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ASSESSING THE EFFECTIVENESS OF MEDICAL/DRUG-RELATED APPS IN PATIENT HEALTHCARE MANAGEMENT

HAN BING SHI
Research Scholar, Lincoln University College, Malaysia.

Dr. AMIYA BHAUMIK
President, Lincoln University College, Malaysia.

BIKRAM GHELE
Lecturer, Vivekananda American University, Myanmar.

Abstract

In recent years, the availability and usage of medical and drug-related mobile applications (apps) have rapidly increased, promising to revolutionize patient healthcare management. This research paper aims to evaluate the effectiveness of medical/drug-related apps in enhancing patient outcomes and healthcare management. The study will employ a mixed-methods approach, starting with a comprehensive review of existing literature on medical/drug-related apps, their functionalities, and their impact on patient care. A systematic analysis of various app categories, including medication management, symptom trackers, appointment reminders, and health education, will be conducted. Quantitative data will be collected through surveys and usage analytics to assess the adoption rates, user satisfaction, and perceived effectiveness of medical/drug-related apps among patients. Additionally, qualitative data will be gathered through interviews or focus groups to explore users' experiences, challenges, and perceptions related to these apps. Key performance indicators such as medication adherence, self-care behaviors, patient empowerment, and health outcomes will be assessed to determine the impact of medical/drug-related apps on patient healthcare management. Statistical analysis and thematic coding techniques will be applied to analyze the data and identify patterns and themes. The research will also investigate the factors influencing app adoption and the barriers or challenges faced by patients in utilizing these apps effectively. Privacy and security concerns, user interface design, and healthcare professional recommendations will be considered in the evaluation process.

Keywords: Medical Apps, Drug-Related Apps, Healthcare Management, Patient Outcomes, Effectiveness.

INTRODUCTION

The internet and mobile computing have transformed the way that people work and live, enabling us to communicate with anyone, anywhere and anytime. And while much has been made of various technological aspects of this development, it was the advent of the personal computer which really revolutionized the workplace in general. One of the most important changes came from medical practitioners who used mobile devices like personal digital assistants, smartphones, and tablets. According to WHO, the development of health-related apps is intended to maintain or improve healthy behaviour, quality of life, and people's well-being (Gazdecki, 2017). Android and iOS mobile apps provide access to a wide range of medical materials via digital distribution platforms. Robert Stepania introduced "Mobile communications and network technology for health". As with all sorts of media, individuals and businesses have found a way to expand their

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reach through the use of mobile apps. Mobile technology has been a driving force in the evolution of mobile healthcare as it serves to combine patient care, prevention, research and education. While there is still debate about whether smartphones are dangerous or not to people's health while they are not being used specifically for healthcare purposes, they are certainly a part of it. Whether people use their phone solely for health-related purposes or even just social media, they are likely to be interacting with their phone at least some time during each day.

Medical App Operations

Mobile health (mHealth) is subsets of ICT's that help people interact with the healthcare system in order to improve their own health and well-being. The mHealth market has been growing rapidly over the last decade, and it is projected to keep growing at an even faster rate over the next few years. mHealth is a collection of mobile health applications designed to enhance and facilitate the exchange of information between patients, individuals, and their healthcare providers. Part of the mHealth movement, this concept has its roots in the 1990s when telemedicine began to make an appearance on the global healthcare stage. By its very definition, mHealth also includes remote monitoring systems and analytical tools that allow patients to communicate with their healthcare provider on a transparent platform using their smartphone (Thomas, 2019). At times, it may be difficult for patients to keep their control over their disease or illness. In many cases, due to no proper guidance or support from dermatologists, the patient is unable to lose weight or shed off extra pounds of fat. Those patients can resort to fitness tracking apps and online services to track their progress (Chakravarthy et al., 2014).

Chronology of mHealth Apps

In contemporary times, delivery of medical services has been improved by vanquishing the topographical and authoritative obstructions with the help of the emerging medical health applications in the medical care domain. With these factors the traditional approach of medical treatment has changed a lot as nowadays medical app users are having a superior experience and a great level of satisfaction in respect of communication with the doctors from their own convenience, paying off treatment fees via online, getting easy access to necessary clinical information etc. (Lu et al., 2018).

Smartphone in Clinical and Administrative Process

Practical medicine involves the integration of clinical and administrative practices on a daily basis. It is therefore imperative that healthcare professionals have access to convenient, rich and structured information at their fingertips that can be used in everyday practice. Health applications have been found to increase productivity, reduce response time and enhance communication between different teammates. The latest developments in smartphones have made these applications more user-friendly with an attempt to improve efficiency through easy usage without compromising on the core functionalities. The healthcare profession can benefit from smartphones in many ways. These devices provide access to evidence-based resources, an opportunity for remote patient

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consultation and support, and a platform for providing care to patients who are out of reach.

OBJECTIVE

1. To analyse the factors which regulate effectivity of health-related mobile applications.
2. To find various types of mHealth Application suitable for people of different ages.

