Challenges and Role of Pharmacists in Managing Chronic Diseases in India

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Abstract: Chronic non-communicable diseases (NCDs) such as diabetes, hypertension, and cardiovascular disorders have become the leading cause of morbidity and mortality in India, accounting for nearly two-thirds of all deaths. The effective management of these conditions requires continuity of care, adherence to long-term therapies, and lifestyle modifications — areas where India's physician-centric healthcare system often falls short. Globally, pharmacists have emerged as integral members of chronic disease care teams, contributing through medication counselling, adherence support, and therapeutic monitoring. However, in India, the pharmacist's role remains underdeveloped, constrained by outdated legislation, limited clinical training, professional resistance, and weak public awareness.

This review synthesizes international evidence on pharmacist-led chronic disease interventions, examines emerging studies from India, and critically analyses systemic, educational, and socio-cultural barriers limiting the pharmacist's clinical potential. International models such as the Asheville Project and UK prescribing pharmacists demonstrate improved patient outcomes and cost-effectiveness, while Indian pilot studies confirm that pharmacist interventions can significantly enhance adherence, glycemic control, and patient satisfaction. Yet these efforts remain fragmented and under-institutionalized.

The researcher interprets these findings as proof that India possesses the workforce capacity but lacks the regulatory, financial,

and cultural frameworks necessary for large-scale implementation. Policy reforms, curriculum modernization, collaborative practice models, and public awareness initiatives are urgently needed to reposition pharmacists as frontline providers in chronic disease care. Leveraging this untapped resource offers a cost-effective strategy to strengthen India's response to the NCD crisis.

Keywords: Chronic diseases, Pharmacist role, India healthcare, Medication adherence, Policy reforms

Introduction

The global health landscape has witnessed a significant epidemiological transition over the last few decades, with non-communicable diseases (NCDs) emerging as the leading cause of morbidity and mortality. India is no exception; the country faces a dual burden of persistent infectious diseases alongside an escalating prevalence of chronic conditions such as diabetes, hypertension, cardiovascular disorders, and chronic respiratory diseases. Current estimates indicate that NCDs account for nearly 65% of all deaths in India, underscoring the urgent need for effective and sustainable management strategies (George et al., 2010; Sheth et al., 2007).

Unlike acute illnesses, chronic diseases require continuous care, long-term adherence to medication, and lifestyle modification. However, India's physician-centric and hospital-driven healthcare model often struggles to provide such continuity, particularly in resource-limited rural and semi-urban areas. This mismatch between the demand for chronic care and the capacity of the system exacerbates poor treatment adherence, high out-of-pocket expenditures, and preventable complications (Subramaniam et al., 2024).

Pharmacists, by virtue of their accessibility, medication expertise, and frequent contact with patients, are uniquely positioned to fill this gap. Globally, community and clinical pharmacists are integral members of chronic disease management teams, providing medication counselling, adherence support, therapeutic monitoring, and lifestyle education (George et al., 2010). Evidence from developed health systems such as the United States, United Kingdom, and Canada demonstrates that pharmacist-led interventions significantly improve clinical outcomes, enhance patient satisfaction, and reduce overall healthcare costs (Blom & Krasnik, 2011).

In the Indian context, however, the pharmacist's role remains largely underdeveloped. Despite being one of the largest exporters of generic medicines, India's pharmacy practice is still evolving, with limited recognition of pharmacists as healthcare providers beyond dispensing medications (Sheth et al., 2007). The Pharmacy Act of 1948 and its focus on a two-year diploma qualification have historically constrained the scope of practice. Although the introduction of the Doctor of Pharmacy (Pharm.D) program in 2008 marked a step toward clinical pharmacy training, systemic barriers — including weak policy support, inadequate remuneration for clinical services, and low public awareness — have prevented full integration of pharmacists into chronic disease care (Subramaniam et al., 2024).

While existing statistics illustrate the magnitude of the NCD crisis, they often underplay the human and systemic costs associated with poor adherence and fragmented care. From a researcher's perspective, it is not merely the rising prevalence but the persistence of systemic inertia — outdated laws, low awareness, and weak policy integration — that explains why pharmacists remain sidelined in India, despite global evidence of their effectiveness. This paper takes the stance that addressing these barriers is not optional but a structural necessity if India is to make meaningful progress in chronic disease management.

