Original Article

Usage of Mobile Technologies by Undergraduate Dental Students

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Abstract

Background: The increased usage of mobile technology has provided a previously unrealized ability to move information around quickly and efficiently in a readily available format. **Aim:** The aim of this study is to evaluate the usage of mobile technologies by undergraduate dental students. **Materials and Methods:** A questionnaire was made and distributed to undergraduate dental students from 1st year to interns, and the responses were collected at Asan Memorial Dental College and Hospital, Chengalpattu, Tamil Nadu. **Results:** 92.8% of the total undergraduate dental students opted smartphones as thin first choice to access the internet. 57.6% of the students used the internet most often for both dental course and personal reasons. 90.4% of the preclinical students used smartphones to connect the internet, and 80.4% of the clinical students used smartphones to access the internet more frequently. **Conclusion:** Dental students use smart phones with various learning apps to enhance their learning online.

Keywords: Dental school, smartphones, technology, undergraduates

INTRODUCTION

The internet is so malleable as students can keep in touch not only with each other but also with their educator through social media, e-mails, blogging, webcasting, and videoconferencing.[1] The Internet is likely very powerful for both communication and inflation of knowledge. In dentistry, the Internet may be used for dental education.[2]

The use of mobile technologies in daily life has become boundless, and equally, educational technologies have taken advantage of this fortuity.[3] The far-flung use of mobile technologies today makes mobile learning even more flashy. Mobile devices are handy and transportable and have the capability to connect to the internet whenever needed.[4]

Use of mobile technologies has energetically increased in the last decennium. The future of any professional education may revolve around mobile devices and software applications that assist in learning and helps manage and improve one's life as a healthcare provider.[5] Dental students are generally positive toward the use of information technology and mobile learning as most of them belong to Zoomers age group.[6]

Comprehensively, there is a need for a research to be carried out to evaluate the usage of mobile technologies by undergraduate dental students and their attitude toward mobile learning.

MATERIALS AND METHODS

A cross-sectional study employing convenience sampling was conducted among dental students at Asan Memorial Dental College and Hospital (AMDCH), Tamil Nadu, India. $N = 248$. Sample size was estimated to be N = 248, dental students based on the prevalence of mobile usage in the study conducted by Khatton *et al*[1] calculated using OpenEpi: Open Source Epidemiologic Statistics for Public Health, Version 3.01. USA, www.OpenEpi.com, updated 2013/04/06. Before the advent of the study, approval was obtained from the Institutional Scientific Review Board, AMDCH.

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All the students from 1ˢᵗ year to interns were invited to participate in the present study. Students using only feature phones for communication were excluded. The survey instrument consists of self-administered pretested validated questionnaire taken from the study conducted by Khatoon *et al.*[1] The questionnaire consists of demographic profile followed by questions on mobile used, learning apps, time spent, etc. Statistical analysis was performed with Open source epidemiologic statistics for public health, Version 3.01 Statistical Packages for the Social Sciences (SPSS) version-23, USA. Frequency tables were computed. Chi-square test was used for comparison across various variables.

RESULTS

A total of $n = 264$ students participated in this study out of which $n = 74$ (28%) were male students and $n = 190$ (72%) were female students. Among 264 students, $n = 136$ (51.5%) were preclinical students and $n = 128$ (48.5%) were clinical students. About $n = 74$ (54.4%) of preclinical and $n = 78$ (60.93%) of clinical students use the internet equally for both personal reasons and dental course-related activities [Figure 1].

Most of the students, $n = 245$ (92.8%), opted smart phones as their first choice to access the internet and $n = 12$ (4.5%) students preferred desktop as their first choice to access the internet. The usage of desktop was more, i.e., $n = 7$ (5.5%), by the clinical students when compared with that of the preclinical students, $n = 5$ (3.7%)
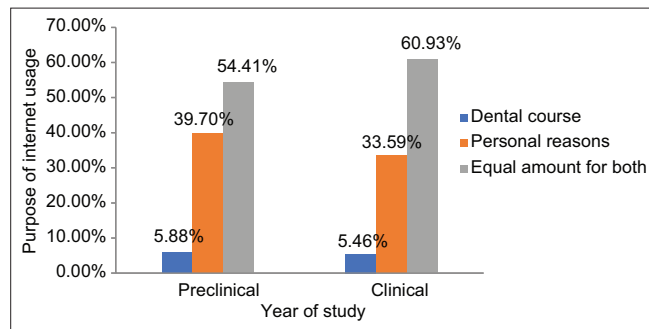
Almost $n = 226$ (85.6%) of the participated students preferred mobile phones to access the internet more than 3 times a day. Preclinical students, $n = 123$ (90.4%), opted mobile phones to access the internet more than 3 times a day. Frequency of using mobile phones to access the internet is statistically significant between preclinical and clinical students [Figure 2].

