ORIGINAL ARTICLE

Awareness of academic use of smartphones and medical apps among medical students in a private medical college?

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Abstract

Objective: To assess the awareness of medical apps and academic use of smartphones among medical students.

Methods: The questionnaire-based descriptive cross-sectional study was conducted in January 2015 and comprised medical students of the Rawal Institute of Health Sciences, Islamabad, Pakistan. The self-designed questionnaire was reviewed by a panel of expert for content reliability and validity. Questionnaires were distributed in the classrooms and were filled by the students anonymously. SPSS 16 was used for statistical analysis.

Results: Among the 569 medical students in the study, 545 (95.8%) had smartphones and 24(4.2%) were using simple cell phones. Overall, 226(41.46%) of the smart phone users were using some medical apps. Besides, 137(24.08%) were aware of the medical apps but were not using them. Also, 391(71.7%) students were not using any type of medical text eBooks through their phone, and only 154(28.3%) had relevant text eBooks in their phones.

Conclusions: Medical college students were using smartphones mostly as a means of telecommunication rather than a gadget for improving medical knowledge.

Keywords: Smartphones, Medical applications, Medical students, Medical college, Medical education. (JPMA 66: 184; 2016)

Introduction

Smart phones are devices used for telecommunication as well as multiple other functions which were previously unthinkable on a hand-held device. These functions can be as simple as numerical calculations to more complicated computing capabilities. Touch screen with large displays and also management tools and efficient operation systems have made it feasible to assemble, read, manage and communicate documents on a hand-held device. Furthermore, smartphones have capacious memories that help professionals to store huge amount of records digitally instead of writing and carrying them around manually.[1]

All these features in a smartphone help to integrate third-party applications known as 'apps' which are now being used in a wide number of sectors such as business, travelling, lodging, education, media, medical and health fitness and many more. These apps have also revolutionised the medical field by integrating the medical practice with these smart phones. Applications in smartphones are being used for clinical guidelines, medical calculators, drug reference tools and other decision-support aids, textbooks, and literature search portals.[2-4] Amazingly there are mobile apps which can simulate surgical procedures and help in medical examination such as hearing and visual tests.[5] To avoid the need to buy newer edition textbooks, medical applications are being updated annually.[6] The benefits of these apps are better management of time and information, maintenance of record ,better communication and consultations, medical education, medical training and clinical decision-making. Using smartphones has lessened the chances of misunderstandings between patients and the doctors by making simpler for the laymen to understand dosages and prescriptions.[7,8]

There are more than 13,000 applications present in the cyber world labelled under the "Medical" and "Healthcare and Fitness" categories. This number is significantly increasing annually. Apple Inc. known as Apple store made the first platform for these apps. Afterwards, many other such stores were formed such as Google Android, Symbian, Blackberry, and Windows Mobile.[9]

It was believed by 84% of the medical students that smart devices were a useful addition to their education, as shown by a recent survey done in the United Kingdom.[4] At a Canadian university, 65% students were using some medical application to access clinical textbooks and drug references.[10] One study showed that in a Canadian university 85% of the students owned a smart phone or a tablet, and they were daily used by about 85% and one application was used by 77% for medical purposes.[11] IPhone is being made a requirement in some schools like

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The present study was planned to identify the extent to which medical students are aware of the academic use of smartphones and medical apps in their education.

Subjects and Methods

The questionnaire-based descriptive cross-sectional study was conducted in in January 2015 and comprised medical students of the Rawal Institute of Health Sciences, Islamabad, which is a private-sector medical college. The sample size was calculated by using the World Health Organisation (WHO) calculator[13] with confidence level of 95%,absolute precision 0.02% and P=95%.

The questionnaire was constructed by the lead researcher and reviewed by an expert panel for content reliability and validity. Previous literature and researchers' personal experiences were used to form and phrase the questions.[2,14]

The questionnaires were distributed in classrooms and were filled up by the students keeping their names incognito. The questions related to the usage of smart phones, type of smart phone being used, awareness of any medical apps, name of the apps, awareness of any medical books, time spent on medical apps, purpose of using medical apps, necessity for healthcare professionals and the best way to educate health professionals. Any further issues related to the smartphones were discussed by using an open-text entry box by the respondents.