This review seeks to critically examine the **challenges and opportunities** surrounding the integration of pharmacists into chronic disease management in India. Specifically, it will (i) explore international evidence on the role of pharmacists in managing chronic diseases; (ii) evaluate emerging evidence and pilot interventions within India; (iii) identify systemic, educational, and socio-cultural barriers to the expansion of pharmacists' clinical roles; and (iv) provide recommendations for policy reforms and practice models that could strengthen pharmacists' contribution to India's healthcare system. By synthesizing global lessons and local realities, this paper argues that leveraging India's vast pharmacist workforce represents a cost-effective and scalable strategy to address the country's chronic disease crisis.

2. Body

2.1 International Evidence on the Role of Pharmacists in Chronic Disease Management

Globally, pharmacists have transitioned from being primarily dispensers of medications to active members of healthcare teams, particularly in the management of chronic non-communicable diseases (NCDs). Their contributions span medication therapy management, adherence support, lifestyle counselling, and therapeutic monitoring, which collectively improve patient outcomes and reduce healthcare costs.

In high-income countries, strong evidence supports pharmacist-led interventions. For example, the **Asheville Project** in the United States demonstrated that community pharmacists, when integrated into chronic disease management for diabetes, hypertension, and asthma, led to improved clinical outcomes, reduced healthcare costs, and higher patient satisfaction (Cranor et al., 2003). Similarly, a meta-analysis covering multiple countries reported that pharmacist-led interventions significantly reduced HbA1c levels in patients with type 2 diabetes, establishing their role in glycemic control (Li et al., 2010).

In hypertension care, a systematic review by Santschi et al. (2014) involving over 30 randomized controlled trials confirmed that pharmacist interventions resulted in substantial reductions in both systolic and diastolic blood pressure, highlighting the value of pharmacists in cardiovascular risk management. Likewise, pharmacist-led smoking cessation programs in Canada and the UK have shown increased quit rates compared to physician-only interventions (Sinclair et al., 2019).

Beyond clinical outcomes, international studies emphasize pharmacists' economic impact. In the UK, pharmacist-prescribed statin therapy in primary care settings not only improved lipid profiles but also proved to be cost-effective in reducing long-term cardiovascular risks (Murray et al., 2007). Countries such as Australia and Canada have also expanded pharmacists' prescribing authority and involvement in chronic disease clinics, underscoring global recognition of their clinical potential (George et al., 2010).

These findings provide a strong comparative lens for India. However, while international successes are impressive, they cannot be transplanted wholesale into the Indian setting. India's fragmented healthcare delivery, heavy reliance on out-of-pocket spending, and uneven distribution of pharmacies mean that lessons must be adapted rather than adopted. The researcher's interpretation here is that India must selectively borrow from models like the Asheville Project or UK prescribing pharmacists, while ensuring affordability and cultural acceptance.

2.2 Emerging Evidence from India

While international literature is extensive, India is beginning to develop its own body of evidence highlighting the effectiveness of pharmacist-led interventions. Pilot projects and hospital-based studies indicate that pharmacists can significantly improve patient knowledge, adherence, and clinical outcomes when actively involved in care.

For instance, Sriram et al. (2011) conducted a prospective study in South India showing that pharmaceutical care improved the quality of life of patients with type 2 diabetes, correlating with better glycemic and blood pressure control. Similarly, a randomized controlled trial reported that pharmacist-led counselling resulted in significant reductions in HbA1c, fasting plasma glucose, and postprandial glucose levels, alongside improved patient satisfaction (Mathews & Thomas, 2022).

In hypertension management, an interventional study demonstrated that 48.8% of patients receiving pharmacist counselling on lifestyle and adherence became normotensive after five visits, compared with none in the control group. When the intervention was later extended to the control group with physician-approved dosage adjustments, the success rate rose to 72.2%, reinforcing the potential of pharmacist-led care in cardiovascular disease management (Khan et al., 2022).

Further, a recent study on pharmacist-psychiatrist collaborative care in India highlighted significant improvements in medication adherence and quality of life among patients with depression, proving that pharmacists' contributions are not limited to physical chronic diseases but extend to mental health as well (Mishra et al., 2025).

