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Review Article

Barriers and Facilitators of Deprescribing in Indian Geriatric Patients: A Clinical Pharmacist Perspective

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ABSTRACT

The elderly population in India is growing rapidly and is projected to exceed 340 million by 2050. Polypharmacy, defined as the concurrent use of five or more medications, affects 50-79% of Indian geriatric patients and is associated with Adverse Drug Reactions (ADRs), falls, and preventable hospitalisations. Deprescribing, the supervised reduction or discontinuation of medications whose harms outweigh their benefits in the context of an individual patient's goals of care, represents a rational strategy to optimise geriatric pharmacotherapy. Clinical pharmacists, through their training in pharmacotherapy and patient counselling, are well positioned to support these initiatives. This review aimed to identify, categorise, and analyse the barriers and facilitators of deprescribing in Indian geriatric patients from a clinical pharmacist's perspective, and to propose evidence-based recommendations for its advancement. A narrative review was conducted using PubMed, Scopus, Google Scholar, and the Cochrane Library, with studies and guidelines published between 2005 and 2024 included. Barriers were identified at patient, prescriber, and system levels, encompassing fear of disease relapse, low health literacy, therapeutic inertia, fragmented prescribing care, and the absence of India-specific deprescribing guidelines. Facilitators included patient willingness to reduce medications, validated clinical tools, pharmacist-led medication review, shared decision-making, and digital health integration. Deprescribing is feasible in the Indian geriatric context but demands a coordinated, multidisciplinary approach. Clinical pharmacists-particularly Pharm D practitioners-can lead medication review, patient counselling, and interprofessional collaboration. Development of India-specific guidelines and stronger integration of pharmacy services into geriatric care teams are urgently needed.

Keywords: Barriers, Clinical Pharmacist, Deprescribing, Facilitators, Geriatric, India, Medication Review, Polypharmacy.

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INTRODUCTION

India is undergoing a rapid demographic transition, with its elderly population projected to exceed 340 million by 2050 according to the United Nations Population Fund (United Nations Population Fund, 2023). This demographic shift carries major public health implications, particularly in managing age-related chronic conditions including hypertension, type 2 diabetes mellitus, ischaemic heart disease, Chronic Obstructive Pulmonary Disease (COPD), and neuropsychiatric disorders.

Polypharmacy-defined as the concurrent use of five or more medications-is prevalent among older adults managing multiple comorbidities. Studies from Indian tertiary care hospitals report polypharmacy in 50-79% of patients aged 60 years and above (Dhananjay *et al.*, 2019; Sharma *et al.*, 2020). While many medications are medically necessary, a substantial proportion may be potentially inappropriate, redundant, or no longer aligned with the patient's current clinical status, functional capacity, or goals of care.

The consequences of inappropriate polypharmacy are serious and wide-ranging. Adverse Drug Reactions (ADRs) account for nearly 30% of hospital admissions in the Indian elderly (Patel and Patel, 2016). Drug-drug interactions, medication-induced falls, cognitive impairment, and gastrointestinal bleeding caused by Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are common and largely preventable drug-related harms. Beyond clinical consequences, polypharmacy imposes a considerable financial burden-particularly concerning given that out-of-pocket expenditure dominates Indian healthcare financing.

Deprescribing is a structured, patient-centred clinical process involving the supervised reduction, discontinuation, or modification of medications when their potential harms exceed their expected benefits. It has gained global recognition as a safe and effective approach to optimising pharmacotherapy in older

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adults (Reeve *et al*., 2015). Unlike medication discontinuation driven by non-adherence or adverse reactions, deprescribing is proactive, clinically guided, and conducted through Shared Decision-Making (SDM) between the patient, caregiver, and healthcare team.

Clinical pharmacists are uniquely trained to lead deprescribing initiatives, given their expertise in pharmacotherapy, drug metabolism, and patient counselling. However, deprescribing remains underutilised in routine Indian clinical practice, constrained by a complex interplay of patient attitudes, prescriber habits, systemic limitations, and cultural factors (Ailabouni *et al*., 2016).

This narrative review comprehensively examines the barriers and facilitators of deprescribing in Indian geriatric patients from a clinical pharmacist's perspective, synthesises the available evidence, and proposes a contextualised framework to advance deprescribing practice in India.