SPSS 16 was used for statistical analysis. Frequencies and percentages were calculated for categorical variables and mean and standard deviations were calculated for numerical variables. Descriptive statistics were used for all continuous variables.

Results

Out of 569 medical students, 343(60.3%) were females and 226(39.7%) were males. The overall mean age was 21.51±3.70. Overall, 545(95.8%) had smartphones and 24(4.2%) were using simple cell phones; 360(63.4 %) were using Android phones and 209(36.6%) were using IPhones.

Among the users of smart phones, 319(58.53%) were not using any medical apps and only 226(41.46 %) were using the medical apps on their phones. Out of 343 females, only 135(23.73%) were using medical apps on their phones, while out of 226 males, only 91(15.99%) were using the medical apps.

When inquired about the name of the medical apps students were using, 395(69.4%) did not respond to that specific question; 86(15.1%) were using medical dictionary.

In terns of eBooks, 408(71.7%) were not using any type of medical text eBooks through their phones.

Besides, 373(65.6 %) students thought that the awareness of medical apps among medical professionals and students can be achieved by introducing workshops, and 99(17.4%) thought that this can be achieved by incorporating a single lecture into the student module system for the relevant apps and text books.

In terms of internet access, 528(96.88%) of the 545 smartphone users had internet on their phones (Table).

Discussion

There has been a paradigm shift of thought regarding the usage of mobile phones in the last 5 years. Due to rapid breakthroughs in technology, cell phones have overnight turned from telecommunicating devices to multi-tasking hand-held computers. Masses have as usual responded to this industry-driven gadgetry like it has been responding to fashion products and branded perfumes. This fact is revealed in our study in which 95.8% respondents had smartphones and 24(4.2%) were using simple cell phones. This comes out to be interesting when compared with a US-based study[15] done on medical students which reported a clear divide in about 52% between pre-clinical and clinical years(28% and 76% respectively).[16] One British[4] study in contrast showed equal smartphone ownership within pre-clinical and clinical years (76% and 80% respectively). Smartphone usage even in the UK-based community is less compared to our study.

The British[4] study showed that 83.3% of smartphone users used medical apps with 47% of them using it for educational purposes. Contrary to above-mentioned studies, only 226(39.7%) of the smart phone users were

Table: Academic Use of Smartphones by the students.

Academic Use	Students Using (n=)(%)	Not Using (n=)(%)	Total(n=)
Use of Medical Apps	226(41.46%)	319(58.54%)	545
Using E-books on Phones	154(28.30%)	391(71.7%)	545
Academic information through net	224(42.42%)	304(57.58%)	528

using any medical apps and 338(59.4%) were just using their phones for telecommunication and social networking in our study.

A similar study conducted locally in Karachi, Pakistan,[17] showed a smartphone ownership of 65.7% amongst postgraduate Residents, which is much less than our study. The plausible thing in the same study was that despite a lower number of smartphone ownership, its academic usage was much higher (85.7%) than our study.

It was surprising that 391(71.7%)students were not using any type of medical text ebooks through their phones and only 154(28.3%) had relevant text books in their phones compared to one study which showed that 61% students used their phone for clinical handbooks and text books.[15]

One startling fact that was inferred from the study was that 528(96.8%) out of 545 people had internet on their phones; 304(57.58%) had availability to the internet, but still were not using any type of medical information from their phones. A study done in Multan[18] showed similar results as regards internet usage among medical students. The study showed that 176(99%) out of 177 students had access to the internet but only 90(50.6 %) used it for educational purposes.

An important fact that cannot go without being quoted is that to date there are 10 million 3G users in Pakistan which is more than Singapore and equal to Malaysia.[14]

Einstein once said: Confusion of goals and perfection of means seems, in my opinion, to characterise our age.[19] The above-mentioned discussion makes us believe the same. Almost all our subjects had smartphones yet somehow we were unable to see a positive usage of this expensive appliance in our study.

Conclusion

Medical students in the study were using smartphones mostly as a means of telecommunication rather than a gadget for improving medical knowledge. Most of the students were unaware of the medical apps and were not using their phones for academic purposes. We strongly suggest the need for increasing awareness among medical students of medical applications and their appropriate use in various faculties. This awareness can be brought about by integration of a lecture in the orientation classes of students and by arranging workshops periodically. Furthermore, we proposed at our institution that this study be shared with the parents so that they can persuade their children to make proper use of their expensive devices.

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