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Evolution and Current Landscape of Clinical Pharmacy in India: Challenges and Prospects

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ABSTRACT

Clinical pharmacy in India has undergone a significant transformation since the introduction of the Doctor of Pharmacy (PharmD) program in 2008, shifting from traditional dispensing roles to patient-centred care. This article explores the historical evolution, current status, key challenges, and future opportunities for clinical pharmacy in the country. Despite progress in education and isolated implementations in private hospitals, the profession faces barriers such as limited recognition, inadequate infrastructure, and regulatory gaps. Opportunities lie in integrating clinical pharmacists into national health programs, enhancing pharmacovigilance, and leveraging ambulatory care to address medication errors and non-communicable diseases. Drawing on recent studies, the review highlights the need for policy reforms, curriculum updates, and interprofessional collaboration to elevate clinical pharmacy's role in India's healthcare system. With a burgeoning population and rising healthcare demands, clinical pharmacists could substantially reduce drug-related problems and improve patient outcomes.
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Keywords: PharmD, pharmacy practice, healthcare sector, pharmacist, Doctor of Pharmacy

INTRODUCTION

Clinical pharmacy, defined as the branch of pharmacy focused on optimising medication use and promoting health, wellness, and disease prevention, has gained global recognition as an integral component of healthcare teams [1]. In India, a country with over 1.4 billion people and a complex healthcare landscape marked by urban-rural disparities, the role of clinical pharmacists is particularly crucial. The profession has evolved from mere drug dispensing to comprehensive pharmaceutical care, encompassing medication therapy management, patient counseling, and adverse drug reaction (ADR) monitoring [2]. However, despite these advancements, clinical pharmacy in India remains in its nascent stages, influenced by educational reforms, regulatory frameworks, and socioeconomic factors.

The introduction of the PharmD program by the Pharmacy Council of India (PCI) in 2008 marked a pivotal shift, aiming to produce clinically competent pharmacists capable of collaborating with physicians and other healthcare professionals [3]. Prior to this, pharmacy education was predominantly industry-oriented, with diplomas and bachelor's degrees focusing on manufacturing and distribution rather than patient care [4]. Today, with increasing burdens from non-communicable diseases (NCDs), antimicrobial resistance, and medication errors—estimated at 5.2 million annually in India—clinical pharmacists are positioned to mitigate these issues [5]. This article delves into the historical context, current status, challenges, and prospects of clinical pharmacy in India, synthesizing insights from recent literature to propose pathways for advancement.

HISTORICAL EVOLUTION OF CLINICAL PHARMACY IN INDIA

The roots of pharmacy in India trace back to ancient Ayurvedic and Unani systems, but modern clinical pharmacy emerged in the post-independence era with the establishment of the PCI in 1948 under the Pharmacy Act [6]. Initially, education was limited to

Diploma in Pharmacy (DPharm) programs, emphasizing compounding and dispensing, with pharmacists viewed primarily as suppliers rather than healthcare providers [7]. The 1970s and 1980s saw the introduction of Bachelor of Pharmacy (BPharm) degrees, but these remained focused on industrial aspects, neglecting clinical training [8].

A turning point occurred in the 1990s with the launch of Master of Pharmacy (MPharm) in Pharmacy Practice at institutions like JSS College of Pharmacy in 1996, which introduced elements of clinical pharmacy such as ward rounds and drug information services [9]. However, widespread adoption was slow due to a lack of regulatory mandates and awareness. The PharmD program, modeled after the US system, was introduced in 2008 to bridge this gap, comprising five years of academic study and one year of internship, including clerkships in hospitals [10]. By 2024, over 200 institutions offer PharmD, producing thousands of graduates annually, though regional imbalances persist, with southern states like Tamil Nadu and Karnataka leading [11].

Government initiatives, such as the Hathi Committee (1975) and Bhatia Committee recommendations, advocated for better hospital pharmacy services, but implementation has been inconsistent [12]. Associations like the Indian Pharmaceutical Association (IPA) and SEARPharm Forum have promoted pharmaceutical care through projects like the TB Fact Card in Mumbai (2005), reaching 5,000 patients [13]. Despite these efforts, clinical pharmacy's integration into national health policies remains limited, with pharmacists often excluded from programs like the National Rural Health Mission (NRHM) [14].

CURRENT STATUS OF CLINICAL PHARMACY IN INDIA

Currently, clinical pharmacy in India is characterized by gradual progress amid persistent underutilization. The PharmD program has produced over 10,000 graduates since its inception, many employed in hospitals for roles including medication reconciliation, patient counseling, and ADR reporting [15]. In elite private hospitals like Apollo and Fortis, clinical pharmacists participate in ward rounds, antimicrobial stewardship, and pharmacovigilance, contributing to reduced drug-related problems (DRPs) [16]. For instance, studies in South Indian tertiary care hospitals show clinical pharmacists identifying 1.5 DRPs per patient, with interventions accepted in 70-80% of cases [17].

Educationally, PCI-approved institutions require affiliations with 300-bed hospitals for practical training, but many private colleges lack adequate facilities, compromising quality [18]. Community pharmacy, with over 550,000 outlets, operates commercially, dispensing prescription drugs without mandates (over 99.9% pre-packaged), though some provide basic counseling [19]. Government hospitals employ pharmacists mainly for procurement and dispensing, with limited clinical involvement [20].