METHODOLOGY AND SEARCH STRATEGY

A narrative review methodology was employed to synthesise published evidence on the barriers and facilitators of deprescribing in Indian geriatric patients. The following comprehensive search strategy was designed to ensure reproducibility and transparency of the review process.

Databases and Search Strategy

Four electronic databases were systematically searched: PubMed, Scopus, Google Scholar, and the Cochrane Library. Searches were conducted between January 2005 and December 2024. The following search terms were used individually and in combination using Boolean operators (AND, OR):

- **Primary terms:** "deprescribing" OR "deprescription" OR "medication discontinuation" OR "drug withdrawal" OR "medication optimisation."
- **Population terms:** "geriatric" OR "elderly" OR "older adults" OR "aged" OR "polypharmacy."
- **Context terms:** "India" OR "Indian" OR "South Asia" OR "low- and middle-income countries."
- **Outcome terms:** "barriers" OR "challenges" OR "facilitators" OR "enablers" OR "clinical pharmacist" OR "medication review" OR "pharmacy practice."

Example full search string (PubMed)

(deprescribing OR deprescription OR "medication discontinuation") AND (geriatric OR elderly OR "older adults") AND (India OR Indian) AND (barriers OR facilitators OR "clinical pharmacist" OR "medication review").

Inclusion and Exclusion Criteria

Inclusion criteria

- Studies, systematic reviews, narrative reviews, observational studies, guidelines, and consensus statements published between January 2005 and December 2024.
- Studies involving adult patients aged 60 years and above (geriatric population).
- Articles reporting on deprescribing practices, barriers, facilitators, polypharmacy, potentially inappropriate medications, or pharmacist-led medication review.
- Both Indian-specific studies and international evidence applicable to the Indian context.
- Full-text articles available in English, or non-English articles with English abstracts providing sufficient extractable information.

Exclusion criteria

- Studies conducted exclusively in paediatric, adolescent, or adult populations below 60 years of age where geriatric-specific findings could not be extracted.
- Conference abstracts, editorials, and letters to the editor without substantive data.
- Studies addressing deprescribing in specific disease contexts without generalisable findings relevant to the Indian setting.
- Duplicate records identified across databases.

Language Restrictions and Duplicate Removal

No language restriction was applied at the screening stage-articles in languages other than English were included if an English abstract provided sufficient information for data extraction. Full-text non-English articles without English summaries were excluded. Duplicate records identified across databases were removed manually prior to screening. Where the same study was reported in multiple publications, the most comprehensive and recent report was retained.

Quality Assessment

As this is a narrative review rather than a systematic review, formal quality appraisal tools such as the Newcastle-Ottawa Scale or PRISMA checklist were not applied. However, all included studies were evaluated critically for methodological rigour, sample size, population representativeness, outcome reporting quality, and applicability to the Indian geriatric context. Studies with weak methodology, high risk of bias, or low applicability to India were noted in the synthesis but were not excluded, as their findings

were considered within the context of their limitations. Evidence from randomised controlled trials and systematic reviews was accorded higher weight in the synthesis than observational or opinion-based studies.

DISCUSSION AND REVIEW OF LITERATURE

Concept and Process of Deprescribing

The term 'deprescribing' was formally introduced in the literature in 2003 and has since evolved into a well-recognised clinical discipline. Scott *et al*. (2015) defined it as "the process of tapering, stopping, substituting, or reducing the dose of medication with the aim of managing polypharmacy and improving outcomes" (Scott *et al*., 2015). Critically, deprescribing is distinct from abrupt or unplanned medication discontinuation-it is a deliberate, supervised, and individually tailored clinical decision.

The central question guiding deprescribing is not simply 'Is this drug indicated?' but, more appropriately, 'Does the benefit of continuing this drug outweigh its potential harm for this particular patient, given their current clinical status, functional capacity, life expectancy, and personal values and preferences?' This reframing shifts clinical practice from a disease-centred to a person-centred model of care.

The process follows a structured five-step framework proposed by Reeve *et al*. (2013a), depicted in Figure 1:

Step 1: Ascertain all current medications-including prescription drugs, over-the-counter products, traditional and herbal remedies, and nutritional supplements.

