



A study on utilization of health applications and its awareness among people

Shubhanshu Gupta^{1*}, Mani Goel², .Rashmi Yadav³

ABSTRACT

Background

Mobile health applications are a relatively new phenomenon in the healthcare industry, but their use is expanding rapidly for both general health and specific medical needs.

Objective

To compare the utilization of the health apps among patients visiting pharmacies and health stores hospital and its awareness among people.

Methods

A cross-sectional descriptive study was conducted with the general population who were using mobile health apps between January 2023 to June 2023. The participants in the study were recruited from retail pharmacies and health stores located in different areas in the cities. Clients visiting the pharmacies and health stores were approached and invited to participate in the study, and those who agreed were interviewed. The inclusion criteria included smartphone owners who were using health-related apps, of age ≥ 18 years old, and those who could speak the English language.

Results

Out of 270 individuals, 52% of the sample were male and 48% were female, and the mean age (SD) of participants was 29.74 (11.74). In this study, 31% of the participants reported using their health apps on a daily basis, 40% at least once weekly, and 25% monthly. The main benefits of mobile health apps were tracking of health status (49%), followed by motivation (24%) and gaining knowledge about health and fitness (20%). The main issues reported by the participants included inaccuracy of the app (12.5%), inconvenience (5%), and not being user-friendly (8%).

Conclusion

These apps inspired the participants to keep up their wellbeing and exercise while assisting them in tracking and need of medications. To ensure evidence-based and efficient app use to achieve the desired health outcomes, further opportunities for improvement have been found further longitudinal studies required to determine efficacy of these health applications.

Keywords: digital health, digital patients, health apps, mhealth, teleconsultation.

GJMEDPH 2024; Vol. 13, issue 2 | OPEN ACCESS

1*Corresponding author: Shubhanshu Gupta (MBBS,MD Community Medicine), Assistant Professor, Department of Community Medicine, GMC, Datia (M.P.), Email- tissgpl@gmail.com; 2.Mani Goel (Msc, PhD(Medical Pharmacology), Associate Professor, Department of Pharmacology, MLBMC, Jhansi (U.P.); 3.Rashmi Yadav (MBBS, MD Community Medicine, Associate Professor, Department of Community Medicine, DSLPASM, Pratapgarh (U.P))

Conflict of Interest—none | Funding—none

© 2024 The Authors | Open Access article under CC BY-NC-ND 4.0



INTRODUCTION

In the present era of smartphone devices and efficient operating systems performing complex operations the usage of medical applications have increased drastically in the last decade. Studies state that nearly 50% of the smartphone users have installed health based applications related to fitness, nutrition, pharmacy etc.[1] Mobile health apps(m Health) are internet based apps which are developed for the handheld devices or smart phones which support medical and other health activities which helps to monitor consumers health, provide assistance to physicians, helps with procuring medication etc.[2]. The adoption and usage of mHealth apps has risen over the past few years specially post the covid pandemic. The apps are designed to motivate and also help in behaviour change among the consumers to focus on health and wellness goals. Recent studies have shown rapid advancements of apps centered around health, wellness fitness, pharmaceuticals etc. Despite this the usage alsoas been limited to interactions and almost quarter of the apps are used only once after installation. [3] Even though mobile health apps have become an integral part of the healthcare system in India which provides health related information and services with ease of access to the patients the continuity of usage and awareness needs to be improved to optimize on their benefits benefits .Hence, the need of the study is to understand the utilisation and awareness among the patients regarding the health applications.

Materials and Methodology

A cross-sectional descriptive study was conducted among the general population who were using mobile health apps between January 2023 to December 2023. The participants in the study were recruited from retail pharmacies and health stores located in different areas in the cities. Clients visiting the pharmacies and health stores were approached and invited to participate in the study, and those who

agreed were interviewed. The inclusion criteria included smartphone owners who were using health-related apps, of age ≥ 18 years old, and those who could speak English.

The usage of mobile health apps in the field was covered in a study of the literature that included several facets of mobile health applications. A questionnaire was created after that. Following face and content validation by a review panel made up of public health and subject-matter experts, the draft questionnaire was then piloted with 10 users of mobile health apps. Minor improvements were then made after taking into account feedback, comments, and ideas from the pilot testing. The final survey included questions about socio-demographics (such as gender, age, ethnicity, and education) and information about health apps (such as common app kinds, usage patterns, the advantages of using them, and problems/challenges encountered when using them).This was an interviewer-administered questionnaire. Smartphone owners visiting pharmacies and other health stores were approached, and those who were using mobile health apps and met the inclusion criteria were invited to participate in the study. The participants were briefed on the objective of the study, and written consent was obtained before participation in the study. The study was approved by the Institutional Ethics Committee.

