A Cross Sectional Study to Determine the Effect of Smartphone Usage on the Academics, Health, and Sleep Patterns, of Undergraduate Medical Students

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ABSTRACT

BACKGROUND

Mobile phones have become an essential and inevitable part of our daily life because of increase in population and rapid development in modern technology. Mobile phone usage has both advantages and disadvantages in the form of negative health effects like headache, and psychological problems. We wanted to determine the effect of smart phone usage on the academics, health and sleep patterns of undergraduate medical students.

METHODS

The study group consisted of undergraduate medical students of AIMS, who responded to a questionnaire and behaviour pattern like sleep deprivation. Loss of interest in academics etc.

RESULTS

248 students have participated in this study with a mean age of 18.6. Out of 248 study students, 45.17 % students are male and 54.83 % were females. 18 % of the students were having more than one phone. 123 study participants (49.59 % of students) were having both study and sleep effected, 61 students (24.59 %) were complained only about study disturbance and in 41 students 16.53 % sleep was affected. Both study and sleep were affected in 23 participants (9.23 %). 82 % of participants replied that they feel uncomfortable without mobile phones and 64 % of the study students in our research had reported headache, ear pain due to ear phones.

CONCLUSIONS

There is significant correlation between smart phone usage for non-academic purpose like Facebook chatting and Instagram compared to academic activity. Headache, addictions, uncomfortable feeling and poor academic performance had significant correlation with increased smart phone usage.

KEYWORDS

Mobile Phone Usage, Academic Performance, Poor Sleep, Mobile Addiction

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BACKGROUND

Mobile phones have become an inevitable and ubiquitous part of our daily lives. Earlier mobile phones were used only as a means of communication (to make calls or send a text message) but now mobile phones have transformed into "Smartphones" that are multifunctional with many applications (apps) like calculator, camera, alarms, games, internet, social media networking (like Facebook, WhatsApp, Twitter, Instagram, Skype), E-mail facilities and many other facilities that have benefits like social connectivity and security in emergency situations.[1] All these benefits have made smartphones very popular among young adults specially college / university students as it gives them easy access to various journals and articles when in doubt by conducting web searches, helps them keep in touch with their classmates for help with homework and day to day activities.[2] Also, recently studies show that some teachers accept the implementation of newer techniques like smartphones in the education of students.[3]

Although smartphones have a lot of advantages, extensive use of smartphones can cause dependency and addiction. Students begin surfing the web, social networking, playing games, checking emails and text messages in class and consequently pay less attention to their lectures.[4] Such an addiction can affect their academics, sleep, health and social life leading to tension within the family and in the society.[5] Research shows that poor sleep quality or reduced sleep length can affect cognitive functioning of students.[6-8] Through this study my aim is to find out the effect of smartphone usage on the academics, health and sleep of medical students. Investigation in this area is imperative as smartphone has infiltrated almost every aspect of young adults' lives and the impact of its effect on individuals is just beginning to emerge.

Objectives

1. To assess the type and duration of smartphone usage for academic and non-academic purposes.
2. To estimate the distribution of time of use of smartphones between day and night time.
3. To determine the association between smartphone usage and academic performance of the participants.
4. To investigate the effect of smartphone-use on sleep patterns of the participants.

METHODS

The present study is a cross sectional study conducted over a period of 2 months among 300 undergraduate medical students. The study was undertaken at Adichunchanagiri Institute of Medical Sciences, B.G. Nagara, Mandya district. This study was approved by the Ethical Committee of the institution.

Data Collection - Method of Screening

All the participants those who have given consent for the study were given with the questionnaire. The questionnaire contains various aspects like number of smart mobile phones, how long they are using smart phones, duration of smart mobile phone usage in day time and night. Behaviour pattern like mid night checking. Using during class hours and while charging, sleep quality, quantity and academic performance. Questions also included information like sex, age when they started using smartphones, academic marks before they began using smartphones and after, sleep duration before and after they began using smartphones.

Ethical Clearance

Necessary permission was taken from students and students were explained in detail about the study, written consent was obtained from the students. This study was approved by the Ethical Committee of the institution.

Inclusion Criteria

1. MBBS undergraduate students of 1st and 2nd year who were using mobile phones on regular basis.

Exclusion Criteria

1. Students who refused to be a part of this study.
2. Students who withdraw from the study.

RESULTS

Sl. No.	Variable	Number = 248 and Percentages	
1	Gender Male Female	112 (45.17 %) 136 (54.83 %)	
2	Number of Mobile Phones Single Two	210 (84.68 %) 38 (15.32 %)	
3	Duration of Usage Less Than 3 Years 3 to 6 Years	110 (44.35 %) 138 (55.65 %)	
4	Duration Spent on Internet Less Than 1 Hour 1 to 2 Hours 2 to 4 Hours More Than 4 Hours	Academic 110 (44.35 %) 82 (33.06 %) 44 (17.74 %) 12 (4.85 %)	Non-Academics 36 (14.51 %) 40 (16.13 %) 96 (38.71 %) 76 (30.65 %)
5	Behaviour Pattern Mid Night Checking Class Hours Usage Usage while Charging	92 (37.10 %) 63 (25.40 %) 109 (43.95 %)	
6	Sleeping Time Delay due to Mobile Phone Usage Yes No	196 (79.03 %) 52 (20.97 %)	
7	Mobile Addiction Yes No	138 (55.64 %) 110 (44.36 %)	

