites such as Whatsapp, Facebook, Snapchat, Instagram, etc. (Figure 1).



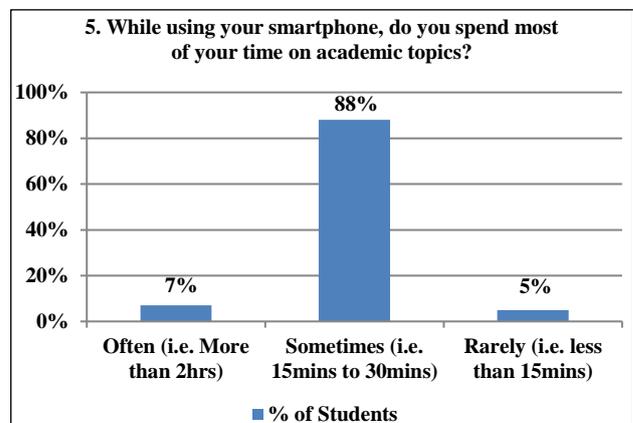
**Figure 1: Average time spent on smartphones.**

To assess the usage of smartphones in academics, students were questioned regarding the average time they spend browsing the internet to meet their curricular needs. It was appalling to find that only 46% of the participants used the same on a regular basis while 47% used it sometimes and yet another 7% of the students rarely linked their gadgets with education (Table 2).

**Table 2: Smartphones used for academic purposes.**

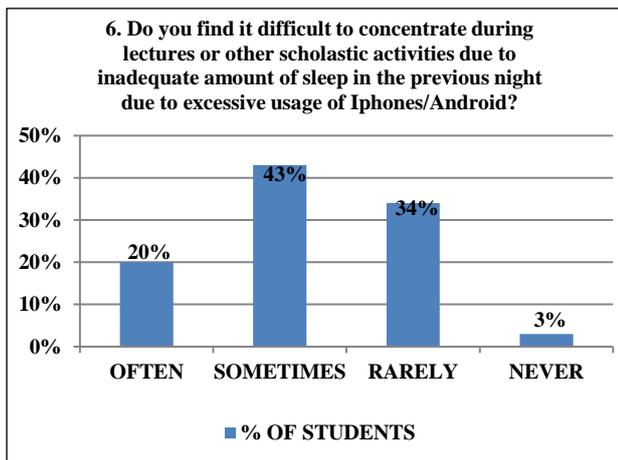
Questions	Often	Sometimes	Rarely	Never
4. How often do you use the internet for academic purposes.	46%	47%	7%	-

In spite of this ultrafast and ever-present connectivity, it is a matter of concern that among the forty-six per cent of the students who were inclined to the everyday inclusion of their android/iPhone for scholastic needs, only 7% used it for more than 2hours. The rest of the 88% for a time span between 15minutes to one hour. The remaining 5% of the students refrained found it hard to stick to informative blogs for than 15minutes a day (Figure 2).



**Figure 2: Average daily time spent on academic topics.**

Further in the survey it came into light that 97% of the students admit to have difficulties in concentrating during lectures/curricular activities due to inadequate amount of sleep in the night before because of excessive smartphone usage (inclusive of the 20%, 43% and 34% who experience the same often, sometimes and rarely respectively) leaving just a 3% beside who don't. While in a field that requires utmost observation and dedication students failed to prioritize their duties and spend most of their time scrolling away (Figure 3).



**Figure 3: Inadequate sleep and its correlation with concentration during lectures.**

To analyse the benefits of a smartphone in a medical undergraduate's schedule, they were asked if the same aided them during a scholastic project work, research work, paper presentation, etc. Only 17% of the students found it helpful whereas 79% of students rarely used this tool for the above mentioned and yet another 4% was highly oblivious of such a benefit to this device (Table 3).

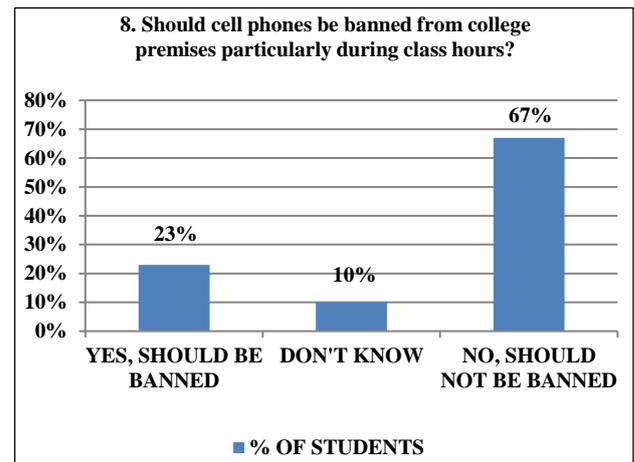
**Table 3: Role of smartphones aiding in a curricular assignment.**

Questions	Yes, very helpful	I rarely use my phone for college works	I haven't even thought about it
7. Do you find your smartphone beneficial in the compilation of a scholastic project	17%	79%	4%

The students were asked to give their stand regarding the interdiction of smartphones during class hours to which 23% responded Yes and 67% responded NO. This portrayed that a not so negligible number of students found the usage of smartphones in class highly unnecessary whereas the students who supported the usage of smartphones during class hours also suggested that it could be used for purposes like feed data, instant clarification of doubts, etc. Ten per cent of the

participants found it difficult to answer and did not have any particular opinion regarding the same (Figure 4).