$N = 127$ (48.1%) of the total students used both mobile apps and websites for finding information regarding dental course. The usage of both mobile apps and websites is more by the clinical students $n = 67$ (52.3%) when compared to the preclinical students, $n = 60$ (44.1%). Frequency of using both mobile apps and websites regarding dental course is significantly high among clinical students rather than preclinical students [Figure 3].

$N = 199$ (26%) of the total students opted Google as the main site for accessing information dental subject followed by Google Scholar - $n = 188$ (25%), Wikipedia - $n = 155$ (21%), PubMed - $n = 135$ (18%), ScienceDirect - $n = 55$ (7%), and MEDLINE - $n = 22$ (3%) [Figure 4].

The main reason that stops the preclinical students from using internet on their phone is stability of internet connection, $n = 61$ (44.9%), followed by quick drainage of battery, $n = 41$ (30.1%) [Figure 5].

$N = 216$ (42.5%) of the total students preferred instant messaging as the first choice of communicating tool

Figure 1: Purpose of internet usage among the dental students
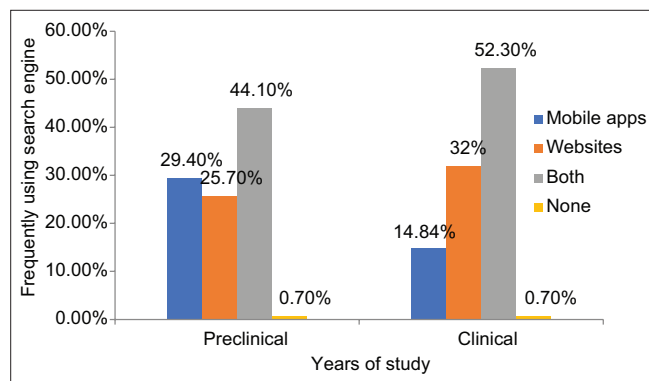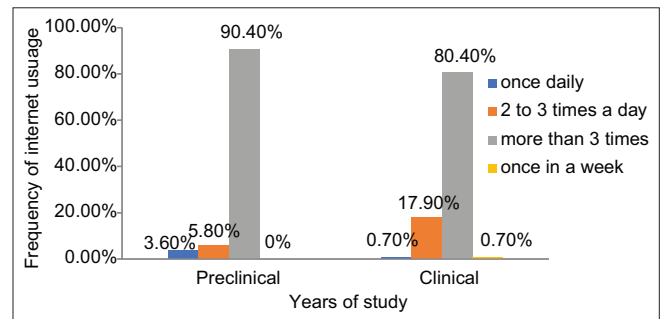

Figure 2: Frequency of internet access among dental students

Figure 3: Most often used search platforms by the dental students for finding information regarding dental course
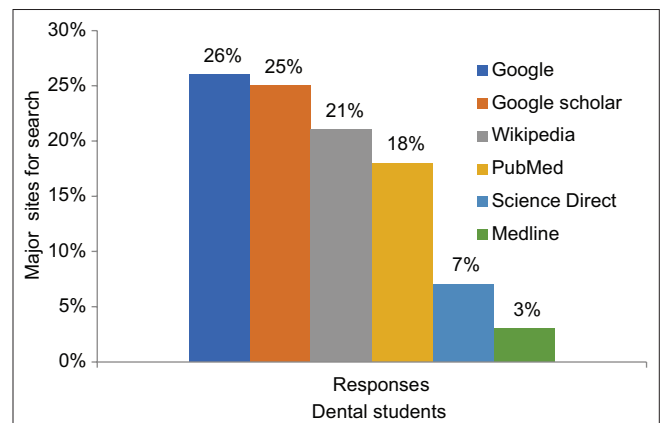

Figure 4: Major websites used for searching information regarding dental course by the students

followed by social networks, *n* = 211 (41.3%), as the second choice [Figure 6].

About *n* = 27 (47.05%) of preclinical and *n* = 89 (41.26%) of clinical students agree that the availability of internet in their smartphones and its usage has a positive impact on their dental academics [Figure 7].

DISCUSSION

Smartphones have become an essential part of every student's life. A survey indicated that holder of mobile devices continues

Figure 5: Factors that stops students from using the internet in mobile phones

Figure 6: Communicating tools used for communication by the dental students

Figure 7: Impact of mobile phones on dental students' academic performance improvement

to flourish and most of the students are employing smartphones for learning and schooling.

Having a smartphone makes internet access faster easier and cost-effective. It can be carried along with ease and making internet access possible at all times of the day. Smartphones have certain social networking apps, and the best part is that instant messaging is achievable with the internet in smartphones.[7]

The results of this study show that most of the students opted smartphones as their first choice and desktop as their second choice to access the internet which is in harmony with the study done by Suner *et al*., where the usage of smartphones was more (97.5%) than that of laptop computer (85.2%).[3] Comparing to the preclinical students, the usage of desktops by the clinical students is more. This is because of their size in numbers and they can run more advanced software.

