Practique Clinique et Investigation

Physical and Rehabilitation Physicians' Perception and Attitude Towards Mobile Health Application in Saudi Arabia

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ABSTRACT

The importance of mobile health application among patients and other users has significantly increased in the recent past. Studies have indicated that the majority of patient users have positive attitude and perception towards the technology. The current study at physical and rehabilitation department sought to determine the physicians from Physical and Rehabilitation perception and attitude towards the mobile health application in Saudi Arabia. A total of 42 physician-respondents were sampled from different hospitals from Physical and Rehabilitation department in the country. Open-ended questionnaires were sent to them via online electronic media. A thematic analysis was used to perform the data analysis since the research design was qualitative. The results of the study indicated a generally positive attitude towards technology. The majority of the respondents also expressed adequate knowledge and awareness of the technology. They were also confident that the technology offered significant opportunity to improve the general healthcare service delivery. The results, however, showed that the majority of the physicians preferred when the patients used the technology, more than them. Nevertheless, the extent to which the application could be used was limited with many of the physicians citing safety concerns. They preferred that only basic information that had less impact on health outcome could be included in the applications. The study, therefore, suggested that in the future, physicians should be included in developing of such medical applications.

Keywords*: Physicians; Rehabilitation; Perception; Mobile Health Application.*

INTRODUCTION

The global rate at which mobile health applications are being installed and used on mobile, tablets, and computer devices in the past few years has grown significantly. Part of this has been necessitated by the internet, and largely the Smartphone technology. Worldwide, it is estimated that over 50% of smartphone, related devices, and internet users have at least installed a mobile health application [1]. The increased number of app users is concurrent with the recent trends that have emerged in the healthcare systems, mainly, the focus of healthcare towards self-centered care. Complementary technological development especially Telemedicine can also be attributed to the growing number of mobile health app users. Studies have indicated that majority of the users are of the age 18-34, and are more likely on an income bracket of more than $20,000; thus age and income

have been widely published as significant determinants of the acceptance and use of the technology [2]. Further, studies have also shown the clinical effectiveness of the mobile health application especially for self-administration of healthcare services among patients with chronic illness. The devices have further enabled nurses and other care providers at the community level to initiate patient follow-up, which has also been reported as an effective way of improving medical healthcare.

Despite the positive aspects that have been reported about the mobile health application, it is imperative to note that not the users alone determine the effectiveness of the apps. The attitude and perception of the physicians are equally important. The physicians are always in constant communication with patients; they know well the best approaches that can be used to enhance the effectiveness of healthcare. As such, if such applications are to be successful in achieving their objectives, the approval of the physicians is indeed crucial. In the current study, the attitude and perception of the physicians towards mobile health application are explored. The study proposed that given the evidence-based outcomes of the mobile applications, the physicians would have a positive perception and attitude towards the apps. Several studies have been done about the current topic. The section below presents the review of different literature related to the current research topic.

LITERATURE REVIEW

Sezgin M, et al. [3] explored the role of physicians towards the use of the apps in their medical practice. The study used a cross-sectional data collected from a total respondent of 128. The data were collected using close-ended questionnaires that were administered online to the respondents. Structured Equation Model and Confirmatory Factor Analysis were used to analyze the data. The results of the study reported that effort expectancy, anxiety with the mobile, perception of services available through the apps, and technical training were the significant determinants. In general, however, the researchers reported that physicians had a relatively positive attitude and perception towards the technology.

Achituv DB, et al. [4] are searched the physicians' attitude on the Internet of Things - Medical Device technology-applications that provide healthcare information over electronic devices such as Tablets, Smartphones, and computers. The study specifically explored only the applications that had been approved by the Food and Drug Administration. A sample total of 176 participants were examined. The participants were examined in two cohorts; the first one included 126 in 2014 and the remaining 50 in 2015. The results of the study indicated that there was a low level of awareness and readiness to use mobile health applications. Further, physicians seemed to express unwillingness to accept and use the technology. However, the results further, reported that physicians who had been exposed to the technology in the previous years were likely to accept it, and even had a positive attitude, which concurs with that of Sezgin M, et al. [3].

Berkowitz CM, et al. [5] studied the view of oncology providers on the use of mobile health application for cancer care. Mixed method - quantitative and qualitative approaches were used. Data from the respondents were collected using structured close-ended questionnaires. Eight physicians and four advanced practitioners were used in the study. In general, the results of the study reported that the majority of the physicians did not have the adequate exposure that was enough to use the technology - findings similar to those reported in the articles already reviewed. Despite the poor technical knowledge of the physicians towards the apps, the study further reported that the majority of the physicians were open with regards to recommending or prescribing the application to their patients.

Abadel HM, et al. [6] researched the knowledge, preference, and attitude of physicians in primary healthcare towards medical health applications in Saudi Arabia. The study specifically explored the use of the application on Smartphones by the physicians. The researchers used cross-sectional data collected from a total of 178 physicians from healthcare centers in Jeddah. Self-administered questionnaires were used to collect data from the study participants. The results indicated that majority (92%) of physicians in the country were aware of the mobile apps available, and even had a positive attitude towards the same. Another majority had installed the applications on their smartphones. The results as also reported that the commonly used application by physicians in Saudi Arabia was Medscape. The authors, therefore, concluded that physicians' attitude and perception towards mobile health was positive, and that they were knowledgeable with regards to the use of mobile apps.

Generally, the perception of physicians towards technology in the medical sector in Saudi Arabia has been reported to be positive. Telemedicine, for example, is one such technology that is gaining importance in the healthcare industry, especially in providing healthcare services remotely. Alaboudi A, et al. [7] reported the importance of telemedicine in the context of Saudi Arabia. The study indicated that many medical institutions already have the technology or are contemplating about it although significant challenges in the country include inadequate financial support, conformity, and issue of reimbursement concerning the technology.