Step 2: Identify medications associated with the highest risk of harm, considering patient-specific factors such as renal and hepatic impairment, fall risk, and cognitive function.

Step 3: Assess the feasibility of discontinuation based on clinical indication, duration of therapy, and available evidence for safe tapering.

Step 4: Prioritise medications for discontinuation through SDM-a collaborative discussion with the patient and caregiver.

Step 5: Monitor, document, and follow up to detect withdrawal effects, symptom recurrence, or rebound phenomena after discontinuation.

Several validated clinical tools support evidence-based deprescribing. The STOPP/START (Screening Tool of Older Persons' Prescriptions / Screening Tool to Alert to Right Treatment) criteria Version 3 (2023) provides 190 indicators of potentially inappropriate prescribing (O'Mahony *et al*., 2023). The 2023 American Geriatrics Society (AGS) Beers Criteria categorises medications by risk level (American Geriatrics Society Beers Criteria Update Expert Panel, 2023). The Good Palliative-Geriatric Practice (GPGP) algorithm, Medication Appropriateness Index (MAI), CEASE (Current medications, Elevated risk, Advised to stop, Slow tapering, Explain stopping) algorithm, and ARMOR (Assess, Review, Minimise, Optimise, Reassess) tool offer additional frameworks for clinical practice (Garfinkel and Mangin, 2010; Galazzi *et al*., 2016).

Magnitude of Polypharmacy in the Indian Elderly

India's geriatric population presents a unique epidemiological profile characterised by multiple comorbidities, inadequate primary healthcare infrastructure, widespread use of traditional medicine, and marked socioeconomic heterogeneity. A multicentre cross-sectional study across government teaching hospitals in Karnataka reported polypharmacy in 62.3% of patients aged 60 years and above (Dhananjay *et al*., 2019). A study from Rajasthan found a mean of 6.1 drugs per geriatric outpatient prescription, with potentially inappropriate medications (PIMs) identified in 43.8% of patients using the Beers Criteria (Sharma *et al*., 2020). A Kerala-based study reported polypharmacy in 74.5% of elderly patients attending a tertiary care hospital (Thomas *et al*., 2018). Prevalence data are summarised in Table 1.

Proton Pump Inhibitors (PPIs), hypnotics and sedatives, NSAIDs, oral antidiabetics, antihypertensives, and micronutrient supplements are among the most frequently overprescribed drug classes in the Indian elderly. Many persist in prescriptions through therapeutic inertia-the failure of healthcare providers to discontinue or modify medications despite clear clinical evidence warranting such action-rather than ongoing clinical necessity (Narain, 2013). For a population where approximately 40% of total healthcare expenditure is paid out-of-pocket, the financial burden of unnecessary medications is considerable.

These findings collectively demonstrate that polypharmacy is not a marginal concern but a pervasive clinical challenge in Indian geriatric care. The high prevalence rates across geographically diverse Indian settings-from Karnataka and Kerala to Rajasthan and Tamil Nadu-suggest that polypharmacy transcends regional and institutional variation and reflects systemic issues in how geriatric pharmacotherapy is managed in India. The consistency of these findings across different healthcare settings underscores the urgency of implementing structured deprescribing programmes nationally.

Barriers to Deprescribing in Indian Geriatric Patients

Barriers to deprescribing in Indian settings are multidimensional, operating simultaneously at the level of the patient, the prescriber, the healthcare system, and the drug-disease interface. Figure 2 summarises this conceptual framework, and Table 2 provides a structured domain-based overview.

Patient-Level Barriers

Fear of disease worsening and relapse

The most consistently reported patient-level barrier is the fear that stopping a medication will result in recurrence or worsening

of the underlying condition (Anderson *et al*., 2014). Among elderly Indians managing chronic diseases for decades, the belief that lifelong medication use is necessary for disease control is deeply entrenched. Studies report that up to 65% of older patients express reluctance to discontinue any prescribed medication without a compelling physician-provided rationale (Reeve *et al*., 2013b).