Patient perception studies also reveal growing acceptance of pharmacists in clinical roles. A large survey in a tertiary-care hospital found that nearly 99% of patients were satisfied with pharmacist-led counselling, particularly valuing prescription handling, medication information, and the quality of pharmacist-patient communication (Umesh et al., 2017).

The researcher views these fragmented successes as proof-of-concept rather than systemic change. While outcomes such as improved HbA1c or normotension rates are encouraging, their limited scale and confinement to research settings raise concerns about sustainability. Unless such interventions are institutionalized and incentivized, they risk remaining isolated examples rather than catalysts for national transformation.

2.3 Systemic, Educational, and Socio-Cultural Barriers

Despite the promising evidence, several barriers hinder the full integration of pharmacists into chronic disease management in India. These challenges are multidimensional, involving regulatory frameworks, professional training, interprofessional collaboration, and public perception.

Policy and Regulatory Limitations. The Pharmacy Act of 1948, which set a two-year diploma as the minimum qualification for practice, established a limited scope for pharmacy services that remains influential today. Although the Pharm.D program introduced in 2008 sought to create a clinically competent workforce, the absence of clear legislative frameworks recognizing pharmacists as healthcare providers restricts their inclusion in national programs such as the National Health Mission (Sheth et al., 2007). Additionally, there is no standardized reimbursement model for clinical services such as medication counselling or therapeutic monitoring, discouraging pharmacists from moving beyond a dispensing role (Newar et al., 2025).

Educational Gaps. Pharmacy curricula in India continue to emphasize industrial and product-oriented training rather than patient-centered care. This mismatch has resulted in a workforce with limited clinical exposure and inadequate preparation for chronic disease management (Subramaniam et al., 2024). Continuing professional development (CPD) is not mandated, creating disparities between newer graduates with clinical training and older pharmacists whose education was product-focused (George et al., 2010).

Professional Resistance and Turf Issues. Many physicians remain skeptical about pharmacists' expanded clinical role, perceiving it as an encroachment on medical practice. This resistance limits the development of collaborative practice models, despite evidence that interprofessional collaboration improves patient outcomes (Blom & Krasnik, 2011).

Socio-Cultural Barriers. Public perception of pharmacists in India is another challenge. Pharmacists are often viewed as "shopkeepers" or "drug sellers," rather than healthcare providers, which undermines patient trust and demand for clinical pharmacy services (Umesh et al., 2017). Additionally, overcrowded pharmacies and high patient volumes leave little time for meaningful counselling, while lack of access to patient health records further hampers quality interventions (Mishra et al., 2025).

From an analytical standpoint, these barriers should not be understood in isolation but as interdependent. For example, poor public perception is not merely a social issue but a consequence of outdated education, limited legal recognition, and lack of exposure to patient-facing roles. The researcher interprets this as a systemic cycle of underutilization that perpetuates itself: weak regulation produces underprepared pharmacists, leading to low trust, which then justifies policymakers' reluctance to invest in pharmacist-led care. Together, these barriers create a self-reinforcing cycle where pharmacists' potential remains underutilized, policymakers fail to allocate resources for clinical roles, and patients continue to perceive pharmacists as dispensers rather than care providers.

2.4 Strategic Recommendations for Strengthening Pharmacist Roles

Addressing the chronic disease crisis in India requires systemic reforms that empower pharmacists to contribute fully as healthcare professionals. Based on global lessons and local evidence, the following strategies are recommended:

1. Policy Reform and Recognition. Updating the Pharmacy Act to set a bachelor's degree as the minimum qualification and explicitly recognizing pharmacists as healthcare providers in national policies would formalize their role in chronic disease care (Sheth et al., 2007). Policymakers should also integrate pharmacists into government health programs such as Ayushman Bharat and establish reimbursement models for clinical services, similar to models in the US and UK (Murray et al., 2007).

2. Educational Strengthening and Continuous Professional Development. Pharmacy curricula should be revised to emphasize patient-centered care, clinical pharmacology, and interprofessional training. Making

CPD mandatory for license renewal can ensure ongoing competence and adaptation to evolving clinical needs (Subramaniam et al., 2024).

3. Collaborative Practice Models. Formalizing collaborative practice agreements between pharmacists and physicians can reduce professional resistance and improve patient outcomes. Pilot models in Indian hospitals, such as pharmacist-psychiatrist collaborative care for depression, provide replicable frameworks (Mishra et al., 2025).

