

Pharmacists in global primary healthcare systems: A comprehensive model for community health empowerment

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Abstract

Pharmacists play an increasingly important role in global primary healthcare systems, evolving from traditional dispensers to active participants in patient-centered care. This paper advocates for the stronger integration of pharmacists into healthcare teams to improve patient outcomes, medication adherence, and overall healthcare delivery. Through a comprehensive review, we examine the evolving role of pharmacists, the key challenges to their full integration, and the substantial opportunities they present, particularly in managing chronic diseases, providing preventative care, and enhancing patient education. We propose a model for empowering pharmacists to contribute more effectively to community health, especially in underserved areas. The paper also highlights the potential global impact of pharmacists in reducing healthcare costs, improving disease management, and promoting public health initiatives. Lastly, recommendations for future policy reforms, education enhancements, and research directions are offered to support the continued expansion of pharmacists' roles in primary healthcare systems worldwide.

Keywords: Pharmacists; Primary healthcare; Medication adherence; Chronic disease management; Preventative care; Healthcare integration

1. Introduction

1.1. Overview of the Role of Pharmacists in Healthcare

Pharmacists have long been essential players in healthcare systems, traditionally associated with dispensing medications and advising patients on the correct use of these drugs. However, their role has evolved significantly, particularly over the past few decades, to encompass a broader spectrum of responsibilities (Khan, McGarry, Naqvi, Iqbal, & Haider, 2020). Today, pharmacists are recognized as vital healthcare professionals, contributing directly to patient outcomes through medication therapy management, health promotion, and disease prevention. Their expertise in pharmacology allows them to assess the appropriateness of prescribed medications, monitor for drug interactions, and ensure optimal therapeutic outcomes, making them a crucial link in the healthcare delivery chain (A. K. Mohiuddin, 2020).

Pharmacists now serve as patient counselors and educators, actively participating in public health initiatives such as immunization programs, chronic disease management, and health screenings. They are also essential in providing individualized care by tailoring medication plans to patients' unique needs, considering age, comorbidities, and lifestyle factors (Oladipo, Muili, Rashidat, & Rokibat, 2022). Their ability to provide personalized, accessible care positions

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pharmacists as indispensable in improving healthcare delivery. However, despite this expanding role, the full potential of pharmacists in primary healthcare systems remains underutilized, especially on a global scale (Raiche et al., 2020).

1.2. Importance of Integrating Pharmacists into Global Primary Healthcare Systems

Primary healthcare, as the first point of contact within the healthcare system, is critical for ensuring access to essential health services and promoting health equity. As healthcare demands increase due to aging populations, rising rates of chronic diseases, and global health crises, such as the COVID-19 pandemic, there is an urgent need to optimize primary healthcare systems. Pharmacists, as highly trained and accessible healthcare professionals, can play a pivotal role in meeting these demands if properly integrated into primary care teams (Kendzierska et al., 2021).

In many parts of the world, pharmacists are often the most accessible healthcare providers, especially in underserved areas where physicians may be scarce. Their expertise in managing medication therapy, providing health education, and offering preventive care services can help alleviate the burden on overstrained healthcare systems (Stachteas, Symvoulakis, Tsapas, & Smyrnakis, 2022). Integrating pharmacists into primary healthcare can improve medication adherence, reduce medication errors, and enhance chronic disease management, ultimately leading to better patient outcomes. Pharmacists can also help to reduce healthcare costs by preventing hospital readmissions, offering cost-effective therapeutic alternatives, and promoting the rational use of medications (Pollard, Morran, & Nestor-Kalinoski, 2020).

Moreover, pharmacists' ability to provide patient-centered care contributes to better health literacy and patient empowerment. By educating patients about their medications and treatment plans, pharmacists can improve patients' understanding of their conditions, leading to greater adherence and engagement with their health. In turn, this enhances the overall effectiveness of healthcare systems, particularly in managing chronic diseases such as diabetes, hypertension, and asthma, which require long-term medication management and adherence (Mistry et al., 2021).