Gagnon MP, et al. [8] explored the factors that influenced medical practitioners' adoption and use of mobile health application. The study was done using a systematic and meta-analytical design. A total of 33 studies were searched and selected from PubMed, CINAHL, EMBASE, and Psych info. The search period was 2000-2014. The results of the study reported that perception of ease of the technology, technical and other design issues, costs, privacy and security, and familiarity with the technology was the most significant determinants. A systematic research approach is often important in such cases since it provides a general trend in findings that have since been reported with regards to a particular topic. The studies that have since been reviewed about the physicians' attitude towards mobile health applications shows mixed results. It is, however, important to note that studies that were published about three years ago generally show a less positive attitude and adequate knowledge towards the use of mobile health application. On the other hand, recent studies show adequate knowledge and positive attitude towards the same. It is, therefore, safe to conclude that the physicians' attitude towards mobile health technology is changing with time and is becoming more positive, and their knowledge about the same also increases by the day.

METHOD

1. Design and Materials

A qualitative research design was used. The literature as presented in the immediately preceding section indicated that the physicians' attitude and perception towards mobile health technology are rather ambiguous. As such, it was prudent that the responses from the physicians towards the technology were not limited which would have been the case if the study was done using a quantitative study, with a close-ended questionnaire. It is important to note, however, the concerns and criticism around the use of qualitative research design with regards to biasness. The active involvement of the researcher in the process of data analysis has made many proponents of the quantitative research approach criticize it of vulnerable to manipulation Morgan DL [9]. However, the ability of this technique to elicit more information from given research questions more than the quantitative technique has made it gain even more popularity and acceptance in the research community. Since the research design is qualitative, the relevant material used was the questionnaire.

2. Sample Size

Unlike quantitative research design, qualitative research often uses a small sample size since the interview questions are open-ended hence could result in unnecessary large response capacity. A total of 42 physicians were sampled.

3. Data Collection and Analysis

Data for the study was collected through the administration of the questionnaires to the physicians via electronic media. The physicians then filled the questionnaires and sent back to the researcher

RESULT

Data analysis was done using a thematic approach and triangulation. The results indicated that the majority of the doctors were aware of the mobile health application. Also, most of them had a positive attitude regarding the use of technology in delivering healthcare services. However, most of the doctors were concerned that the English language as used in most of the applications could be challenging to the patients who may not have adequate comprehension of the language. Another theme that emerged is that majority of the physicians preferred the application to be used mostly by the patients more than themselves. In response to these assertions, the majority of the doctors reported that a typical problem among many patients, especially those suffering from chronic diseases was to miss appointments with doctors. The missing of appointments was reported as a cumulative effect for poor health service delivery since many patients only remember to go to the doctor when their condition gets worse. A major cause of the patients to miss appointment was forgetfulness and sometimes travel schedule. The physicians' therefore thought that the method could be effectively be used as a reminder of the patients' appointment with their doctors, as well as monitoring symptoms of their medical condition. It is therefore evident that the physicians' have a positive attitude towards the technology, except for the fact that they prefer it being used by patients more than themselves.

The researcher proved further the reason why the physicians associated themselves less with the technology but preferred it to the patients. A theme that emerged regarding the question was safety. Many physicians although agreed that accurate medical information could be provided on these devices, there was less confident in the capacity of the patients to use the information about different medical conditions appropriately. The physicians invoked their ethical responsibility of ensuring patients' safety, as such, they recommended the device only for basic uses such as a reminder for appointments, monitoring symptoms, and communicating with the physicians.

DISCUSSION

The physicians in Saudi Arabia generally have adequate knowledge and positive attitude towards the mobile health application. However, they have a reservation on the extent to which the patients are supposed to use the application. The origin of the concerns is indeed genuine. It is common knowledge that some people are afraid of seeking medical attention at the hospital. Some people simply dislike the environment; some are out of fear, while others may be informed by cultural and religious beliefs [10]. While these various groups may not like the hospital, the probability of them attempting to diagnose their medical condition using the mobile health application could be high. Many people have reported looking up symptoms of a medical condition affecting them, over the internet [11]. A potential consequence of such actions may include self-prescription of medicine without the assessment and evidence-based diagnosis. The outcome of this could be fatal especially when a wrong

prescription or the wrong self-diagnosis is made. As such, the physicians' concern about the extent of information and usage of the applications are indeed justified. Nevertheless, the applications could provide significant medical benefits when used for basic medical services such as communication, monitoring and evaluation, data recording and other activities whose outcomes are less clinical and complicated.

CONCLUSION

Majority of the physicians have a positive attitude towards the mobile health application. Most of them also exhibited adequate knowledge about technology. The results, however, revealed that much of the preference and use of the application was preferred to be on the patients' side more than physicians. Majority of them expressed concerns on the accuracy of the information in the applications and the potential safety breach when the patients self-diagnose and even prescribe drugs to them using the technology. Most of the physicians were concerned by the potential impact of patients missing appointments or not being able to identify undesired medical symptoms and act promptly, especially those suffering from chronic diseases. They, therefore, reported that the technology could be best used by the patients to avoid such unnecessary events that only serve to complicate their medical condition. Given these concerns, the study recommended that future studies should be done to explore the physicians' participation in developing these applications. It is possible that when physicians generally are engaged in developing the applications, their confidence for self-usage of the device in delivering healthcare could significantly increase. Currently, less information is available regarding their participation in developing the applications.

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