ORIGINAL ARTICLE

Pattern of Smartphone Use and Its Related Effects on Students of two Medical Colleges at Dhaka, Bangladesh

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ABSTRACT

Background: Due to numerous reasons, smartphone use has become more and more popular day by day. So the pattern of smartphone use needs to be monitored regularly, especially among medical students.
Methods: This is a descriptive cross-sectional study conducted among 384 medical students in Dhaka, Bangladesh. Participants were selected from Enam Medical College and Ashiyan Medical College through purposive sampling. Data were collected by the principal investigator through a pretested, interviewer-administered, semi-structured questionnaire. Data confidentiality and quality were properly maintained. Respondents had no physical, mental, or social risks because of their current study participation. Data were analyzed anonymously by using SPSS software.
Results: Respondents of the current study were between 20 to 24 years with a mean age of 21.4±0.9 years, while the majority 249(64.8%) of them were female, and a significant number 360(93.8%) of the respondents were single. The majority 339(88.3%) of them were Muslim, and nearly two-thirds 237(61.8%) respondents were from rural areas. Medical students use smartphones for different purposes, where 347(90.4%) use social networking sites, 293(76.3%) for educational and academic purposes, 118(30.7%) to play games, etc. However, 276(71.9%) informed that they were somehow wasting their time due to the use of smartphones, and nearly half 181(47.2%) use smartphones for more than 4 hours a day, while the majority 273(71.1%), mainly use smartphones at night. A significant number of Medical students 231(60.2%) had 2 to 5 calls per day. A considerable number 172(44.8%) use smartphones for between 5 minutes to 30 minutes in the morning. Most 262(68.2%) of them usually keep the smartphone on the bed. A considerable number 134(34.9%) were suffering from low back pain, while 272(70.8%) complained about eye strain.
Conclusion: Medical students are usually young, female, from rural areas. They mainly use smartphones for access to social networking sites, educational and academic purposes, and to play games, while the duration is considerably longer than the duration of morning use. Students usually keep their phones on the bed. Many of them were suffering from problems like low back pain and eye strain.

Keywords: Medical students, Smartphone, academic performance, Students, and education.

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INTRODUCTION

Because of the facilities offered by smartphones, numerous studies have verified that the trend of using smartphones is increasing day by day. In 2017, there were around 2 billion users of Google and expected to increase in the upcoming years. [1] Smartphone use is becoming popular among people of different professions because of its technical advancement. Users of this device have access to endless resources of knowledge, which help to increase professional skills. [2] Modern smartphone offers much more than a regular phone, which just offers facilities like phone calls and text messages. Previously, internet use required a stable wired connection, but because of the technological advancement of modern smartphones, users can access the internet without having a cable connection attached to it. There are more than 300

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million units of smartphones purchased every year since 2010. A study conducted in 2012 found that around 84% students have access to smartphones, following an increasing pattern. [3] Because of the huge pressure of learning, increasing academic strain, as well as stress due to learning clinical skills, can impose a negative psychological impact on medical students may result in abnormal use of smartphone. [4] Excessive use of smartphones may have led to smartphone addiction. This is more or less similar to internet addiction, which consists of elements like compulsive behavior, tolerance, withdrawal, and functional impairment. [5] Medical students usually use smartphones both inside and outside of the classroom for educational purposes, but addictive smartphone use may interfere with their daily lives and may impose a harmful consequence on their academic performance. Also, numerous other studies revealed that there is a relationship between smartphone addiction and different physical problems. [6] Many individuals thought that the smartphone is a sign of their personal identity also shows their social status. This small device facilitates the way to communication with each other. [7] New smartphone had their own operating system to perform and run different programs. [8] A recent study conducted in Nepal found that about 36.8% of the medical students had smartphone addiction. [9] Another study conducted in Riyadh among university students found that around 27.2% students use smartphones more than 8 hours per day. [8] Because of an easier way to communicate through a smartphone, it increases productivity. But increasing use may harm both academic and educational life, and is listed in ICD-11 or DSM-5 as problematic smartphone use. [10] Problematic smartphone use may result in internal conflicts, feeling captivated, obligatory feelings, sleep disturbance, feeling stressed without having a smartphone and medical students were not an exception. [11] Another alarming effect of the overuse of smartphones is insomnia. It is also associated with decreased mental stability and reduced quality of life. [12] Despite different physical and mental health problems, some students may go through academic burnout. The academic performance may also be affected by smartphone use and result in fatigue, low self-esteem, depression, and drug abuse. [13]