1.3. Aim and Scope of the Paper

The aim of this paper is to advocate for the stronger integration of pharmacists into global primary healthcare systems. By doing so, it seeks to highlight the potential of pharmacists to improve patient care, enhance medication adherence, and contribute to healthcare systems' overall efficiency and effectiveness. Although pharmacists are already integral to healthcare in many developed nations, there is a substantial opportunity for further integration in both high-income and low- and middle-income countries (LMICs). In LMICs, where healthcare resources are often limited, pharmacists can serve as key players in improving access to healthcare services and reducing health disparities.

The paper will explore pharmacists' current roles and contributions within primary healthcare, focusing on their potential to address critical healthcare challenges. It will discuss the barriers preventing pharmacists from fully integrating into primary care and offer solutions for overcoming these challenges. Additionally, the paper will propose a comprehensive model for integrating pharmacists into primary healthcare systems, emphasizing their role in improving medication management, patient education, and public health outcomes.

By advocating for the inclusion of pharmacists in primary care teams, this paper also aims to address global public health goals, such as Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs), which emphasize the importance of accessible, high-quality healthcare for all. Pharmacists, as highly skilled professionals with unique expertise in medication therapy, are well-positioned to contribute to achieving these global health objectives. Through their involvement in disease prevention, chronic disease management, and patient education, pharmacists can play a crucial role in strengthening healthcare systems worldwide, particularly in areas where healthcare resources are limited (Arowoogun et al., 2024; Nwankwo, Emeihe, Ajegbile, Olaboye, & Maha, 2024).

2. The Evolving Role of Pharmacists in Primary Healthcare

2.1. Historical Context

The role of pharmacists has undergone a significant transformation over the past century. Traditionally, pharmacists were viewed primarily as dispensers of medications, responsible for ensuring that patients received the correct drugs in the appropriate dosages (Khanam, 2021). In this capacity, pharmacists played a crucial yet somewhat limited role in healthcare, focusing on the technical aspects of dispensing medications and compounding prescriptions. Their interactions with patients were often transactional, centered around the mechanics of fulfilling prescriptions rather than engaging in meaningful clinical consultations or patient care (A. Mohiuddin, 2020).

However, as healthcare systems evolved, the scope of pharmacy practice expanded beyond mere dispensing. The growing complexity of modern medicine, combined with an increased focus on patient safety, chronic disease management, and preventive care, necessitated a shift in the role of pharmacists. In the 1960s and 1970s, the concept of "clinical pharmacy" began to emerge in the United States and other high-income countries. This movement encouraged pharmacists to move from the back room to the front lines of healthcare, where they could directly apply their specialized knowledge to improve patient outcomes (A. K. Mohiuddin, 2020).

Clinical pharmacy introduced the idea that pharmacists could play a crucial role in medication therapy management, including monitoring patients for drug interactions, optimizing drug regimens, and providing medication counseling. As pharmacists began engaging more with patients, their role shifted from product-centered to patient-centered (Balogun et al., 2024). This paradigm shift acknowledged that pharmacists' expertise in pharmacology could improve therapeutic outcomes, reduce medication errors, and promote better health literacy among patients. Over time, this patient-centered approach to pharmacy practice gained acceptance and became the norm in many healthcare systems around the world (Roosan et al., 2024).

2.2. Current Global Variations in Pharmacists' Responsibilities

Despite the global shift towards patient-centered care in pharmacy, the roles and responsibilities of pharmacists continue to vary widely across different countries and healthcare systems. Pharmacists in high-income nations such as the United States, the United Kingdom, Canada, and Australia are often integral members of multidisciplinary healthcare teams. In these settings, pharmacists are responsible for dispensing medications and providing direct patient care, conducting medication reviews, managing chronic diseases, and participating in public health initiatives such as vaccination programs and smoking cessation services (A. K. Mohiuddin, 2020).

