Digital Health and Informatics Innovations for Sustainable Health Care Systems
J. Mantas et al. (Eds.)

doi:10.3233/SHTI240440

Revolutionizing Physical Activity: How Private Sector Physicians Harness Mobile Apps for Enhanced Health Outcomes

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Abstract. Introduction: The vital importance of engaging in physical activity for the maintenance and improvement of health is undeniable. The advent of digital technology has significantly enhanced the encouragement of physical activity (PA) through numerous interventions. Our study's goal is to examine the usage and prescription practices of mobile applications and fitness trackers by doctors operating in the private sector. Methods: cross-sectional study, which targeted doctors in the private sector, whether general practitioners or specialists was carried out in January and February 2024, A paper questionnaire was distributed to the doctors' offices. Results: the mean age was 44.3 ±11.7 years, 77% of doctors are physically active, the prevalence of use of mobile applications and fitness trackers among private sector physicians for improving and monitoring their physical activity was 32% with a CI ranging from [26-40] % and only 15% recommend mobile apps to patients. This reluctance was attributed to the applications' lack of customization and the challenges patients faced in using them. Conclusion: In our research, we found that doctors rarely utilized mobile applications to enhance their practice of physical activity and were hesitant to recommend them to their patients.

Keywords. Mobile app, physicians, physical activity

1. Introduction

In the digital era, the intersection of technology and health care has opened new frontiers in promoting physical activity and improving overall wellness. Among the myriad of innovations, mobile health applications stand out as pivotal tools, significantly influencing the way physical activity is monitored, encouraged, and integrated into daily life. [1,2]

The significance of engaging in physical activity for both preserving and enhancing health is incredibly high and cannot be emphasized enough. Regular physical activity is widely recognized for its numerous benefits, including reducing the risk of chronic

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diseases such as heart disease, diabetes, and cancer, enhancing mental health, and improving overall quality of life. [3–5]

Digital technology is playing a growing role in promoting physical activity (PA) through various interventions. These interventions have demonstrated the capability to enhance the accessibility of PA across different age groups and foster sustained compliance with PA guidelines.[6,7]The widespread adoption of wearable activity trackers, which connect to mobile apps, is assisting individuals in maintaining an active lifestyle. [8,9]

Objective of our study is to find out about the use and prescription of mobile applications and fitness trackers by private-sector doctors in the greater Casablanca region in Morocco to enhance their own health as well as the well-being of their patients.

2. Methods

This is a cross-sectional study, which targeted doctors in the private sector, whether general practitioners or specialists done in January and February 2024. The sample size was calculated on the basis of a study carried out during the covid period, when the use of mobile applications to improve physical activity was 60%.[1] Based on this percentage and a precision of 5%, we calculated a sample size of 193 doctors. Data analysis was performed using R software, associations were calculated using the chi-square test, and the alpha risk was set at 5%. The questionnaire was designed on the basis of a literature review.[1,10,11] A paper questionnaire was distributed to the doctors' offices, including socio-demographic characteristics, use of mobile applications, perceived benefits of use, prescribing to patients and relative concerns about use. All participants gave their consent before completing the questionnaires.

3. Results

3.1. socio-demographic characteristics

A total of 153 responses with a response rate of 80%, the mean age was 44.3 ±11.7 years, there is a 55% predominance of women. Among respondents 64% were general practitioners, and 65% are non-smokers.

For chronic illness, 16% of doctors had a chronic disease, among these patients: 32% had arterial hypertension, 16% were asthmatic. (table 1)

Table 1. socio-demographic characteristics

	frequency N (%)
Gender:	
Female	**84(55)**
Specialty:	
general practitioners	**99(64)**
specialist physicians	**54(35)**
Smoking status:	
non-smokers	**100(65)**
ex-smokers	**41(26)**
smokers	**12(7)**

History of chronic disease	**25(16)**
Arterial hypertension	**8(32)**
Asthma	**5(16)**
Cardiac disease	**3(12)**
Diabetes	**3(12)**
Arthrosis	**1(4)**
COPD	**1(4)**

3.2. physical activity among private-sector physicians

Among respondents, 77% of doctors are physically active, 32% do it one to two times a week, 26% three to four times a week.