Low health literacy

Health literacy limitations, particularly prevalent in rural and semi-urban Indian populations, impair the patient's capacity to comprehend the rationale for deprescribing, engage meaningfully in SDM, or self-monitor for withdrawal symptoms (Parekh *et al*., 2018). Patients who do not understand why a medication was originally prescribed are unlikely to understand why it is now appropriate to discontinue it.

Cultural and traditional medicine attitudes

India's pluralistic healthcare landscape-where Ayurveda, homeopathy, Siddha, Unani, and allopathic medicine coexist-creates unique challenges. Many elderly patients concurrently use traditional or herbal remedies alongside prescribed medications without disclosing this to their allopathic prescriber (Kumar *et al*., 2017). Such non-disclosure increases the risk of unrecognised herb-drug interactions and complicates deprescribing decisions.

Language and communication barriers

India's linguistic diversity-with 22 official languages and hundreds of dialects-creates notable communication challenges in clinical encounters. The absence of validated deprescribing educational materials in regional Indian languages limits the pharmacist's ability to explain the rationale for medication discontinuation in the patient's native tongue.

Caregiver resistance

In the Indian family structure, adult children and spouses often participate actively in healthcare decision-making for elderly relatives. Caregiver anxiety about the consequences of stopping long-standing medications-particularly when the caregiver has previously witnessed hospitalisation during periods of suboptimal adherence-can be a significant barrier to accepting deprescribing recommendations.

Normalisation of polypharmacy

A number of elderly patients equate taking multiple medications with receiving comprehensive medical care. This normalisation means that recommendations to reduce the medication burden may be interpreted as evidence of inadequate clinical attention rather than a positive therapeutic intervention, potentially undermining trust in the healthcare provider.

Prescriber-Level Barriers

Therapeutic inertia

Therapeutic inertia-defined as the failure of a healthcare provider to initiate, modify, or discontinue treatment despite clear clinical evidence warranting such action-is perhaps the most pervasive prescriber-level barrier to deprescribing (Sinnott *et al*., 2013). In the context of deprescribing, therapeutic inertia manifests as the persistent continuation of medications beyond the point at which they remain clinically appropriate or beneficial. Time constraints in Indian outpatient consultations (often 5-10 min per patient in the public sector) further limit opportunities for proactive medication review and deprescribing discussion.

Fear of adverse outcomes following discontinuation

Prescribers without specific training in geriatric pharmacotherapy may be reluctant to discontinue medications even when evidence supports safe discontinuation, out of concern that doing so might precipitate an acute clinical event (Hilmer *et al*., 2012). This prescribing defensiveness is compounded by medico-legal concerns in India, where adverse clinical outcomes following medication changes may expose the prescriber to accountability.

Insufficient geriatric pharmacotherapy training

India has fewer than 1,000 practising geriatricians for over 130 million elderly individuals (Indian Geriatrics Society, 2021). Most medical and pharmacy graduates receive limited formal training in deprescribing principles, the identification of PIMs,

Table 1: Prevalence of polypharmacy and potentially inappropriate prescriptions (PIPs) in selected Indian geriatric studies.

Study / State	Polypharmacy Prevalence (%)	Key Findings
Karnataka-Dhananjay *et al*. (2019)	62.3	Mean 5.8 drugs/ prescription; PIPs in 38% by STOPP criteria.
Rajasthan-Sharma *et al*. (2020)	58.7	Mean 6.1 drugs/ prescription; Beers Criteria PIPs: 43.8%.
Kerala-Thomas *et al*. (2018)	74.5	Therapeutic cascades common; high PPI and NSAID use.
Tamil Nadu-Patel and Patel (2016)	67.2	ADRs in 29% patients attributable to polypharmacy.
Maharashtra (2022)	61.9	High sedative-hypnotic use; medication-induced falls in 18%.

or the pharmacokinetic and pharmacodynamic alterations that accompany normal ageing. This knowledge gap directly impairs the capacity of prescribers and pharmacists to lead deprescribing conversations.

Multi-prescriber fragmentation

A common scenario in Indian geriatric care is the patient who simultaneously consults a cardiologist, endocrinologist, orthopaedic surgeon, and general practitioner-with no single clinician assuming ownership of the cumulative medication list. This fragmentation facilitates the emergence of therapeutic cascades, drug class duplications, and prescriber reluctance to discontinue medications initiated by colleagues.