In the United States, for example, pharmacists are authorized to administer vaccines and frequently collaborate with physicians and nurses to optimize patient treatment plans. In addition, many states have implemented "collaborative practice agreements" that allow pharmacists to adjust medication dosages or change prescriptions under certain conditions, further integrating them into the patient care process. In the United Kingdom, pharmacists work closely with general practitioners (GPs) in primary care settings, helping to manage long-term conditions such as diabetes and hypertension by conducting medication reviews and advising on medication adherence (McKeirnan et al., 2022).

However, the role of pharmacists is less established in many low- and middle-income countries (LMICs), where healthcare resources are more limited, and the primary focus remains on the supply of medications. In these regions, pharmacists may still be primarily viewed as dispensers of medications, with less emphasis on their potential role in patient education and chronic disease management (Miller & Goodman, 2020). This variation is often due to regulatory barriers, limited access to advanced pharmacy education, and a lack of formal integration into healthcare teams. Nevertheless, even in LMICs, there is growing recognition of the need to expand pharmacists' roles to address public health challenges such as non-communicable diseases (NCDs), which are on the rise globally (Kiguba, Olsson, & Waitt, 2023).

In some countries, innovative models of pharmacy practice have emerged to address these disparities. For example, in sub-Saharan Africa, community pharmacies are increasingly becoming hubs for primary healthcare services, offering basic health screenings, patient counseling, and referrals to other healthcare providers. These models demonstrate the potential for pharmacists to contribute to improving healthcare access and outcomes, even in resource-constrained settings (Wafula et al., 2022).

2.3. The Impact of the Evolving Role on Patient Outcomes and Healthcare Systems

Pharmacists' expanding role has significantly impacted both patient outcomes and the broader healthcare system. Numerous studies have demonstrated that pharmacists' involvement in patient care leads to improved medication adherence, better management of chronic conditions, and reductions in medication-related problems (Goldstone et al., 2021). In particular, pharmacists' expertise in medication therapy management has been shown to reduce hospital readmissions, improve patient satisfaction, and lower healthcare costs by ensuring that patients are taking the right medications at the right doses (Khaira, Mathers, Benny Gerard, & Dolovich, 2020).

One of the most important contributions of pharmacists in recent years has been in the management of chronic diseases, which are among the leading causes of morbidity and mortality worldwide. Pharmacists have been instrumental in helping patients manage conditions such as diabetes, hypertension, asthma, and heart disease by providing personalized medication counseling, monitoring for side effects, and helping patients adhere to their prescribed therapies. Research has shown that patients who receive medication therapy management services from pharmacists

have better control of their chronic conditions and experience fewer complications than those who do not (Heru Setiawan, Widayati, Virginia, Armour, & Saini, 2020).

In addition to improving individual patient outcomes, the evolving role of pharmacists has had broader implications for healthcare systems. As healthcare costs continue to rise, the efficient use of healthcare professionals is critical to maintaining the sustainability of healthcare systems. Pharmacists can help alleviate some of the burden on overstretched healthcare systems by taking on roles that were traditionally performed by physicians and nurses, such as managing chronic diseases and providing preventive care services. This allows other healthcare professionals to focus on more complex cases, ultimately improving the overall efficiency and effectiveness of the healthcare system (Raiche et al., 2020).

Moreover, pharmacists' involvement in public health initiatives has proven to be especially valuable in recent years. During the COVID-19 pandemic, pharmacists around the world played a crucial role in distributing vaccines, educating the public about preventive measures, and ensuring continued access to essential medications. Their accessibility and trusted relationships with patients made pharmacists key players in the global response to the pandemic, highlighting the importance of integrating them more fully into public health strategies (Jordan, Guiu-Segura, Sousa-Pinto, & Wang, 2021).