MATERIALS & METHODS

The current study is a descriptive cross-sectional study conducted among 384 medical students. The study was conducted in two selected medical colleges of Dhaka, Bangladesh. From Enam Medical College, 314 students, and from Ashiyan Medical College, 70 students were included in the current study. The study duration was six months, starting from December 2024. The study samples were selected using purposive sampling technique; participants who were willing to participate in the study were included. The study locations were selected using convenience sampling. Before enrollment in the study, written informed consent was obtained from every respondent. For data collection, an interviewer-administered semi-structured questionnaire was used after the pre-testing phase by the principal investigator through face-to-face interviews. Each questionnaire was reviewed for completeness and cross-checked for consistency, accuracy, and discrepancies. Confidentiality of all data was strictly maintained. Participants were informed that they could withdraw from the study at any time without providing any reason. The procedure involved no physical, social, or psychological risks to the students. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.0. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were calculated according to the nature of the data.

RESULTS

Of the 384 medical students, all were between 20 and 24 years old, with a mean age of 21.4±0.9 years. Regarding the gender of the students, as shown in Figure 1, 135(35.2%) were male and 249(64.8%) were female. The majority 360(93.8%) of the medical students were single, and only 24(6.2%) were married. Of 384 respondents, 339(88.3%) were Muslim and 45(11.7%) were Hindu. Considering the place of residence, 237(61.8%) students were from rural areas, and 147(38.2) were from urban areas.

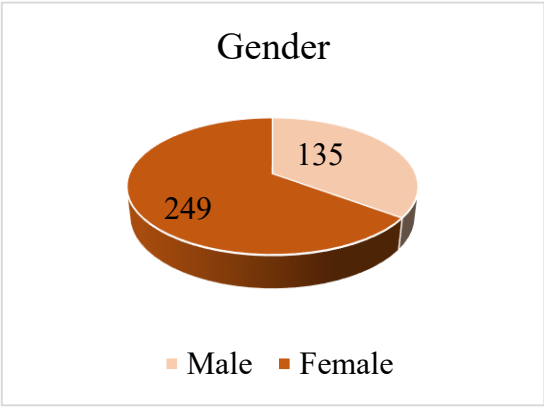

Figure 1: Respondents by gender.

As per table 1, only 28(7.3%) medical students use smartphones for communication purpose (talking, message, Email), 347(90.4%) use smartphone to have access for social networking sites, 118(30.7%) use smartphone to play games, 293(76.3%) for educational and academic purpose, 42(10.9%) use it to capture photos and videos, 136(35.4%) for enjoying music, and 49(12.8%) mentioned other purposes for smartphone use. Of medical students, 276(71.9%) opined that wasting their valuable time through using smartphones, and 108(28.1%) opined the opposite. More than half 218(56.8%) thought that their performance was affected due to smartphone use, but 166(43.2%) opined otherwise. As shown in Figure 2, of 384 respondents, 116(30.2%) students use smartphones for less than 2 hours, 87(22.6%) for around 2 to 4 hours, and 181(47.2%) reported using smartphones for more than 4 hours per day. Of medical students, around three-fourths 273(71.1%) mainly use smartphones at night, 68(17.7%) use them mostly in the evening, and only 43(11.2%) use them in the morning. Regarding the frequency of calls received per day, it was found that 67(17.4%) had an average of one call per day, 231(60.2%) had 2 to 5 calls per day, and 86(22.4%) had more than 5 calls per day. More than one-third 137(35.7%) use the smartphone for less than 5 minutes after weak up from sleep. More than two-fifths 172(44.8%) use smartphones between 5 minutes to 30 minutes, while 67(17.4%) use them for more than 30 minutes to 60 minutes, and 8(2.1%) use smartphones for more than 1 hour after weak up from sleep. Of respondents, 262(68.2%) usually keep the smartphone on the bed, 101(26.3%) keep their phone on a table near the bed, while 21(5.5%) keep the smartphone under the pillow. Of 384 respondents, nearly two-thirds of 272(70.8%) had eye strain, but 112(29.2%) were not. Of medical students, 134(34.9%) had low back pain, and 250(65.1%) had no low back pain. Of respondents, 198(51.6%) had opined to have normal depression, 82(21.4%) had a mild form of depression, 47(12.2%) informed that they had moderate depression, and 57(14.8%) were suffering from a severe level of depression.