REVIEW OF LITERATURE

Medical advice and healthcare delivery services are being enhanced by the use of mobile technologies (Mosa et al., 2019). This includes mobile phone applications, wireless transmission of data and video, text messaging and voice calls. The demand for advanced information has increased to support patient care and health services delivery. The advances in mobile technologies and applications are driving the transformation in health services delivery globally. Mobile health (mHealth) is defined as the use of voice calls, short message service (SMS), wireless transmission of data, and mobile phone applications to support healthcare provision.

Watson et al., (2019) Mobile health applications are being utilised to support the screening of diseases like hypertension and diabetes. Some studies in low-income countries identified mHealth applications as a useful tool for screening cancer conditions among rural communities

Alanzi et al., (2019) the use of mobile health applications has been helpful in improving the quality and access to health services. There are studies that indicate that mHealth applications support the screening of non-infectious diseases like hypertension and diabetes as well as cancer conditions. mHealth applications are being used to conduct studies and interventions to support the diagnosis of non-infectious diseases like hypertension and diabetes. While these applications helped reduce inequalities in health care, it required introduction of novel forms of delivery models.

Sharma and Singh (2009) talked about how privacy related issues are the main reason behind less use of portable banking in India. When conducting any business, it is imperative to have good customer service. In the age of self-service checkout systems and customer applets, customer engagement has never been a larger issue. Interacting directly with customers through phone calls or live interactions has become critical in today's business environment. Self-service customer support is the most favourable option for the consumer. Some consumers are even discouraged from calling customer service because of the cost and perceived level of helplessness when interacting with automated processes or technology.

Askari et al., (2020). The application of mobile health has been a great opportunity to deliver health-related information and services to people safely, efficiently and cost-effectively this is because users do not have to make any special arrangements to access

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information on their mobile phones. It also allows for people to seek healthcare services when they need it most, thus reducing the burden on emergency services. In addition, mHealth applications provide regular monitoring of patients' conditions so that if any changes occur they can be reported and action plans can be put in place accordingly.

According to Wisniewski et al., (2019) Mobile apps have a direct impact on our daily life and personal success. The literature on the impact of official guidelines over quality assessment of mobile apps revealed some contradictory views from the authors involved. Some authors argued that absence of guidelines would make it difficult to promote quality, while others argued that such a thing was heavily influenced by numerous factors. The lack of knowledge about the impact of official guidelines on mobile app assessments has been discussed to explore the reason behind this phenomenon. An analysis of literature revealed that gaps in understanding why such things happen are still left, and hence, a tendency to use official guidelines as an acceptance criterion for mobile apps. Another concern appeared, being that these official guidelines provide little or no information regarding what they should be or where they come from. The main effect of having an app guideline which is relevant to the assessment of apps, is that it influences the quality of information provided by them. This can be seen through the absence of such guidelines and how different views are presented on what the impact is for having such a thing.

Transformation of healthcare

The NHS is transforming its approach to patient care to include a focus on the inclusion of digital technologies, such as telehealth, smartphone apps and wearable technology. This can improve delivery of care by enabling services to be more flexible, accessible and responsive in real-time than they are at present. The growth in the market for digital apps, whose objective is to enhance or improve healthcare services and to help people with chronic conditions monitor their symptoms, can be considered as a response to the increasing demand for health expertise that has been facilitated by technological innovation. The market for eHealth applications is expanding rapidly (Savarese et al., 2019). Demand for online tools and services have continued to increase, particularly with the advent of new technologies that have created a universal interface such as mobile phones and tablets. With advancements in health app development technology and accessibility through new platforms, it continues to be an area of interest among healthcare professionals (Schwab and Langel, 2018). Conversely, an increasing number of medical conditions are being treated via this approach. Looking ahead into 2018, the industry is projected to have a compound annual growth rate (CAGR) of 24%. Growing demand for digital health solutions may lead to a new trend towards employing more individuals with senior PMP or EO roles within eHealth projects.

Digital Presumption and Healthcare Technology

Healthcare technology has come a long way in the past few years (Magrabi et al., 2019). There are apps that help you track your fitness and health, as well as some that provide instructions to induce proper medicinal dosage. Apps and mobile applications have

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become a form of communication between patients and doctors. These tools can be used in several different ways to benefit both parties, including patient-oriented medical information that can be accessed on their own terms, such as through the use of apps on iOS or Android devices, or through the integration of virtual care services sold by service providers or health insurers. The Health and Medical Apps market has a high level of competition with major players dominating the industry. The Health and Medical Apps market consists of highly sophisticated platforms that enable users to monitor their health, complete daily tasks or perform m-health self-care activities. These apps are dynamic in nature and are constantly improving based on feedback from their users. Apps have been designed for the medical market that can monitor and measure many bodily functions and symptoms in patients as well as work with smartphones to conduct medical tests for diseases and conditions, including add-ons that act as mobile medical devices. The top players in this market include Apple Inc., Google Inc., Samsung Electronics Co., Ltd., HTC Corporation, Samsung Electronics Co., Ltd., Sony Corporation, Microsoft Corporation, Nokia Oyj, Nokia Corporation and ZTE Corporation (Arnhold et al., 2014).