Statistical Analysis:

The statistical analysis was performed using SPSS for Windows version 22.0 software (Mac, and Linux). The findings were presented in number and percentage analyzed by frequency and percent. Chi-square testing was used to find the association among variables. The critical value of P indicating the probability of significant difference was taken as <0.05 for comparison.

Results:

Table 1- Demographic details of study participants

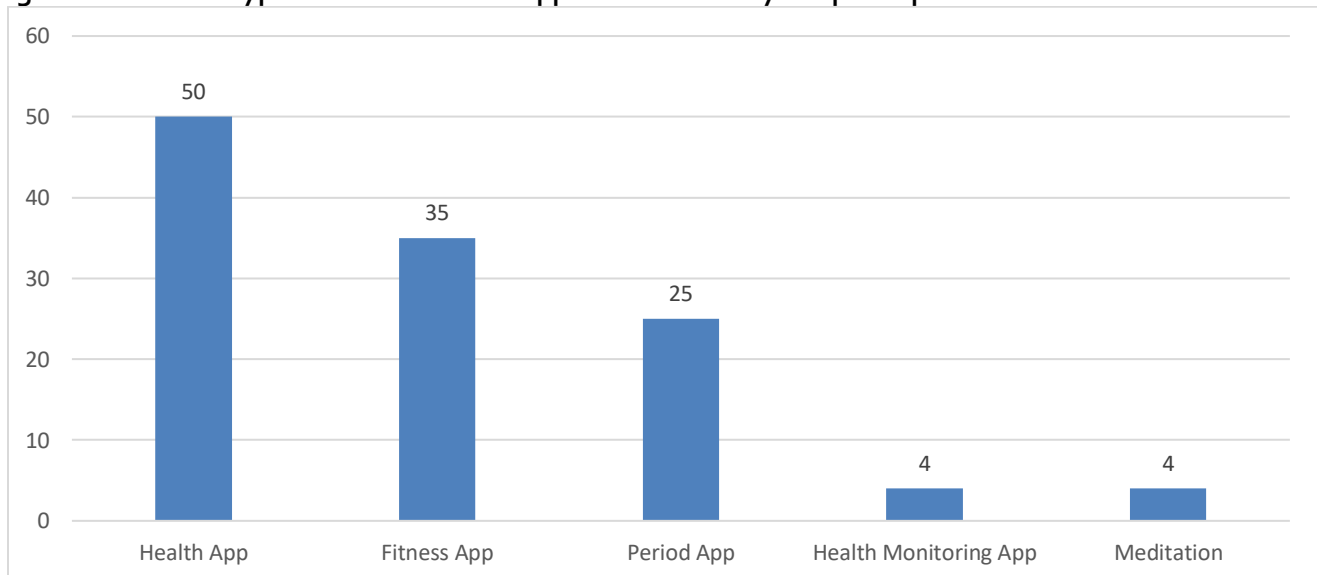
Variable	Number	Percentage
Age		
Mean \pm	29.74 \pm 11.74	
SD	18–65	
Range		

Gender		
Male	140	52
Female	130	48
Ethnicity		
Hindu	152	56
Muslim	70	26
Christian	31	12
Sikhs	17	6
Education		
Pre-university level	30	12.2
Diploma	95	31.7
Bachelor's degree	80	29.1
Master's degree	40	4.7
Professional degree	25	4.0

As per table 1 a total of 270 participants took part in the study. As shown in Table 1, 52% of the sample were male and 48% were female, and the mean age (SD) of participants was 29.74 (11.74). Furthermore, in

terms of ethnicity, 56% of the participants were Hindu. The participants were from differing educational backgrounds.

Figure 1- Common types of mobile health applications used by the participants



As per figure 1 Different types of mobile health apps are available via the Apple App Store or the Google Play Store. In this a total of 50 apps were used and the participants used different types of mobile health

apps for various purposes. The types of apps included multi-purpose health apps, fitness apps, period tracking apps, meditation apps, and health monitoring apps.

Table 2- The Pattern of Use of the Health Apps

Pattern	Frequency	Percentage
Daily	83	31
Weekly	107	40
Monthly	71	25
Twice a week	6	2
Twice a month	1	1
NA	2	1
Total	270	100.0

Table 2 shows the participants' usage frequency of mobile health apps. In this study, 31% of the participants reported using their health apps on a

daily basis, 40% at least once weekly, and 25% monthly, long term benefits can be updated with more frequent usage of apps.