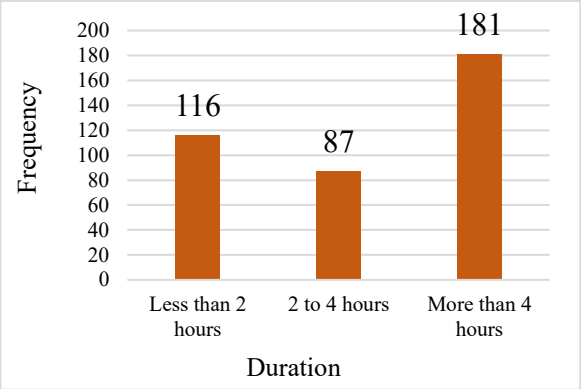

Figure 2: Respondents by use of smartphones per day.

Table 1: Respondents by purpose of smartphone use.

Purpose	Frequency (%)
Only communication (talking, message, E.mail)	28 (7.3%)
To access social networking sites	347 (90.4%)
To play games	118 (30.7%)
Educational & academic purpose	293 (76.3%)
Listening music	136 (35.4%)
Capture photos and videos	42 (10.9%)
Other	49 (12.8%)

*Multiple response

DISCUSSION

All the respondents of the current study were between 20 to 24 years with a mean age of 21.4±0.9 years. This is supported by the study conducted by Salehi M and associates, where the average age of medical students from Iran was 24.16±1.80 years. [14] Of the current study respondents, 135(35.2%) were male and 249(64.8%) were female. This is vindicated by the findings of Alageel AA and team, where they found that 31.23% of Arabian medical students were male, and more than two-thirds 68.77% were female. [15] A significant number 360(93.8%) of the respondents were single, and only 24(6.2%) were married. Of respondents, 339(88.3%) were Muslim and 45(11.7%) were Hindu. This finding aligns with a study by Karim et al., conducted among medical students, which revealed that 7% of the students were married, while 84% identified as Muslim and 15% as Hindu.[16] This distribution pattern by religion reflects, more or less, the population pattern of our country/community. Regarding place of residence, 237(61.8%) were from rural areas, and 147(38.2) were from urban areas. This is similar to the study by Liu H and associates, where 57.1% were from rural areas, 27.5% were from towns, and 15.3% were from cities. [17]

Of medical students, only 28(7.3%) use smartphones for communication purpose, 347(90.4%) use smartphone to have access for social networking sites, 118(30.7%) use smartphone to play games, 293(76.3%) for educational and academic purpose, 42(10.9%) use it to capture photos and videos, 136(35.4%) for enjoying music, and

