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PAKISTAN'S PHARMACEUTICAL CARE ENTERS A NEW ERA WITH THE INTEGRATION OF DIGITAL HEALTH TECHNOLOGIES IN COMMUNITY PHARMACIES

Sharoon Mirza*[1], Shahana Mirza[2]

*[1]doctorsharoonmirza@gmail.com

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Corresponding Author: * Sharoon Mirza

Abstract

The introduction of digital health technologies into community pharmacies signifies a significant change in Pakistan's pharmaceutical care delivery system. With the rising frequency of chronic diseases and a growing emphasis on patient-centered treatment, traditional pharmacy procedures orientated around prescription dispensing are no longer adequate. This research investigates how community pharmacists can become more complete healthcare providers through the use of digital health innovations like tele pharmacy, electronic health records (EHRs), and mobile health (mHealth) technologies. These innovations have the potential to promote patient involvement, optimize clinical workflows, and improve drug management especially in underprivileged areas where access to healthcare is still a barrier. However, there are many obstacles to the use of digital health technology in the nation's pharmaceutical industry, such as inadequate training for pharmacists, regulatory concerns, and a lack of resources. This study evaluates the present level of digital health adoption in Pakistani community pharmacies, looks at the advantages and disadvantages, and makes suggestions to encourage the use of these tools. Community pharmacy can significantly contribute to filling in the gaps in Pakistan's healthcare system and enhancing general wellness by using digital technologies

INTRODUCTION

Global advancements in telemedicine, artificial intelligence, wearable technology, and mobile health applications are transforming the healthcare industry and bringing about a digital revolution. Digital health technologies are revolutionizing the way pharmacists engage with patients, handle pharmaceuticals, and contribute to the wider healthcare cycle in the pharmaceutical business. In example, community pharmacies are changing from being only drug distributors to taking an active role in managing healthcare, particularly with the introduction of telepharmacy, electronic health records (EHRs), and mobile health applications (Shrimali 2023).

For many in Pakistan, community pharmacies are their main source of healthcare, as access to hospital is still a major problem, especially in underdeveloped and rural areas. Also, there are approximately 50,000 community pharmacies, the bulk of which are found in metropolitan areas, according to a study conducted in 2019 (Khan, Khan et al. 2021). These pharmacies offer fundamental health advice as well as a crucial role in the dispensing of medications. When it comes to complete patient care, such as the management of chronic diseases, drug therapy, or health education, they are frequently underutilized.

Community pharmacies in Pakistan have the ability to address some of the major healthcare issues, such as medication non-adherence, limited access to care, and fragmented healthcare delivery, through the integration of digital health technologies. For instance, telepharmacy can provide pharmaceutical

services to isolated locations, giving patients access to qualified advice and medication management without requiring them to visit a medical centre (Baldoni, Amenta et al. 2019). Comparably, by reducing pharmaceutical errors and guaranteeing continuity of care, the use of EHRs can improve communication between chemists and healthcare professionals, thus enhancing patient safety.

Nevertheless, there are a number of obstacles Pakistan must overcome before adopting digital health technologies. Inadequate infrastructure, especially in rural regions, makes it difficult to deploy these technologies widely. Furthermore, the regulatory environment around digital health is still developing, and many chemists lack the skills needed to use these tools efficiently (Manzoor, Nosheen et al. 2021). The article seeks to give a complete analysis of the existing environment of digital health technologies in Pakistani community pharmacies, emphasize the potential benefits, and examine the problems that need to be addressed to realize the full potential of these innovations.

COMMUNITY PHARMACIES AND THEIR ROLE IN PAKISTAN

1. PRESENT STRENGTHS AND RESTRICTIONS

In Pakistan, community pharmacies mostly deal with drug dispensing and play a little part in overall healthcare management. They frequently serve as the initial point of contact for patients looking for over-the-counter medications and medical advice, especially in remote locations with limited access to doctors. As per Khan et al. (2019), the majority of community pharmacies in Pakistan are unable to engage in more comprehensive healthcare efforts like drug therapy management, chronic illness management, or health education due to the absence of formalized patient-care services.

Pakistani pharmacists frequently work under time restrictions and are unable to access patient medical information, which makes it difficult for them to offer individualized care. In addition, a lot of pharmacies lack the infrastructure required to implement innovative technology that could improve patient care. Because of this, there is a big difference between community pharmacists' potential as healthcare professionals and how they currently operate in the healthcare system (Khan et al., 2019).

2. INCREASED DEMAND FOR INCORPORATION OF DIGITAL HEATLH

The growing prevalence of chronic illnesses including diabetes, heart disease, and high blood pressure is driving up demand for more extensive and easily available healthcare services. Community pharmacies are in an exceptional position to close this gap, but in order to do so successfully, they need digital tools. By incorporating digital health technologies into their work, chemists can better provide patient-centered care, manage medications more effectively, and encourage patients to take an active role in their own health (Vansimaeys, Benamar et al. 2021).

IMPORTANT DIGITAL HEALTH TOOLS FOR PHARMACISTS

1. TELEPHARMACY

By using telecommunications to deliver pharmaceutical care, telepharmacy enables Pharmacists to offer consultation, medication counseling, and other services at a distance. This is especially helpful in underserved or rural areas with limited access to medical specialists. Telepharmacy holds promise in Pakistan for expanding the reach of community chemists to patients in remote areas, giving them prompt access to expert pharmaceutical services (Mahdi, Allana et al. 2022).