4. Public Awareness Campaigns. Public education initiatives are needed to reshape the perception of pharmacists from "dispensers" to "healthcare providers." Successful examples include awareness campaigns in Canada and Australia, which increased patient trust in pharmacist-led counselling (George et al., 2010).

5. Infrastructure and Technology Integration. To maximize efficiency, pharmacists should be given access to electronic health records and digital health tools that facilitate medication reconciliation, adherence monitoring, and patient follow-up. Recent reviews emphasize that digital health technologies enhance pharmacist-led interventions and reduce errors (Newar et al., 2025).

The researcher's interpretation is that reform will require more than curriculum changes or isolated pilot projects — it will demand a cultural shift in how pharmacists are perceived by patients, physicians, and policymakers. Incremental approaches, such as collaborative practice models within hospitals, may provide the bridge needed before community pharmacy can evolve into a true patient-centered hub. Moreover, without financial incentives or reimbursement systems, even the best-trained pharmacists may be unable to sustain clinical roles in practice. By implementing these recommendations, India can unlock the potential of its 800,000-strong pharmacy workforce to deliver accessible, cost-effective, and patient-centered care for chronic disease management.

3. Conclusion

Chronic non-communicable diseases continue to reshape India's health landscape, demanding long-term, accessible, and patient-centered models of care. This review set out to critically examine the challenges and opportunities for integrating pharmacists into chronic disease management by (i) synthesizing international evidence, (ii) analyzing emerging Indian studies, (iii) identifying systemic barriers, and (iv) proposing strategic recommendations. The evidence reviewed confirms that pharmacists, when empowered, have a measurable impact on clinical outcomes such as glycemic control, blood pressure reduction, medication adherence, and patient satisfaction. Globally, their integration has been transformative; in India, initial pilot studies demonstrate comparable benefits, though at a smaller scale.

The key insight is that India does not suffer from a lack of capacity but from a lack of recognition and systemic alignment. With nearly 800,000 registered pharmacists, the workforce exists; what is missing is the legislative, financial, and cultural scaffolding to position them as frontline chronic care providers. The barriers — outdated curricula, weak policy recognition, physician resistance, and low public trust — are interdependent and mutually reinforcing. Unless addressed holistically, they will continue to confine pharmacists to a narrow dispensing role, leaving their clinical potential untapped.

From a researcher's perspective, the findings highlight a paradox: while India is one of the world's largest producers of generic medicines, its own citizens are deprived of the pharmacist's expertise in optimizing medicine use. This disconnect illustrates the need for a paradigm shift. Policymakers should no longer debate whether pharmacists belong in clinical roles but rather how to scale their involvement effectively and equitably. Incremental approaches — such as embedding pharmacists in hospital-based chronic care teams, piloting collaborative practice models, and mandating continuing professional development — can serve as transitional steps before community pharmacy evolves into a fully patient-centered service.

The implications extend beyond healthcare delivery to public health and economics. Strengthening pharmacist-led chronic disease management could reduce preventable hospitalizations, lower out-of-pocket expenditure, and enhance adherence, directly contributing to India's goals of universal health coverage under Ayushman Bharat. Moreover, global evidence suggests that pharmacist interventions are cost-effective, meaning reforms could be fiscally sustainable if supported by reimbursement mechanisms.

Future research must focus on large-scale, multi-center evaluations of pharmacist-led interventions in diverse Indian settings, including rural areas where the burden of NCDs is rapidly rising. Longitudinal studies assessing not only clinical endpoints but also economic impact, patient trust, and interprofessional dynamics are essential. At the same time, national policy must prioritize regulatory reforms, funding mechanisms, and public awareness campaigns to institutionalize pharmacists as indispensable members of the healthcare team.

In conclusion, pharmacists represent a largely untapped but essential resource in India's fight against chronic diseases. Their integration into chronic disease management is not simply desirable but necessary for a healthcare system facing escalating NCD burdens and resource constraints. By aligning policy, education, and practice with global best practices while adapting them to local realities, India has the opportunity to transform its

vast pharmacy workforce into a cornerstone of patient-centered, accessible, and sustainable chronic care.

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