49(12.8%) informed other reasons for smartphone use. This is corroborated by the study conducted by Al-Shahrani M.S., which revealed that around 65.4% use the smartphone for their academic purposes, 91.5% for accessing social media, 39.4% preferred to play games, 18.6% for athletic purposes and 14.4% for other purposes. [18] Of medical students, 276(71.9%) opined that to wasted their valuable time through using smartphones, and 108(28.1%) opined the opposite. More than half, 218(56.8%) thought that their performance was affected due to smartphone use, but 166(43.2%) opined otherwise. This is supported by research conducted by Reddy and associates, where 70% of medical students opined that mobile phone is wasting their time, 60% of respondents informed that their exam performance would be better if not use smartphones. [19] Of 384 respondents, 116(30.2%) students use smartphones for less than 2 hours, 87(22.6%) for around 2 to 4 hours, and 181(47.2%) reported using smartphones for more than 4 hours per day. This is more or less in line with the study findings of Machado and team, where of respondents, 5.9% use smartphones less than 2 hours per day, 18.1% use 2 to 3 hours per day, 43.6% use for 4 to 5 hours per day, while 32.4% use more than 5 hours per day. [18] Of medical students, around three-fourths 273(71.1%) mainly use smartphones at night, 68(17.7%) use them mostly in the evening, and only 43(11.2%) use them in the morning. This is vindicated by the study conducted by Machado J and team, where 57.4% of students mostly use smartphones at night, 39.3% in the evening, 3.0% in the afternoon and only 0.4% in the morning. [20] Regarding the frequency of calls received per day, it was found that 67(17.4%) had an average of one call per day, 231(60.2%) had 2 to 5 calls per day, and 86(22.4%) had more than 5 calls per day. This is supported by Machado J and associates, where 37.8% usually received one call per day, 58.5% had one to five calls every day, 2.6% had six to ten calls per day, and only 1.1% had more than 10 calls per day. [20] More than one-third 137(35.7%) use the smartphone for less than 5 minutes after weak up from sleep. More than two-fifths 172(44.8%) use smartphones between 5 minutes to 30 minutes, while 67(17.4%) use them for more than 30 minutes to 60 minutes, and 8(2.1%) use smartphones for more than 1 hour after weak up from sleep. This is not supported by the study conducted by Serra G and team, where more than half 56.5% use smartphones for less than 5 minutes, 28.8% use them for 5 minutes to 30 minutes, while 6% use them for more than 30 minutes to 60 minutes and 8.7% use smartphones more than 60 minutes every day. This is inconsistent with current study findings that might be attributed to the small sample size and study group, as well as study area. [21] Among our current study respondents, 262(68.2%) keep the smartphone on the bed, 101(26.3%) mostly keep their phone on a table near the bed, and 21(5.5%) usually keep the phone under the pillow. A recent study found that around 73.3% keep the smartphone on the table near the bed, 19.3% on the bed, and 7.4% keep it under the pillow. [20] Of the current study respondents, nearly two-thirds of 272(70.8%) were suffering from eye strain, while 112(29.2%) were not. Of 597, 134(34.9%) had suffered from low back pain, while 250(65.1%) had no back pain-related issues. This is substantiated by findings of the study conducted by Daniyal M and team found that among cell phone users, around 33.5% suffered from eye strain, but 39.5% had it sometimes, and 27.0% were not suffering from it. Of the respondents, 27% had back pain, 56% had it sometimes, while 17% had no problem in their back. [22] Of 384 respondents, 198(51.6%) had normal depression, 82(21.4%) had mild level of depression, 47(12.2%) had moderate depression, 57(14.8%) had severe form of depression. Another study supports our current study findings, where 58.8% had a normal level of depression, 13.1% had mild depression, 16.5% had moderate depression, 6.1% had a severe level of depression, and 5.5% had an extremely severe level of depression. [23]

Conclusion

Medical students are mostly young females who are single. Students are usually from rural areas. Respondents usually use smartphones for communication, using social networking sites, playing games, educational and academic purposes, capturing photos and videos, listening to music, and other reasons. Many of them use smartphones for a considerable amount of time. Thought they were wasting their time because of it. Medical students mainly use smartphones at night, while some of them also use them in the morning, and receive multiple calls per day. They usually keep a smartphone on the bed, and have complaints like eye strain, low back pain, and depression.

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