The World Wide Web was a revolutionary development that opened up opportunities for collaboration across distance and medium. However, many aspects of health and medical information were not easily accessible to patients and/or other users. The digitalization of health and medical information has progressed in a number of stages over the past quarter century. First, there was the emergence of the Internet and mass access to the World Wide Web in the mid-1990s. Then came Web 2.0 (now often referred to as “Web 1.5”), with an increase in interactive features such as blogs and podcasts that allowed people to interact with each other about their experiences as well as with healthcare professionals. The next stage is Web 3.0, with Artificial Intelligence apps that improve search results by making use of machine learning algorithms and artificial intelligence methods to parse data derived from user interactions.

In this age of digital “presumption” (combining production and consumption of Internet content), patients with chronic illness as well as their carers/representatives take advantage of these opportunities via social media platforms such as Facebook, Twitter. A key feature of the “digitally engaged patient” is that they can ‘take control’ over their own health by using digital technologies. Patients can create and upload images or videos, rate healthcare providers and medical treatments using social media platforms, blogs or wireless mobile devices that can connect to the Internet from almost anywhere. This ideal represents online content as offering patients the opportunity to take control of their health through self-monitoring and self-care practices via accessing digital information on a multitude of devices.

Industrial Growth and Impact of Medical Apps

Health-related applications have the potential to help a wide spectrum of target audiences with a variety of health concerns. They include the ability to make appointments and book surgery, track food or medication compliance, or make reminders for medications, appointments and tests. In addition, with the growing use of wearable technology and

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electronic health records (EHRs), additional remote consultation features can be integrated into these applications such as live lips reading or video calls (Boeuf et al., 2016). Further possibilities in this field include enabling access to patient data from home care assistants, who may then communicate with physicians as needed; online coaching for patients of diabetic specific training about diet, medications and managing pain; in addition there are numerous research studies seeking to develop customised social media communities for people experiencing chronic (Lee et al., 2017), mental health problems (Mannervik et al., 2018), or post-traumatic stress disorder (Post et al., 2018) which could have substantial benefits for patient engagement when relevant information is provided by other users in their social network.

Current IT Landscapes and Mobile App Development

Health care systems are increasingly exposed to new threats and pressures as technology rapidly extends its reach. The organizations that will thrive in a world of “connected health” will be those that embrace the rapid development, changing business models and disruptive innovation required by the emerging health IT landscape. But it will not happen overnight; when it comes to health care, change takes time (Palos Sanchez et al., 2019).

Now that online health records are ubiquitous, information technology (IT) has emerged as a dominant force in the healthcare industry. Despite their implementation, however, many electronic health records (EHRs) lack key desired capabilities and present poor usability. Many physicians are frustrated with their current technology and would like to have tools to help them spend more time with patients, including medical data management tools for managing documentation, clinical decision support tools for coordinating care across providers, and patient engagement tools for serving as a portal between patients and healthcare organizations. This chapter presents several opportunities to increase adoption among providers by addressing these problems using novel technologies such as virtual reality (VR) immersive experiences designed for cancer patients who feel overwhelmed by the amount of information available about their disease; neurologically enabled smart watches or intelligent pocket electronic devices that can monitor vital signs and alert doctors instantaneously when a patient falls out of range; or apps right on the hospital room television console that stream videos related to symptom prevention or healthy behaviors while simultaneously collecting data from other apps so they can be offered two-way communications with health care professionals (Rudin et al., 2016).

Innovation of Technical Differences between Mobile Health Apps

The answer to improving health care may lie in the development of novel, user-friendly apps. Beyond the social value of delivering more effective care, there are strategic business benefits, including lower patient and provider costs, better compliance with regulations, and enhanced patient satisfaction.

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In health IT, as in all domains, the principal challenge is to solve problems promptly and accurately. Health care providers must be able to quickly identify issues and deliver high-quality care faster. Surgeons around the world are using new technology to cut costs and improve patient outcomes—and they want to share their innovations widely. But many obstacles stand in the way of widespread adoption of these systems, including uninformed users who lack digital literacy and a lack of incentives for innovation on both sides. In this article we propose a plan for eliminating barriers that impede innovation in healthcare IT.

The world of healthcare is changing rapidly. Innovation and new ideas are needed to address drug discovery, medical imaging and diagnostics, electronic records, and many other areas. New health information technologies (HITs) can help but if they do not connect with end users they will fail. There is a more fundamental barrier that has not yet received due attention: the disconnection between health IT developers and users.

CONCLUSION

Once considered an unnecessary and potentially unsafe extension of the traditional hospital environment, mobile technology has now become a vital part of healthcare delivery. A growing percentage of patients seek their health care services via smartphone. This trend will continue as mobile devices become more powerful and capable. App development is expected to flourish along with this trend, offering a variety of new clinical applications to improve patient engagement and outcomes. A revolution in health care is happening right now, and it's changing everything. From apps to wearable devices and smart homes, we're moving toward a world where health and wellness are managed at home by patients, family members and caregivers.

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