Table 1. Frequency Distribution of Student Participants

Out of 248 students, 54.83 percent were female, fifteen percent (15 %) used two smart mobile phones and 44.35 % used phones for less than 3 years and 55.65 % used for more than 3 to 6 years. 44.35 % of the students used phones for academic purpose for less than one hour, 82 percent used for 1 to 2 hours with 12 % of the participants used for more than 4 hours for academic purpose. Similarly,

14.51 % of the students used internet for non-academic purpose for less than 1 hour. 30.65 % of the student used internet for non-academic purpose for more than 4 hours a day. 79.03 % student had poor quality and delayed sleep due to mobile phone usage. 25.40 percent of students used phone during class hours and as far as the behaviour pattern of usage shows 37.10 % and 43.95 % participants keeps checking mobile while sleeping and while charging the phones respectively.

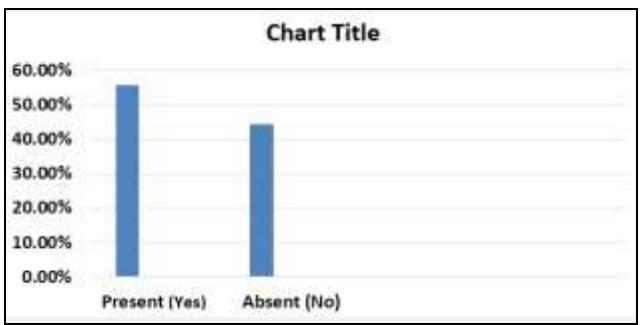

Figure 1. Percentage of Mobile Addiction among Students

DISCUSSION

Most of the previous studies conducted on medical students show that addiction to mobile phone usage has an impact on sleep leading to delayed sleeping time as well as affects one's academic activities. Our study is a cross sectional study to determine the effect of smart phone usage on academic and sleep pattern behaviour as well as pattern of use during sleep.

In our study, 55.64 percent of students got mobile phone addiction and similar findings were reported from the survey done by market analysis and consumer research organization. In their study, 58 % of the participant got smart phone usage addiction.

We reported that 71.77 % of students used their smart phones for messaging and 86.69 percent for talking with friends and families. 90.32 percent used phones for social networking. 66.53 % of students used phones for listening music, movies and playing games. According to Duygu a Kacy et al. 89.55 % of participants used phones for texting messages, 81.8 % for speaking and 65.5 % for social networking. Which was almost similar to our findings?

In another study done at Charles Sturt University, reported 55 % of respondent used phones for texting and 30 % for talking with friends and families. Regarding effect on academic performance, our study revealed 160 (64.51 %) students thinks that usage of smart phones decreases their academic performance. Similar report was seen in a study conducted by Balaji Arumugam et al.[9] In a study done by Soyemi Jumoke et al[10] they discovered that use of smart phones, neglecting their academic activities results in poor academic performance among students in tertiary institution. According to study of Duygu Akcay et al,[8] 18.2 % students thinks that delay in sleeping time or delay in going to sleep is due to smart phone usage. In our study, 20.97 % of students reported delay in sleeping time due to phone usage.

23 % of the men and 34 % of the women indicated sleep disturbance in a study conducted by Sara Thomee et al[11] which shows similar finding in our study done on medical students. When we questioned the participant, related to life without mobile phones, 82 % of participants replied that they feel uncomfortable without mobile phones and 64 % of the study students in our research had replied headache, ear pain due to ear phones. In another study conducted by Szyjkowska et al[12] among university student in Poland reported headache problem in 70 percent and ear pain in 20 % of the students.

Limitation

Our present study included various self-report related to academic performance and sleep quality and pattern of usage. One limitation is that data is based on students self-report.

CONCLUSIONS

With the advent of advanced technology, use of electronic gadgets especially smart phones is massively increasing among younger generations mainly students of 17 to 25 yrs. age group. The younger generation born and grown up in a world of new technology makes their life impossible without mobile connection. Strong association and addiction to chronic mobile usage, are the leading causes for loss of their concentrations, health related behaviours and academic activities.

Our study was carried out on focus of small group in a particular area, which may not reflect same picture worldwide and our study also explored strong relationship between academic and nonacademic effect of phone usage as well as ill effects on health. Even through mobile phone in certain circumstances is a life saving device, but frequent and continuous use of phones may cause more risk of developing addictive symptoms. When addicted individual discontinued using phones they will later experience psychological and withdrawal symptoms which has ill effects on mental health. Hence identifying and keeping the adverse effects of excessive mobile phone usage on study and sleep pattern of undergraduate medical students, it is very important to educate the younger generation regarding the health problem occurring due to smart phone usage.

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.

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