Smartphones not only have a negative impact on the curricular and academic activities of students but also has a hazardous effect on the body. On being asked if they experience any weakness or spasm in their upper extremities after prolonged usage of their android/iPhone, a mind boggling 98% gave an affirmative response whereas only 2% were not affected. Constant texting, gaming can without doubt be held culprits for this issue (Table 4).



**Figure 4: Opinion regarding prohibiting cell phones from college premises.**

**Table 4: Musculoskeletal changes due to the unabating usage of smartphones.**

Question	Yes, often	Sometimes	Rarely /never
9. Do you experience weakness/spasm in your upper extremities after /due to excessive usage of your smartphone?	29%	69%	2%

**DISCUSSION**

On analyzing various studies conducted worldwide regarding smart phones and their effects, it would be hypocritical to state that these handheld devices are not at all instrumental to mankind, rather if used in a moderate amount the pros definitely outweigh the cons.

The aim of this study was to bring to light that in spite of all these advantages and luxuries of the new generation smart phones, students fail to utilize it in a fruitful manner especially the young medical fraternity.<sup>3</sup> Author Rebecca Mcnutt in one of her recent works mentioned "These days we have smart phones, smart cars, smart boards, smart everything, but consider this: if technology is getting smarter, does that mean humans are getting dumber?" It is true that humans are absolutely relying on

technology these days even at the cost of their own health and wisdom. In an era, wherein the field of medicine has become immensely vast and the patients who come for treatment have a better understanding of their ailment, or as modern day refers to them as the “google patients” it is vital that doctors and other medical professionals stay updated. “Massive cell-phonization” has in a way paved an easier and faster path to all our queries and required information. As briefed about earlier in this study, most of the students who took part in this survey, to be precise 83% (Table 3) are oblivious to the fact that smart phones can aid and enhance their scholastic grace. They tend to stick to their routine usage which includes browsing, online shopping, texting etc. and miss the actual purpose of utilizing these gadgets for their real needs. The ensuing questions on class hours and usage of phones brought us to the disappointing fact that seventy-four per cent fall prey to constant distraction due to their gadgets during lectures/seminars. All the upcoming and in trend mobile games such as clash royale, PUBG, fortnite etc. have a serious impact on the student’s addictive behavior to their hand-held devices.

Majority of students used cell phones during class hours which grossly affected their concentration and learning.<sup>4</sup> Students spend a significant part of their time absorbed in their hand-held devices i.e. over 3-6hours, neglecting their tasks and for that matter even their slumber resulting in a lousy morning thereafter (Figure 3). In an article by Jennifer Brule, 7 reasons why I don’t own a cell phone, states that “Cell phones kidnap people’s attention” and indeed there isn’t a phrase to elaborate it better.<sup>5</sup> Students are so lost in their games and social networking sites that they lose their ability to communicate efficiently, their listening skills and to a greater extent their empathy towards an approaching patient.<sup>6</sup> Texting has long been bemoaned as the downfall of the written word, “penmanship for illiterates,” as one critic called it.

It is a shame to see that these gadgets that have become an inherent part of human existence are slowly dragging us to a state of misery.<sup>7</sup> Kim GY et al, study concluded that, prolonged smart phone use causes continued mechanical stress on the tendons, muscles and surrounding tissues (Table 2) and furthermore, maintaining the same posture can also cause musculoskeletal disorders. Park et al, reported that prolonged smart phone use induced fatigue in the cervical erector spinae and upper trapezius (UT) muscles.<sup>8-10</sup> Students tend to neglect that these gadgets can be used in ways such as e-learning to enhance their skills.<sup>11-13</sup> The study also revealed that most of the undergraduates from the medical fraternity turn to surfing for curricular needs only in case of last-minute submissions and to meet deadlines.

To summarize, completely abolishing the use of smart phones in college premises may sound tyrannical to one but at least restraining to do so during a lecture or seminar is not too much to expect out of a promising

medical graduate.<sup>14-16</sup> Assimilation of hand-held devices in a student’s pedagogical aspects should be given importance.

## CONCLUSION

As rightly predicted by Stephen Hawking, one of the greatest theoretical physicists; “Artificial Intelligence would take off on its own, redesign itself at an ever-increasing rate and humans, who are limited by slow biological evolution wouldn’t compete and would be superseded”. The same is seconded by the observation from Intel founder Gordon Moore, whose famous law as stated as “Moore’s law” states that computer processing power doubles about every 18months making it impossible for humans to keep up with the pace and may be in next 100years AI would take over humans. The study has disclosed certain effects of smart phones on medical undergraduates.

The main and least practiced restorative measure to decrease the adverse effects of smart phones is to limit its usage. As silly as it may sound, students may find it rather difficult to do so. Just how tapering the dosage of drugs work in the treatment of certain illnesses, so does reducing the amount of time spend on these fancy gadgets. Setting a limited data usage access may turn out to be helpful in the same. Students must realize that if not for academic purposes, stretching the smart phone consumption time are highly unworthy and superfluous. Rather these smart phones should be utilized to enhance their knowledge. Universities must emphasize on incorporating technology into education. As they say, “The World is changing and so must we”. Maintaining the right posture and intermittent stretching out of the muscles will aid in decreasing the musculoskeletal injuries caused by smart phones.

## CONCLUSION

To conclude this study, “Every technology ever invented from computers to smart phones to robots all comes with a good side and an evil side. The choice is ours.”.

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