Table 3- Participants views regarding benefits and challenges of Health apps

Variable*	Frequency	Percentage	p-value
Tracking of health status	132	49	0.01
Motivation	65	24	
Gaining knowledge	54	20	
Inaccuracy of app	34	12.5	
Non-use friendly	21	8	
Inconvenience	14	5	
Total		100.0	

*multiple responses

As per table 3 the main benefits of mobile health apps were tracking of health status (49%), followed by motivation (24%) and gaining knowledge about health and fitness (20%). The main issues reported by the participants included inaccuracy of the app (12.5%), inconvenience (5%), and not being user-friendly (8%). However, some participants with chronic diseases (n= 45) reported using mobile health apps for managing disease conditions, such as diabetes and hypertension.

DISCUSSION

Various mobile health apps were utilized by participants for a range of health and wellness goals, according to the study's findings. The variety of mobile health apps available to the general population also emphasizes the potential for mobile health apps to be integrated into the healthcare system. Furthermore, the findings from the current study are in line with other studies from the USA and Denmark, which showed that young adults were more likely to use mobile health apps as they are

more "technologically literate and have higher levels of e-health literacy skills). [4,5] The increasing use of mobile health apps provides a foundation for the use of these apps by the health systems.[6] Nevertheless, a standardized approach is needed to educate patients, and to integrate data from mobile apps into the healthcare system

Graetz et al reported that mobile health-accessible personal health records among diabetic patients can help bridge the digital divide created by a lack of computer access among those of lower socioeconomic status.[7] The penetration of mobile health apps among people of differing socioeconomic statuses and demographics is a good thing as it helps to improve access to health services in India and in other countries as well. The majority of survey participants had pre-installed health apps from smartphone manufacturers as well. The majority had also downloaded other multi-purpose health apps. The majority of participants used health-related apps on a daily or weekly basis, with fitness-related apps

being the most popular among the health-related applications as they give more information regarding life-style problems in the current scenario, like calories intake for diabetes, hypertension etc also it helps individuals to determine any cardiac risk or renal risk. Six factors led people to use these health-related mobile apps, including encouraging healthy behavior changes, monitoring food and exercise progress, receiving feedback such as an anticipated weight loss or gain, and determining how close they were to their ideal weight. Built-in mobile health apps can be a way to increase the use of mobile health apps for other diseases and health purposes, but more studies are needed

Therefore, it is thought that one of the key factors in increasing the usage of mobile health applications is to ensure that the features and requirements of these apps suit the needs and preferences of patients. According to Mendiola et al., users value mobile apps that are straightforward, simple to use, include guidelines for managing a disease, and permit them to share data with specific people.[8] However, only a very few of the popular exercise- and fitness-related mobile health apps were evidence-based and followed various health/clinical guidelines. These apps can be made more evidence based by targeted to low-resource settings, efficient, safe, and tailored to the users and their needs. To achieve these goals and maintain usability, special focus should be given to four specific themes. Interface design, feedback, navigation, and terminology. [9] In a study on system design and critical issues of mobile health apps, Baig et al reported that issues and challenges related to security and privacy of data, acceptability, reliability, and cost need to be addressed in order to benefit from mobile apps for patient monitoring, education, etc. [10]Consequently, comprehensive and concerted efforts are needed to ensure the effective, evidence-based and safe use of mobile apps for healthcare for a long period of time. [11]

Additionally, our study reveals that some of the participants used mobile health apps for particular diseases. However, just a small percentage of people were using mobile health apps for conditions including diabetes, hypertension, and other

healthcare issues. The usage of mobile health applications can assist patients in better managing their chronic health issues, but for this to happen, the apps must be used consistently and in line with a doctor's recommendations for better therapeutic results. This is due to the fact that utilizing health applications for a little time or discontinuing use of them after initial adoption (i.e., after a few uses) prevents users from reaching the desired results and any prospective behavioral changes. [12,13] For instance, Cedars and Blackmore stated that although patient compliance in terms of regular use was weak, a mobile health app for congenital heart problems has the potential to help improve the quality of care and also facilitate communication between patients and doctors. [14]

Our study has a few limitations; including the fact that it was only conducted in one state and that the results might not generalize to other states. We advise future research to examine the use of disease-specific apps in relevant patient populations, such as people with diabetes, as there were relatively few consumers who used disease-specific apps (such as applications for managing hypertension or diabetes). Additionally, this study did not include any apps that were not in the English language is the most common language covered but options of languages of target population is easily available in all apps.