3. Challenges and Opportunities in Integrating Pharmacists into Primary Healthcare

3.1. Key Barriers to Pharmacists' Full Integration

Despite the significant progress made in expanding the role of pharmacists in primary healthcare, several key barriers still hinder their full integration into global healthcare systems. One of the most significant challenges is the regulatory environment that governs pharmacy practice (Chiu, Thow, & Bero, 2022). In many countries, laws and regulations continue to limit the scope of practice for pharmacists, restricting their ability to prescribe medications, adjust dosages, or provide certain types of patient care independently. These restrictions often result from outdated regulatory frameworks that view pharmacists as dispensers rather than integral members of healthcare teams. Without regulatory reform, the potential for pharmacists to contribute more fully to patient care will remain limited (Abousheishaa et al., 2020).

Educational barriers also present a significant obstacle to the broader integration of pharmacists into primary healthcare. In many countries, the training and education of pharmacists do not adequately prepare them for expanded clinical roles. While pharmacy education in high-income countries often includes advanced coursework in pharmacotherapy, patient counseling, and chronic disease management, many low- and middle-income countries (LMICs) lack the resources to offer this level of education (Drovandi et al., 2022). As a result, pharmacists in these regions may be ill-equipped to take on the more complex responsibilities that are increasingly expected of them in patient-centered care models. The lack of continuing professional development opportunities for practicing pharmacists further compounds this issue, preventing them from keeping pace with the evolving demands of healthcare (D'Souza & Scahill, 2020).

Systemic challenges also play a role in limiting the integration of pharmacists into primary healthcare. Many healthcare systems, particularly in LMICs, are structured in a way that isolates pharmacists from other healthcare professionals. Pharmacists are often seen as working in parallel with, rather than in collaboration with, doctors and nurses, which can lead to fragmented care and a lack of communication between healthcare providers (Salgado et al., 2020). This fragmentation not only limits the effectiveness of pharmacists in improving patient outcomes but also contributes to inefficiencies in the healthcare system as a whole. Moreover, many healthcare systems do not have established protocols for integrating pharmacists into multidisciplinary teams, meaning that pharmacists are underutilized in settings where they could provide significant value (Ihekoronye & Osemene, 2022).

Compounding these challenges is the issue of public perception. Many patients are unaware of the expanded roles that pharmacists can play in managing their health. This lack of awareness can lead to underutilization of pharmacy services, particularly in areas such as chronic disease management and medication therapy management. In some cases, patients may view pharmacists as less authoritative or knowledgeable than doctors, further limiting the extent to which pharmacists can engage with patients in meaningful ways. Changing public perceptions of pharmacists and educating patients about their valuable role in primary healthcare will be crucial to overcoming this barrier (M. D. Ajegbile, J. A. Olaboye, C. C. Maha, G. Igwama, & S. Abdul, 2024; Emeihe, Nwankwo, Ajegbile, Olaboye, & Maha, 2024).

3.2. Opportunities for Pharmacists to Enhance Primary Healthcare

Despite the challenges outlined above, pharmacists have significant opportunities to play a more prominent and impactful role in primary healthcare. One of the most promising areas for pharmacist involvement is in the management of chronic diseases, which represent a growing global health challenge. As the prevalence of chronic conditions such as diabetes, hypertension, and cardiovascular disease continues to rise, healthcare systems are increasingly overwhelmed by the demand for services (Khera et al., 2020). With their expertise in medication management and patient counseling, pharmacists are uniquely positioned to help alleviate some of this burden. By working with patients to ensure they are taking their medications correctly, monitoring for potential drug interactions, and adjusting therapies as needed, pharmacists can help improve disease management outcomes and reduce the risk of complications (Fekadu et al., 2021).