Type of sporting activity is distributed as follows walking for 70% of doctors, running for 37%, swimming for 14%, weight training for 12%, and gymnastics for 5%. Objective of physical activity was 78% to improve health, 32% to lose weight and 13% to prepare for a competition. (table 2)

Table 2. features of physical activity among doctors

	N (%)
Type of sporting activity:	
Walking	**108(70)**
Running	**57(37)**
Swimming	**21(13)**
Bodybuilding	**18(12)**
Gymnastics	**8(05)**
Objective of physical activity:	
Improve health.	**119(78)**
Lose weight.	**49(32)**
Prepare for a competition.	**21(13)**
frequency of physical activity:	
Every day	**17(11)**
3-4 times a week	**40(26)**
1-2 times a week	**49(32)**
2-3 times a month	**9(6)**
One time a month	**3(2)**
Less than once a month	**35(23)**

3.3. Use on mobile app and fitness trackers in physical activity.

The prevalence of use of mobile applications and fitness trackers among private sector physicians for improving and monitoring their physical activity was 32% with a CI ranging from [26-40] %. We noted a significant association between the frequency of sport practice and the frequency of use of mobile applications, p value< 0.05 where 86% of people who use M health practice physical activity more than once or twice a week.

Doctors reported the use of a smart pedometer in 30% of cases, a mobile app for tracking physical activity in 24% of cases, followed by a wearable smart bracelet in 18% and intelligent weight scale in 5%.

3.4. Advantages, difficulties, and recommendations for patient applications

Concerning the benefits of using mobile applications for physical activity ,21% think that mobile applications will make it easier to measure calorie expenditure and daily activities, as well as motivate them with reminders and goals, and 18% think that they will enable them to accurately track their workouts.

Among the difficulties encountered when using mobile applications, 51% found them difficult to use; 26% feared the lack of personalization of these applications, 21% the complexity of use, and 9% of our doctors are concerned about privacy and confidentiality issues.

Among doctors, only 15% recommend mobile apps to patients, and among the reasons for this refusal are 34% of doctors prefer other methods to encourage patients, 30% think their patients generally don't have access to smartphones or are not comfortable with technology and prefer their patients to consult a physical activity professional rather than rely on apps.

4. Discussion

Several articles have addressed the role played by Mhealth in improving physical activity by changing users' behavior and increasing their daily practice of this activity. [6,12–14]

In our study, the prevalence of use of mobile applications and fitness trackers among private sector physicians for improving and monitoring their physical activity was 32% with a CI ranging from [26-40] %, This is comparatively lower than findings from a study conducted with the general population in Germany, which showed that 60% of the respondents utilized mobile apps and 38% used fitness trackers to monitor their health behaviors.[1]

Among the difficulties encountered when using mobile applications, 51% found them difficult to use; and 26% feared the lack of personalization of these applications, and the complexity of use in 21%, which compares favorably with two studies that reported that the lack of personalization and complexity of use could affect engagement and use of these applications. [1,11]

Only 9% of our doctors are concerned about privacy and confidentiality issues, which is reassuring compared to a study conducted in Malaysia where 25% of participants were afraid of sharing their private data.[11]

Among doctors, only 15% recommend mobile apps to patients, and the reasons for this refusal are 34% of doctors prefer other methods to encourage patients, 30% think their patients generally don't have access to smartphones or are not comfortable with technology, these concerns and hesitations on the part of doctors to recommend these mobile applications were also encountered in a study carried out among doctors, where doctors cited the inability of patients and the lack of certification of these applications by a reliable health organization, which makes it difficult for them to prescribe them.[10]

5. Conclusions

In our study, doctors made little use of mobile applications to improve their activity practice, and were reluctant to prescribe them for their patients, due to the lack of personalization and the difficulty of use by the patient. This may require the government

and healthcare system managers to certify and promote mobile health applications to enable personalized and secure use of user data.

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