Furthermore, the practical advantage of smartphone may be the reason why students are using them more than the desktop computers. Students staying in the hostel and those who were away from the home may find it difficult to carry the desktop computer, so smartphones are used more by the students.[1]

Students instantly search via smartphones for information, and therefore, educational material should be designed to accommodate for such technique for access.

According to Jali *et al*., in Rajasthan, 34% of the students used internet on a daily basis which is lower than the results of the current study.[8] In our study, 55% of the students used mobile phones to access the internet more than 3 times a day. There is a 10% increase in the usage of internet by the preclinical students than the clinical students. This can be attributed to the increase in digital resources and data penetration across the population in India.

Mobile apps are software programs that run on smartphones and other devices. The broad adoption and use of mobile apps can help people manage their own health and gain access to useful information.[9] In our study, 48% of the students uses both mobile apps and websites for finding information regarding dental courses.

Google was the most prominent search engine as it mediates and shapes the information seen by the users. Google can be checked through its preview feature without the need to visit the original website, thus allowing the users to glance through information directly.[10] Google platform is used by thousands of schools and universities globally to make efficient use of available combination tools for students and faculties with the primary objective of upgrading teaching and learning.[11] Our study shows that the most favored search engine for exploring knowledge regarding dental course is Google.

Network communication is the central facet of use of many mobile applications. Battery lifetime depends highly on distinctive usage and can severely limit the service of modern smartphones.[12] In our study, the two main reasons that break
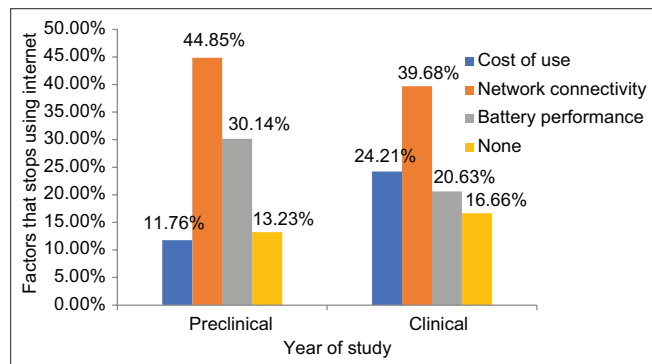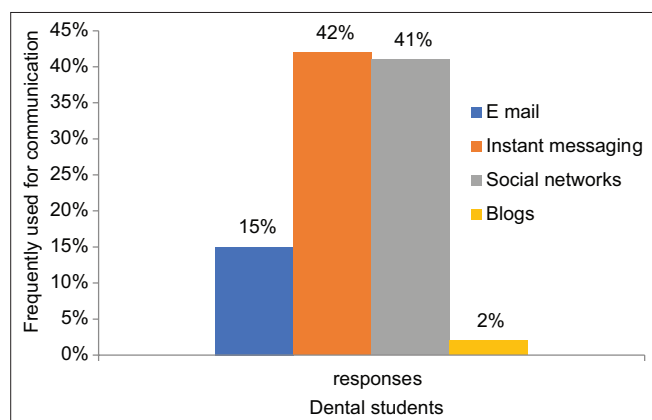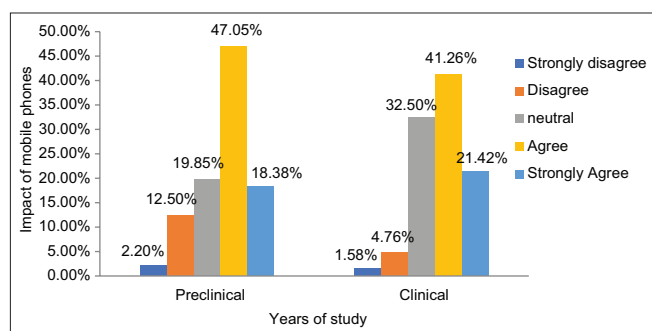
the preclinical students from using the internet on their mobile phones were internet connection and quick drainage of batteries, which is in controversy with the study done by Eduljee *et al*., where 41% of the students said that cost of use was their main reason for not using the internet.[13]

Smartphones allow students to access internet-based services almost everywhere and every time. Openness to these functionalities provides students the chance to search continuously for study-related information.[14] Both preclinical and clinical students agreed that the availability of internet on the smartphones has a positive impact on their dental academic experience.

CONCLUSION

Majority of the undergraduate dental students used smart phones with internet connectivity which served as a mainstream learning tool for digital resources available online. Mobile technologies are also helpful in accessing information and improving communication between staffs and students.

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Conflicts of interest
There are no conflicts of interest.

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