In addition to managing chronic diseases, pharmacists can play a critical role in preventative care. Preventative healthcare focuses on preventing diseases before they occur, reducing the need for more expensive and invasive treatments. Pharmacists, who are often the most accessible healthcare professionals in many communities, can offer valuable services such as health screenings, immunizations, and lifestyle counseling (DeMarco, Carter, Houle, & Waite, 2022). For example, pharmacists in many countries are already authorized to administer vaccines, and their involvement in vaccination programs has been shown to increase vaccination rates, particularly in underserved populations. In the context of public health crises, such as the COVID-19 pandemic, pharmacists have proven invaluable in distributing vaccines and educating the public about prevention strategies, demonstrating their potential to play an even larger role in future public health initiatives (Jackson, 2023).

Pharmacists are also well-positioned to enhance patient education, which is a critical component of primary healthcare. Many patients struggle to understand their treatment plans, leading to poor medication adherence and suboptimal health outcomes. Pharmacists, with their in-depth knowledge of medications and their accessibility, can bridge this gap by providing clear, understandable information to patients about their prescriptions (D'Souza & Scahill, 2020). Studies have shown that pharmacist-led patient education programs can significantly improve medication adherence, which in turn leads to better health outcomes, particularly in patients with chronic conditions. By taking on a more active role in educating patients, pharmacists can empower individuals to take control of their health and make informed decisions about their care (Pinto et al., 2020).

Another opportunity for pharmacists lies in the integration of technology into healthcare. With the rise of telemedicine and digital health platforms, pharmacists can leverage these technologies to provide remote consultations, monitor patient adherence to treatment plans, and manage chronic diseases more efficiently. In regions with limited access to healthcare providers, telepharmacy services can be particularly impactful, allowing patients in rural or underserved areas to receive the same level of care and attention that they would in a traditional healthcare setting. By embracing these technological innovations, pharmacists can extend their reach and offer care to populations that would otherwise go without essential healthcare services (D Aungst, Franzese, & Kim, 2021).

Lastly, integrating pharmacists more fully into multidisciplinary healthcare teams presents a significant opportunity for improving healthcare systems' overall efficiency and effectiveness. Research has shown that when pharmacists collaborate with doctors, nurses, and other healthcare providers, patient outcomes improve across the board (Hatton, Bhattacharya, Scott, & Wright, 2021). Pharmacists can contribute valuable insights into medication management, optimize treatment plans, and help prevent medication errors, which are a leading cause of hospital readmissions. By being fully integrated into healthcare teams, pharmacists can provide a level of continuity and consistency in care that benefits both patients and the healthcare system as a whole (Ruiz-Ramos et al., 2021).

4. Proposed Model for Strengthening Pharmacists' Role

4.1. Framework for Integrating Pharmacists into Primary Healthcare Teams

To fully capitalize on the expertise and accessibility of pharmacists, a comprehensive framework for their integration into primary healthcare teams is essential. This framework should prioritize a collaborative, multidisciplinary approach to healthcare, where pharmacists are treated as integral members of the care team, alongside physicians, nurses, and other healthcare professionals. The integration process would involve expanding pharmacists' roles beyond their traditional duties of dispensing medications, placing them in positions where they can actively engage in clinical decision-making, chronic disease management, and patient education.

The framework should begin with regulatory changes that empower pharmacists to take on more clinical responsibilities. In countries where restrictive laws limit pharmacists' roles, governments should consider reforms that

allow pharmacists to prescribe medications, manage medication therapy independently, and adjust treatment plans under collaborative agreements with physicians. These regulatory changes will enhance the scope of pharmacists' practice and ensure that healthcare systems can fully use pharmacists' skills in medication management and patient care.

In this model, pharmacies should be viewed as healthcare hubs within communities, especially in underserved or rural areas where access to physicians is limited. By enabling pharmacists to provide primary care services such as health screenings, vaccinations, and chronic disease monitoring, pharmacies can act as easily accessible points of care. To support this role, pharmacies should be equipped with basic diagnostic tools, such as blood pressure monitors and blood glucose testing kits, allowing pharmacists to actively detect and manage chronic conditions.