CONCLUSIONS

According to the survey, the participants used a wide range of mobile health apps. Additionally, people used these health applications for a variety of things, such as general wellness, fitness, and, for some, disease self-management. These apps inspired the participants to maintain their wellbeing and exercise while assisting them in tracking and better managing their health. To ensure evidence-based and efficient app use to achieve the desired health outcomes, further opportunities for improvement have been found.

ACKNOWLEDGEMENT

The authors give thanks to the Heads of both departments for supporting us and providing time to collect data and manuscripts.

REFERENCES

1. Osman MA, Talib AZ, Sanusi ZA, Shiang-Yen T, Alwi AS. A study of the trend of smartphone and its usage behavior in Malaysia. *Int J New Comput Archit Appl*. 2012;2(1):274–285.
2. Lexico.com. Smartphone [Internet]. Oxford: Oxford University Press; 2019; Updated 2021. Available from: <https://en.oxforddictionaries.com/definition/smartphone>.
3. Qiang C, Yamamichi M, Hausman V, Miller R, Altman D. Mobile applications for the health sector. World Bank; 2012
4. Krebs P, Duncan DT. Health app use among US mobile phone owners: a national survey. *JMIR mHealth uHealth*. 2015;3(4):e101. doi:10.2196/mhealth.4924
5. Bol N, Helberger N, Weert JCM. Differences in mobile health app use: a source of new digital inequalities? *Inf Soc*. 2018;34(3):183–193.
6. Jusoh S. A survey on trend, opportunities and challenges of mHealth apps. *Int J Interact Mob Technol*. 2017;11(6):73–85
7. Graetz I, Huang J, Brand R, Hsu J, Yamin CK, Reed ME. Bridging the digital divide: mobile access to personal health records among patients with diabetes. *Am J Manag Care*. 2018;24(1):43.
8. Mendiola MF, Kalnicki M, Lindenauer S. Valuable features in mobile health apps for patients and consumers: content analysis of apps and user ratings. *JMIR mHealth uHealth*. 2015;3(2):e40. doi:10.2196/mhealth.4283
9. Modave F, Bian J, Leavitt T, Bromwell J, Harris Iii C, Vincent H. Low quality of free coaching apps with respect to the American College of Sports Medicine Guidelines: a review of current mobile apps. *JMIR mHealth uHealth*. 2015;3(3):e77.
10. Baig MM, GholamHosseini H, Connolly MJ. Mobile healthcare applications: system design review, critical issues and challenges. *Phys Eng Sci Med*. 2015;38(1):23–38.
11. Dennison L, Morrison L, Conway G, Yardley L. Opportunities and challenges for smartphone applications in supporting health behavior change: qualitative study. *J Med Internet Res*. 2013;15(4):e86.
12. Angosto S, García-Fernández J, Valantine I, Grimaldi-Puyana M. The intention to use fitness and physical activity apps: a systematic review. *Sustainability*. 2020;12(16):6641.
13. Vaghefi I, Tulu B. The continued use of mobile health apps: insights from a longitudinal study. *JMIR mHealth uHealth*. 2019;7(8):e12983
14. Cedars A, Blackmore C, editors. Use of a Disease-Specific Mobile Health Application in the Care of Adults with Congenital Heart Disease. Baylor University Medical Center Proceedings. Taylor & Francis; 2019.
15. Silver L. Smartphone Ownership Is Growing Rapidly Around the World, but Not Always Equally. 2019.
16. Active Usage of Mobile Health Applications: Cross-sectional Study Yang Wang 1; Tailai Wu 2 ; Zhuo Chen 3
17. Vaghefi I, Tulu B. The Continued Use of Mobile Health Apps: Insights From a Longitudinal Study. *JMIR Mhealth Uhealth*. 2019 Aug 29;7(8):e12983. doi: 10.2196/12983. PMID: 31469081; PMCID: PMC6740166.
18. KC B, Alrasheedy AA, Goh BH, Blebil A, Bangash NSA, Mohamed Ibrahim MI, Rehman IU. The Types and Pattern of Use of Mobile Health Applications Among the General Population: A Cross-Sectional Study from Selangor, India. *Patient Prefer Adherence*. 2021;15:1755-1762 <https://doi.org/10.2147/PPA.S325851>
19. Peng W, Kanthawala S, Yuan S, Hussain SA. A qualitative study of user perceptions of mobile health apps. *BMC Public Health*. 2016 Nov 14;16(1):1158. doi: 10.1186/s12889-016-3808-0. PMID: 27842533; PMCID: PMC5109835.
20. Anderson K, Burford O, Emmerton L (2016) Mobile Health Apps to Facilitate Self-Care: A Qualitative Study of User Experiences. *PLOS ONE* 11(5): e0156164. <https://doi.org/10.1371/journal.pone.0156164>