Absence of India-specific deprescribing guidelines

Western tools such as the Beers Criteria and STOPP/START criteria were developed and validated primarily in European and North American populations and cannot be directly applied to Indian patients without consideration of differences in drug availability, dosing norms, disease patterns, and healthcare infrastructure. The absence of contextualised, India-specific deprescribing guidelines represents a critical gap in evidence-based prescribing support.

Healthcare System-Level Barriers

Inadequate medication reconciliation

Medication reconciliation-the process of creating an accurate and complete list of a patient's current medications and comparing this with prescriptions across care transitions-is poorly implemented in most Indian healthcare settings. Without a comprehensive medication list, identifying appropriate candidates for deprescribing is inherently difficult.

Limited interdisciplinary collaboration

Effective deprescribing requires coordinated team-based practice. Formalised interprofessional collaboration in Indian geriatric care-involving physicians, clinical pharmacists, nurses, and social workers-remains nascent, and the clinical pharmacist's role in ward rounds and medication review is underutilised in many hospitals.

Weak post-deprescribing monitoring infrastructure

Patients require structured clinical follow-up following deprescribing to detect withdrawal effects, symptom recurrence, or rebound phenomena. In rural and semi-urban India, the infrastructure for regular follow-up-in terms of both healthcare access and Electronic Health Record (EHR) systems-is limited, making both patients and prescribers apprehensive about proceeding with deprescribing.

Financial disincentives

In healthcare systems where fee-for-service payment models link consultation revenue to prescription volume, there may be implicit economic disincentives to reducing medication lists.

Analytical synthesis-barriers

When considered collectively, the barriers identified in this review reveal a self-reinforcing cycle. Patient fears and low health literacy limit acceptance of deprescribing; prescriber inertia and insufficient training reduce initiation of deprescribing conversations; system-level fragmentation means no single clinician or pharmacist takes ownership of the process; and the absence of India-specific guidelines means that even motivated practitioners lack a reliable framework to guide their decisions. This interconnected nature of barriers implies that interventions targeting only one domain-for example, patient education in isolation-are unlikely to produce sustainable change. Effective deprescribing programmes in India must simultaneously address patient, prescriber, and system-level barriers through integrated, multidisciplinary strategies.

Facilitators of Deprescribing in Indian Geriatric Patients

Despite the barriers described above, multiple facilitators can meaningfully promote and sustain deprescribing in Indian clinical settings, operating at patient, prescriber, and system levels. Table 3 summarises validated deprescribing tools and their applicability in India.

Table 2: Summary of barriers to deprescribing in Indian geriatric patients.

Domain	Key Barriers Identified
Patient-Level	Fear of disease relapse; low health literacy; cultural and traditional medicine attitudes; language barriers; caregiver resistance; normalisation of polypharmacy.
Prescriber-Level	Therapeutic inertia; fear of adverse post-discontinuation outcomes; multi-prescriber fragmentation; insufficient geriatric pharmacotherapy training; absence of India-specific deprescribing guidelines.
System-Level	Poor medication reconciliation; limited interdisciplinary collaboration; weak post-deprescribing monitoring infrastructure; financial disincentives.
Drug/Disease-Related	Polypharmacy complexity; multi-morbidity; withdrawal syndromes; symptom masking by medications; therapeutic cascade perpetuation.

Table 3: Validated deprescribing tools and their applicability in Indian settings.

Tool / Framework	Description	Applicability in India
STOPP/START v3 (O'Mahony *et al*., 2023)	190 criteria for PIMs and under-prescribing; European evidence-based tool.	Widely studied; needs Indian validation; partially applicable.
Beers Criteria 2023 (AGS Expert Panel, 2023)	PIMs list for older adults; risk-stratified.	Commonly used in Indian studies; some drugs unavailable in India.
GPGP Algorithm (Garfinkel and Mangin, 2010)	Discontinuation framework for advanced illness.	Useful in Indian palliative geriatric care; underutilized.
Deprescribing.org Protocols (Farrell *et al*., 2017)	Drug-specific algorithms: PPI, BZD, antipsychotic.	Free, accessible, practical; translatable to Indian practice.
CEASE Algorithm	Current → Elevated risk → Advised to stop → Slow taper → Explain stopping.	Practical stepwise approach; applicable in Indian outpatient settings.
MAI	10-item implicit tool assessing appropriateness of each medication	Useful for pharmacist-led reviews; requires comprehensive clinical data
ARMOR Tool	Assess, Review, Minimise, Optimise, Reassess.	Suitable for Indian geriatric wards; an interprofessional approach is needed.