Furthermore, pharmacists and other healthcare providers must establish a robust communication system. Electronic health records (EHRs) should be shared among all healthcare team members to ensure that pharmacists have access to patients' medical histories, current treatment plans, and lab results. This will enable pharmacists to make informed decisions about medication therapy and ensure continuity of care across different healthcare settings. Pharmacists should also be encouraged to participate in regular case conferences and consultations with physicians and nurses, allowing them to contribute their specialized knowledge in medication management and provide input on treatment decisions (Craddock & Hall 2nd, 2021).

4.2. Strategies for Improving Medication Adherence, Patient Counseling, and Preventative Care

One of the primary areas where pharmacists can significantly contribute to community health is in improving medication adherence. Poor medication adherence is a pervasive issue in healthcare, particularly among patients with chronic conditions. Non-adherence can lead to treatment failure, disease progression, and increased healthcare costs due to hospital readmissions and emergency care visits. Pharmacists, given their accessibility and expertise in medications, are uniquely positioned to address this issue.

A key strategy to improve medication adherence is for pharmacists to conduct regular medication therapy management (MTM) sessions. These consultations should focus on reviewing the patient's medications, assessing their effectiveness, identifying any side effects or potential drug interactions, and ensuring that the patient understands their treatment regimen. By explaining the importance of adherence in simple, clear language and addressing any concerns or misconceptions the patient may have, pharmacists can increase adherence rates. MTM sessions also provide an opportunity for pharmacists to tailor medication plans based on the patient's lifestyle, preferences, and financial constraints, ensuring that the treatment is not only clinically effective but also practical for the patient (Snyder et al., 2021).

Another essential strategy involves improving patient counseling. Pharmacists can play a critical role in educating patients about their medications and health conditions, which is crucial for both medication adherence and overall health literacy. By offering personalized counseling services, pharmacists can ensure that patients understand how to take their medications correctly, what side effects to look out for, and how to manage their health conditions. Pharmacists should also engage patients in shared decision-making, encouraging them to actively participate in their treatment plans, which has been shown to improve adherence and health outcomes (M. D. Ajegbile, J. A. Olaboye, C. C. Maha, G. T. Igwama, & S. Abdul, 2024; Enahoro et al., 2024).

Preventative care is another area where pharmacists can make a substantial impact. By conducting health screenings for hypertension, diabetes, and high cholesterol, pharmacists can identify patients at risk of developing chronic diseases and refer them to appropriate healthcare providers for further evaluation. Pharmacists can also offer lifestyle counseling on diet, exercise, smoking cessation, and alcohol reduction, helping patients make changes that can prevent the onset of chronic diseases. In many countries, pharmacists already play a role in administering vaccines, and expanding this role further to include a wider range of preventative services will contribute to community health empowerment (Shirdel, Pourreza, Daemi, & Ahmadi, 2021).

4.3. Collaboration with Other Healthcare Professionals and Public Health Initiatives

A crucial aspect of the proposed model for strengthening pharmacists' roles is fostering collaboration between pharmacists and other healthcare professionals. Interprofessional collaboration has been shown to improve patient outcomes, reduce medical errors, and enhance the efficiency of healthcare systems. In a collaborative care model, pharmacists work closely with physicians, nurses, and other healthcare professionals to ensure that patients receive comprehensive, coordinated care. This collaboration can take several forms, ranging from formal partnerships, such as collaborative practice agreements, to informal networks of communication between healthcare providers.

One practical method of fostering collaboration is through team-based care models, where pharmacists are embedded within primary care practices or community health centers. In this setting, pharmacists can work directly with physicians to develop and monitor treatment plans, adjust medications, and provide ongoing support to patients (Alemede, Nwankwo, Igwama, Olaboye, & Anyanwu, 2024; Ogugua et al., 2024). This model has been particularly effective in managing chronic diseases, as it allows for continuous monitoring and timely adjustments to treatment, which can prevent complications and hospitalizations.

