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Usage pattern of health-related smartphone applications among the medical students - A Cross-sectional study from central Karnataka, India

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ABSTRACT

Background: The use of smart phones is widely prevalent and becoming increasingly affordable. The level of smart phone use by medical students is increasing day by day. However, studies looking at the usage of health related smart phone applications among medical students are few. Thus, our study aimed to know the usage pattern of health related smart phone applications among the medical students. **Methods:** A cross sectional study was carried out from May-July 2018 among undergraduate students in JJM Medical college, Davangere. A pretested semi-structured questionnaire was used for collecting the data. The study participants were asked about use of health related smart phone applications, their satisfaction and perceived benefits after using the health related smart phone applications. Self-reported health status of the students was also collected. Descriptive statistics was used for the analysis. **Results:** A Total of 62 participants participated in the study and were using health related apps. Majority of the participants who were using health apps were females. The most widely used application was nutrition apps which accounted to 56.4%. About 72.4% of the study participants were spending 30minutes to 01 hour using the health related apps. 19.35% of the study participants perceived the apps to be useful and minority of them were satisfied by the information provided by the health related applications. **Conclusion:** Study concludes that among the study participants' majority were females and they were using nutrition related applications. Majority of the users were not satisfied with the information provided by the health related applications.

Key Words: Smart phones, Medical students, Health related smart phone applications, Usage of apps.

INTRODUCTION

Technology has been growing in rapid pace. The advances in information and technology has led to invention of smartphones. The smart phones have become integral part of day to day life of individuals. A smartphone is a device in which additional features can be added by means of applications and it has an operating system which allows individuals to be connected to world wide web.¹ The data of statistics portal has predicted that the number of smart phone users worldwide will increase from 1.5 billion in 2014 to 2.5 billion in 2019. In India the smartphone users was predicted to increase to 299.24million with the worldwide smartphone users was predicted to exceed 2.5billion users.² According to recent statistical report of 2018 the number of apps available for android users are 2.1million apps and for iPhone users the number of apps available are 2million.³ Approximately 51% of mobile users in India glance at their phone without being prompted by a notification which indicates that the individuals are highly dependent on smart phones for communication , for obtaining information and for other activities. The smart phones have large varied variety of applications which are software programs which enhances the functionality of the smart phones⁴. The number of health and medical related apps which are available are over 318000 according to

2018 statistics.⁵ The diverse nature of the applications is more appealing to the youth. According to 2015 report about 58% of the smart phone users have downloaded the health related apps and have used it.⁶ As the smart phones are affordable more youth are able to own a smart phone. 50% of the smart phone users in India are under the age group of 25.⁷ The population in this group can be encouraged to participate in various health and wellness programs. Prior studies indicated that only 24% of youth owned atleast one health-related applications and 26% of them have used health related applications only once⁸. The low acceptance rates could be attributed to the diversity of the applications available online, as well as the fact that the current health applications conceptualization does not appeal to the needs of the younger generation. Smart phones are useful to medical students because they are agile, handheld, easy to use and can be used on the move. The level of smartphone usage by medical professionals seems to be increasing exponentially.⁹ The studies regarding the usage of health related smartphone applications among the medical students. Therefore, this study was undertaken to know the usage of health related smartphone applications among the medical students of JJMMC.

MATERIAL AND METHODS

A cross sectional study was carried out from May-July 2018 in JJMMC. After obtaining approval from the institutional ethical committee the study was carried out. Around 450 undergraduates were approached for the study. Among them only those participants who had used any health related smart phone applications atleast once were recruited.

After taking informed consent from the participants, data was collected using pre-tested semi structured questionnaire. A total 142 medical students took part in the study. Among them those who did not complete the questionnaire were excluded from the study. So, the data of 62 students who had completed the study questionnaire was part of the study.

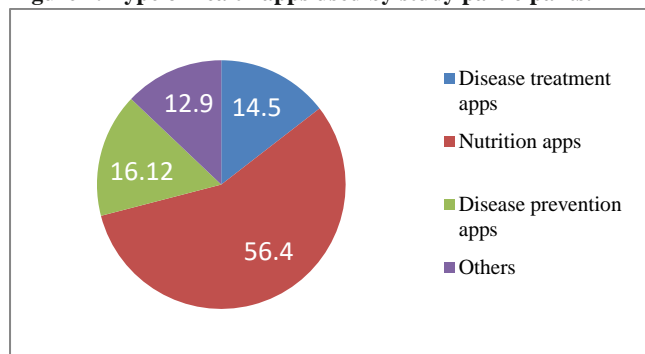
Data was collected using pretested semi-structured questionnaire. The questionnaire contained 15 questions and answering all questions were mandatory. Data was collected on the purpose of usage of health related smartphone applications among the medical students. Smart phone usage and preferences: The time spent by each student using the smartphone applications was explored and their preferences of the type of applications used by the medical students was explored. The student receptiveness and the satisfaction of the student after using the smart phone related health applications was also explored.

Data was entered in Microsoft excel and analysed using SPSS version 16. Descriptive statistics were used and data was presented in the form of text, tables and figures.

RESULTS

62 medical students were included in the study based on the inclusion criteria. Majority of the study participants were female i.e. 35 (56.4%) and males were 27 (43.5%) . Majority of the study participants were in the age group 21 i.e. 41.9% followed by 29% who were in the age group of 22 followed by 14.5% were in the age group of 20 years and 8.1% were in the age group of 23years and 6.4% were in the age group of 24years.

Figure 1. Type of health apps used by study participants.