Pharmacovigilance has improved with the Pharmacovigilance Programme of India (PvPI), established in 2010, where clinical pharmacists play key roles in ADR reporting, contributing to over 200,000 reports annually [21]. However, nationwide CPS provision is absent, with no official system or regulatory guidelines for recruiting clinical pharmacists in hospitals [22]. Job opportunities extend to academics, medical writing, CROs, and pharmacovigilance, but hospital positions are scarce outside PharmD-affiliated institutions [23].

Statistics highlight disparities: Only 15-20% of the national health budget is allocated to medicines, yet 81% of expenditures are out-of-pocket, with irrational prescribing common (50% of medicines used irresponsibly) [24]. In rural areas, 25-30% of the population lacks medicine access, underscoring the untapped potential of clinical pharmacists [25].

CHALLENGES FACING CLINICAL PHARMACY IN INDIA

Clinical pharmacy in India grapples with multifaceted challenges that hinder its growth and integration into healthcare.

Educational and Training Barriers

Pharmacy education is non-uniform, with outdated curricula lacking sufficient clinical exposure [26]. The PharmD program, while progressive, suffers from inadequate faculty (scarce clinically trained preceptors), high fees in private institutions, and limited hospital affiliations [27]. A survey of PharmD graduates revealed 45.7% citing lack of trained preceptors as a major weakness, and 67.6% believing the curriculum fails to produce competent clinicians [28]. MPharm graduates receive less hospital training, limiting their professional competence compared to PharmD holders [29].

Regulatory and Policy Gaps

There is no cadre for clinical pharmacists in the public health system, and regulatory bodies like PCI do not mandate their recruitment in hospitals [30]. Pharmacists are often overlooked in national policies, viewed as business entities rather than professionals, leading to poor interprofessional harmony [31]. Clinicians may perceive them as encroaching on their domain, with only 17.6% seeking pharmacists' opinions on drug queries [32].

Practice and Infrastructure Issues

High workloads, poor infrastructure (e.g., small dispensing windows in government hospitals), and uneven distribution (urban bias) impede service delivery [33]. Medication errors occur at 1.5 per 100 prescriptions, exacerbated by illegible handwriting and

heavy patient loads [34]. Antimicrobial resistance is rampant, with India consuming the highest antibiotic volumes globally, 30-52% unnecessarily in outpatients [35]. Pharmacovigilance captures less than 5% of ADRs, and medication non-compliance affects 50% of NCD patients [36].

Socioeconomic and Awareness Challenges

Public awareness of clinical pharmacy is low, with pharmacists stigmatized as "shopkeepers" [37]. Economic factors drive sale of prescription drugs without scripts, and privatization of education limits access for middle-class students [38]. Faculty prefer industry jobs for better pay, leading to academic shortages [39].

OPPORTUNITIES AND FUTURE PROSPECTS

Despite challenges, clinical pharmacy in India holds immense potential to transform healthcare.

Policy and Integration Opportunities

Government recognition of clinical pharmacists in programs like Ayushman Bharat and NRHM could enhance rural access and rational drug use [40]. Allocating 10-15% of decentralized funds for OTC medicines with counseling, as in TNMSC models, could reduce costs [41]. Collaborative Practice Agreements (CPAs) and reimbursement models, inspired by Europe, could formalize roles [42].

Educational Reforms

Upgrading to degree-level minimum qualifications, mandating CPD, and synchronizing curricula with clinical needs (e.g., problem-based learning) are key [43]. Interprofessional training and overseas programs (e.g., FIP) can build confidence, with 80% of graduates preferring foreign training [44].

Expansion in Practice Areas

Ambulatory pharmacy offers opportunities to address NCDs, with pharmacists conducting medication reviews and stewardship, potentially reducing 5.2 million errors annually [45]. In pharmacovigilance, expanding PvPI involvement could improve ADR reporting [46]. Roles in public health, like immunization and disaster response, leverage pharmacists' community presence [47].

Research and Innovation

Encouraging publications from thesis work and pharmacoeconomic studies can advance evidence-based practice [48]. "PharmD'fication" of colleges—converting BPharm/DPharm to PharmD—could standardize education and create jobs [49].

Future prospects include digital tools for telepharmacy, addressing rural gaps, and global collaborations for best practices [50]. With strategic reforms, clinical pharmacists could revolutionize India's healthcare, reducing DRPs and enhancing patient safety.

CONCLUSION

Clinical pharmacy in India stands at a crossroads, with educational advancements like PharmD paving the way for patient-centered care, yet constrained by regulatory, infrastructural, and awareness barriers. The current status reflects isolated successes in private sectors, but nationwide integration is essential to tackle medication errors, resistance, and NCD burdens. Challenges such as non-uniform education and policy gaps must be addressed through reforms, while opportunities in ambulatory care, pharmacovigilance, and national programs offer promising avenues. Policymakers, educators, and professionals must collaborate to elevate clinical pharmacy, ensuring it becomes a cornerstone of India's healthcare system, ultimately improving outcomes for millions.

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