Pharmacists can also play a vital role in public health initiatives. Their accessibility and trust within communities make them ideal partners for public health campaigns to improve health literacy, promote vaccination, and address public health crises. For example, during the COVID-19 pandemic, pharmacists were essential in distributing vaccines, educating the public about preventive measures, and ensuring continued access to essential medications. This experience highlights the potential for pharmacists to contribute to future public health efforts, such as managing infectious disease outbreaks, improving vaccination coverage, and promoting healthier lifestyles (Agomo, Ogunleye, & Portlock, 2020).

Furthermore, pharmacists can collaborate with public health agencies to address health disparities in underserved communities. By working together, pharmacists and public health officials can design targeted interventions to address the specific health needs of these populations, such as increasing access to preventive services, improving medication adherence, and providing education on managing chronic conditions. This collaborative approach is particularly important in low- and middle-income countries, where healthcare resources are limited, and pharmacists are often the most accessible healthcare providers (Strand, Mager, Hall, Martin, & Sarpong, 2020).

5. Conclusion

The strategic integration of pharmacists into primary healthcare systems offers significant potential to improve patient outcomes, enhance medication adherence, and strengthen overall healthcare efficiency. As outlined in previous sections, the role of pharmacists has evolved from traditional dispensary duties to patient-centered care, enabling them to take on more active responsibilities in managing chronic diseases, providing preventative care, and educating patients. While varied globally, this shift demonstrates the growing recognition of pharmacists as key healthcare providers, particularly in improving the quality of care and reducing medication errors. However, the full realization of their potential remains hindered by regulatory, educational, and systemic challenges. Addressing these obstacles and fostering collaboration between pharmacists and other healthcare professionals is crucial for a comprehensive healthcare approach.

Pharmacists are uniquely positioned to address pressing healthcare needs, especially in underserved areas with limited access to physicians and other healthcare professionals. By expanding the role of pharmacists in such communities, healthcare systems can improve the management of chronic conditions like diabetes, hypertension, and asthma, which disproportionately affect low-income and rural populations. Pharmacists' accessibility and trusted role within communities allow them to reach populations that might otherwise have limited interactions with the healthcare system. Additionally, pharmacists' involvement in preventive care, including health screenings and vaccination programs, can help reduce the incidence of preventable diseases and promote healthier behaviors.

In many low- and middle-income countries (LMICs), the shortage of healthcare providers makes the expanded role of pharmacists even more critical. With the growing global burden of non-communicable diseases (NCDs) and an increasing emphasis on primary care, pharmacists can fill gaps in healthcare delivery, providing both acute care services and long-term disease management. By reducing reliance on overburdened healthcare systems, the involvement of pharmacists can also lead to cost savings, lower rates of hospitalization, and better overall health outcomes in underserved areas.

5.1. Recommendations

Several policy, educational, and research initiatives are needed to integrate pharmacists into primary healthcare systems successfully. First, regulatory reforms must allow pharmacists to take on expanded clinical roles, including prescribing authority and the ability to manage medication therapy independently. Governments and healthcare organizations should work to remove outdated regulations that limit pharmacists' involvement in patient care and instead promote collaborative practice agreements that integrate pharmacists into multidisciplinary healthcare teams.

Education and training for pharmacists must also be enhanced. Pharmacy curricula should emphasize clinical skills, patient counseling, and chronic disease management to prepare pharmacists for expanded roles in primary healthcare.

In LMICs, investment in continuing education and professional development programs is essential to equip pharmacists with the necessary competencies to deliver comprehensive patient care.

Finally, more research is needed to evaluate the effectiveness of pharmacist-led interventions in primary healthcare. Studies should focus on the impact of pharmacist involvement on medication adherence, chronic disease outcomes, and healthcare costs. Evidence from such research can inform policy decisions and provide a foundation for further expanding the role of pharmacists in global healthcare systems.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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