Among the study participants’ majority that is 35 (56.4%) were using nutrition apps followed by 10(16%) were using Disease prevention apps. The disease treatment apps were used by 9 (14.5%) of the students and 8 (12%) were using other apps. (Figure 1)

Table I: Attitude of the study participants regarding usage of health related apps.

| Characteristic | Grade | Number of students | Percentage |
|-------------------------------|----------------|--------------------|------------|
| Perceived benefits | Very useful | 12 | 19.35 |
| | Not useful | 50 | 80.2 |
| Satisfaction with health apps | Very satisfied | 10 | 16.12 |
| | Not satisfied | 52 | 83.87 |

Figure 2 Time spent by study participants using health related apps

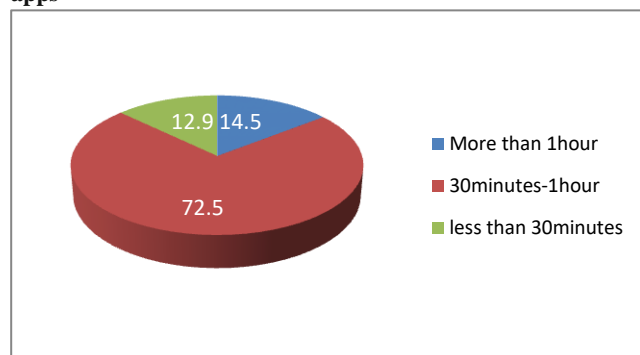


Table II: Purpose of Usage of health related apps

| Purpose of usage of health apps | Number | Percent |
|---------------------------------|--------|---------|
| Health issues | 16 | 25.8 |
| Weight management | 11 | 17.74 |
| No Specific purpose | 35 | 56.45 |

The attitude of the medical students after the usage of the health related apps was found out. Only minority of the study participants 12(19.35%) perceived that the health was useful and 10(16.12%) of the medical students were satisfied with the information provided by the health related smartphone applications. About 50(80%) felt that the health related applications were not really useful and 83% of the medical students were not satisfied with the information provided by the health related applications. (Table I)

Among the study participants about 9(14.5%) were spending more than one hour/day in using this health related smart phone applications. About 45(72.5%) were spending 30minutes-one hour /day using the health related smartphone applications and 8 (12.9%) were spending less than 30minutes/day. (Figure 2)

Among 62 study participants 16(25.80%) study participants used health related smart phone applications as they had health issues. About 11(17.74%) used health related smart phone applications for weight management. About 35(56.45%) used health related smart phone applications without any specific purpose. Among the study participants whose purpose of usage of the apps was health issues, the

most commonly used app was nutrition apps about 8(50%) followed by disease treatment apps, disease prevention apps and other apps. (Table II)

DISCUSSION

Our present study highlights that less proportion of medical students are using smart phone related health applications with usage predominantly in nutrition related applications. On the other hand, it was found that very few study participants perceived health related smart phone applications to be useful and very few were satisfied with the information provided by the smart phone applications. The results show that health related smart phone applications are not still widely used and/or accepted by the students. About 50% of the students used health related smart phone applications in our study. In a study done in American adolescents it was found that 21% of smart phone users downloaded health related smart phone applications.¹⁰ In a study done in Vietnamese youth it was found to be 14%¹¹. Notably in our present study it was found that nutrition applications were more preferred over the disease prevention and disease treatment applications. These findings were consistent with the findings in a previous survey where weight management, fitness applications were preferred more.¹²⁻¹³ In the present study it was found that minority of students perceived these health related applications to be useful. In a study done in Vietnamese youth 50% students perceived health related smart phone applications to be useful.¹¹ In a study done by Chan et.al it was found that half of the sample perceived the benefits of these health related smart phone applications to be useful.¹⁴ About 50% of the students were using health related smart phone applications which implies that they have better awareness of how the health status influences their performance academically which prompted to seek health information using technology in the form of health related smartphone applications. In Literature educational status is a significant predictor of seeking health behaviour such as seeking further health related information by using technology i.e internet services.¹⁵⁻¹⁸ In our present study it was found that students with health issues were more concentrating on usage of nutrition related applications rather than disease treatment and disease prevention applications. In previous studies it was found that youth and adolescents with chronic illness were more likely to use m-health apps to improve their conditions.¹⁴ It was assumed that 50% of our study participants preferred to visit nearest health facilities whenever they are encountered with health issues rather than downloading the health related smart phone applications in their smart phones. This health related smart phone applications were used to promote better health in adolescents with bringing change in their life style through the apps.

The limitations of our study are as it a cross-sectional study, we could assess the attitudes of the students towards health related smart phone applications only at one point of time, but attitudes of the medical students towards health

related smartphone applications may keep changing with time. Secondly most of the data which was gathered was a self-reported information so there may be insufficient recall from the students while answering the questionnaire. The results which are obtained in our study might not be generalised to the rest of the young population as they belong to different socioeconomic classes and different educational streams.

Conclusion: In conclusion this study highlights that 56% study participants were female and 44% were male who were using health related smart phone applications but only minority perceived these health related applications to be useful and few were satisfied with the information provided by the health related applications. As the features and uses of these health related smart phone applications expand, they will become widely used applications. Developing the health related applications in areas of disease prevention and quality of life improvement could be feasible to proliferate the benefits of these applications. Further research in the area of these m-health applications are recommended to optimise the content and interface of these apps to meet the demands of the population. Promotion of the knowledge and skills in the medical students in using the health related applications is necessary as it will help in their professional growth and competency.

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