Remotely provided pharmaceutical counseling, drug therapy monitoring, and patient education are examples of telepharmacy services. For patients living in distant places with restricted access to healthcare institutions, telepharmacy offers a handy method for controlling chronic illnesses and acquiring vital prescriptions. Research has demonstrated that telepharmacy can boost overall health outcomes, decrease medication errors, and increase adherence among patients to medication (Mahdi, Allana et al. 2022).

2. ELECTRONIC HEALTH RECORDS

Electronic health records (EHRs) are digital versions of patients' paper charts, offering a real-time, patient-centered record that makes information available promptly and securely to authorized users. By

lowering the risk of pharmaceutical errors and guaranteeing continuity of treatment, EHRs can improve patient care by fostering greater collaboration between chemists and other healthcare professionals (Chishtie, Sapiro et al. 2023).

Community pharmacies in Pakistan are still only slowly implementing EHRs, primarily because of infrastructure issues and a lack of regulations. On the other hand, the use of EHRs could greatly enhance patient outcomes and drug management. Electronic Health Records (EHRs) facilitate better decision-making by giving pharmacists instant access to patient health information. This allows chemists to watch patients' progress, detect any drug interactions, and modify prescription therapy as necessary (Sarwar, Bashir et al. 2019).

3. MOBILE HEALTH APPLICATIONS

Applications for mobile health (mHealth) are being utilized more and more to involve patients in their own health management. These applications can track a patient's health, remind them when to take their medications, and give them access to resources for health education. MHealth applications are a useful resource for Pakistani community pharmacy looking to increase patient involvement and medication adherence. Pharmacists can assist patients in managing their diseases more actively by providing tailored medication reminders and health education (Burney, Abbas et al. 2013).

Additionally, mHealth apps can help patients and pharmacists communicate by enabling follow-up consultations, drug adherence tracking, and early detection of possible problems including side effects or non-adherence. This can be especially helpful for managing chronic illnesses, since the best results depend on ongoing communication with healthcare professionals (Bodenheimer and Berry-Millett 2009).

BARRIERS IN INTEGRATING DIGITAL HEALTH IN PAKISTANI COMMUNITY PHARMACIES

1. INFRASTRUCTURAL LIMITATIONS

The absence of infrastructure, especially in rural regions, is one of the main obstacles to Pakistan's adoption of digital health technologies. The use of telepharmacy, electronic health records, and other digital health solutions is impeded by the lack of high-speed internet and contemporary computer systems in many community pharmacies (Khan et al., 2019). Additionally, small, privately owned pharmacies may find it prohibitively expensive to implement and maintain these technologies.

2. REGULATORY BARRIERS

Pakistan's digital health technology regulations are still in the early stages of development. Pharmacy owners and practitioners face ambiguity due to the absence of defined recommendations for the use of EHRs, telepharmacy, and other digital health tools (Haq et al., 2020). To facilitate the widespread adoption of digital health technology, authorities must create a regulatory framework that fosters innovation and protects patient privacy and safety.

3. WORKFORCE AND TRAINING DEVELOPMENT

The lack of training provided to chemists is a significant impediment to the incorporation of digital health technologies in community pharmacies. The inability of many chemists in Pakistan to use digital health tools effectively limits their potential to integrate these technologies into their practice. As per Khan et al. (2019), pharmacists must participate in ongoing education and training programs in order to acquire the skills needed to accept and apply digital health solutions.

PROPOSALS FOR UPCOMING INTEGRATION

1. DEVELOPING A SUPPORTIVE REGULATORY FRAMEWORK

Clear regulations governing the use of digital health technology in community pharmacies must be established by policymakers. These regulations must address concerns about patient privacy, data security, and the extent of telepharmacy services. This will allow professionals and drugstore owners the assurance they need to implement new technology while maintaining patient safety.

2. ENHANCING INFRASTRUCTURE AND ACCESS

Especially in remote and underserved areas, infrastructure investment is crucial to facilitating community pharmacists' use of digital health

technologies. Initiatives from the public and commercial sectors should concentrate on enhancing internet access, offering reasonably priced digital health products, and assisting pharmacists in implementing these innovations.

3. TRAINING AND PROFESSIONAL DEVELOPMENT

To give pharmacists the tools they need to use digital health technologies efficiently, training programs should be created. The goal of these programs should be to ensure that chemists are equipped to provide high-quality treatment in a digital setting by emphasizing the practical application of telepharmacy, EHRs, and mHealth tools in routine pharmacy practice.

CONCLUSION

Pakistan's community pharmacies have a lot of potential to improve patient outcomes, improve healthcare delivery, and fill in the gaps in the country's current healthcare system by integrating digital health technologies. Especially in underprivileged areas, community chemists can become more involved in patient care by implementing telepharmacy, electronic health records, and mobile health applications. But before these technologies are widely used, a number of obstacles must be removed, such as regulatory obstacles, infrastructure constraints, and a shortage of training for chemists. With the correct support and investment, digital health technologies have the potential to alter the role of community pharmacies in Pakistan and increase healthcare access for all.

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