Patient-Level Facilitators

Patient willingness to reduce medications

Studies consistently demonstrate that a majority of elderly patients, when properly informed, express willingness to reduce their medication burden. Anderson *et al.* (2014) reported that 88% of older patients were willing to stop one or more medications if their physician recommended it (Anderson *et al*., 2014). This finding is fundamental-it establishes that the widely perceived patient resistance to deprescribing is not inherent but is instead a product of inadequate communication and education. Addressing this through structured counselling can meaningfully shift patient attitudes.

Structured patient education and counselling

Clear, jargon-free explanations-delivered in the patient's native language and addressing their specific concerns-markedly improve deprescribing acceptance (Dhirir *et al*., 2020). Counselling that acknowledges the patient's lived experience with the medication, validates their concerns, and provides a transparent monitoring plan is particularly effective in overcoming initial resistance.

Caregiver engagement

Proactively involving caregivers as partners in SDM transforms a potential barrier into a facilitator. When caregivers understand and endorse the deprescribing plan, patients demonstrate improved adherence to the revised medication regimen.

Prescriber-Level Facilitators

Pharmacist-led medication review

Formal medication review conducted by a clinical pharmacist and communicated to the treating physician through structured recommendations is among the most effective strategies for initiating and sustaining deprescribing (Jokanovic *et al*., 2015). Evidence from randomised controlled trials demonstrates notable reductions in inappropriate polypharmacy, ADR incidence, and hospitalisation rates following pharmacist-led review programmes.

Application of validated deprescribing tools

The STOPP/START criteria Version 3 (2023) (O'Mahony *et al*., 2023), the 2023 AGS Beers Criteria (American Geriatrics Society Beers Criteria Update Expert Panel, 2023), and drug-specific deprescribing algorithms from deprescribing.org (Farrell *et al*., 2017) provide structured, evidence-based frameworks to guide deprescribing decisions. While these tools were primarily developed for Western populations, they have been applied and validated in several Indian studies, providing a useful starting point for clinical decision-making.

Shared decision-making

SDM-the collaborative process through which prescriber and patient jointly weigh evidence, discuss preferences, and arrive at a mutually acceptable decision-is the ethical and clinical cornerstone of deprescribing (Bain *et al*., 2008). The Patient Preferences for Deprescribing Questionnaire (PPDQ) is a validated instrument to elicit and formally incorporate patient preferences into the deprescribing dialogue.

Continuing professional education

Structured training programmes on geriatric pharmacotherapy and deprescribing principles-integrated into Pharm D curricula, postgraduate pharmacy programmes, and Continuing Medical Education (CME) activities-can address the knowledge gaps identified in this review and build the next generation of deprescribing champions.

System-Level Facilitators

Integration of clinical pharmacists into geriatric care teams

Formalising the clinical pharmacist's role within geriatric inpatient and outpatient care teams-through ward round participation, medication reconciliation, and structured pharmacist-physician communication-is a high-impact system-level facilitator (Varghese *et al*., 2021).

Electronic health records and clinical decision support

The increasing adoption of EHR systems in Indian tertiary care institutions creates opportunities for embedding deprescribing-oriented clinical decision support alerts, including automated flags for PIMs, drug interaction alerts, and periodic medication review reminders. Integration with the Ayushman Bharat Digital Mission (ABDM) could extend these capabilities to a broader population (National Health Authority, 2022).

Development of India-specific deprescribing guidelines

A major unmet need is the development of evidence-based, contextualised deprescribing guidelines accounting for Indian disease burden, drug availability, prescription practices, and socioeconomic realities. Such guidelines, developed through a consensus process involving the Indian Geriatrics Society, APTI (Association of Pharmaceutical Teachers of India), and the Indian Society for Pharmacology, would provide prescribers and pharmacists with locally validated, reliable decision-making support.

Telepharmacy and mobile health

Mobile health applications and telepharmacy platforms offer promising avenues to extend deprescribing support to elderly patients in rural and semi-urban India where specialist pharmacy services are limited (Reeve *et al*., 2017).

Analytical synthesis-facilitators

The facilitators identified in this review are not uniformly feasible across all Indian healthcare settings. Patient willingness and structured counselling are immediately actionable without requiring significant resource investment and should be prioritised as first-line facilitators. Validated tools such as STOPP/START and deprescribing.org protocols are freely available online and can be adopted with minimal infrastructure. Pharmacist-led medication review and SDM require institutional commitment but are feasible in hospitals with established Pharm D programmes. EHR-based clinical decision support and India-specific guidelines represent longer-term systemic investments that, once developed, will have the highest population-level impact. This tiered approach-immediate, medium-term, and long-term facilitators-provides a pragmatic

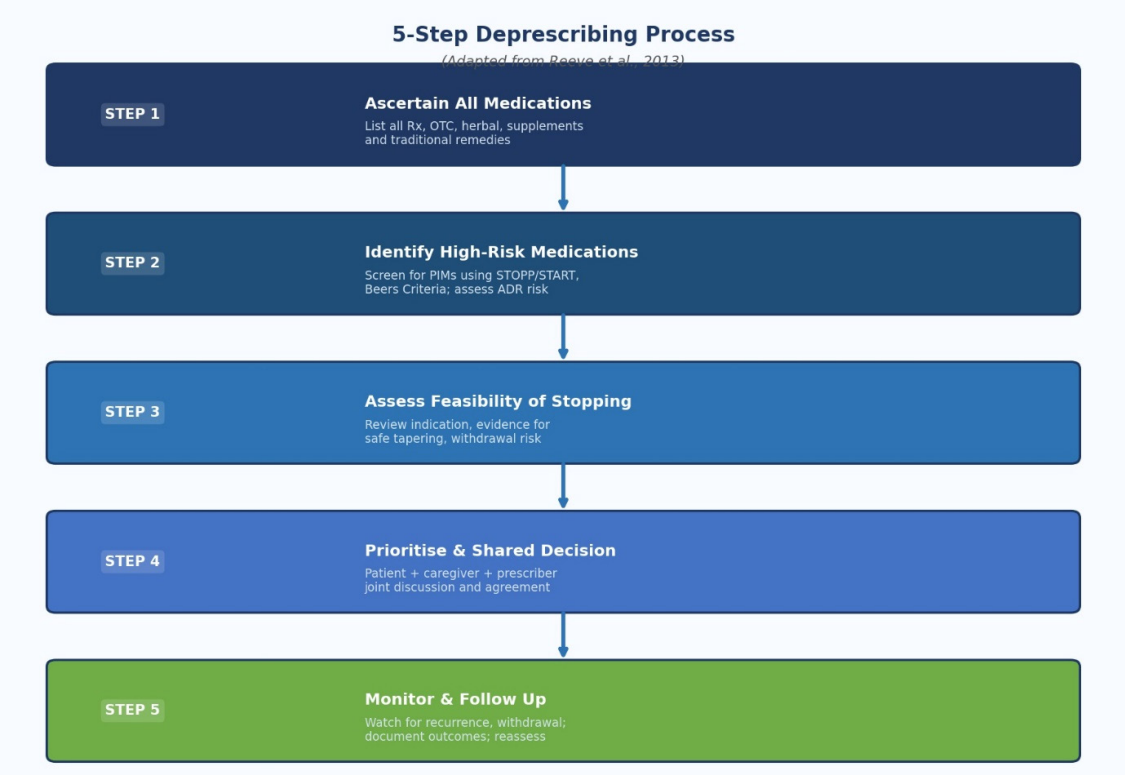

Figure 1: Five-step deprescribing process (Adapted from Reeve et al., 2013a). Step 1: Ascertain all medications; Step 2: Identify high-risk medications using validated criteria; Step 3: Assess feasibility of discontinuation; Step 4: Prioritise through shared decision-making with patient and caregiver; Step 5: Monitor and follow up after discontinuation for withdrawal effects and symptom recurrence.

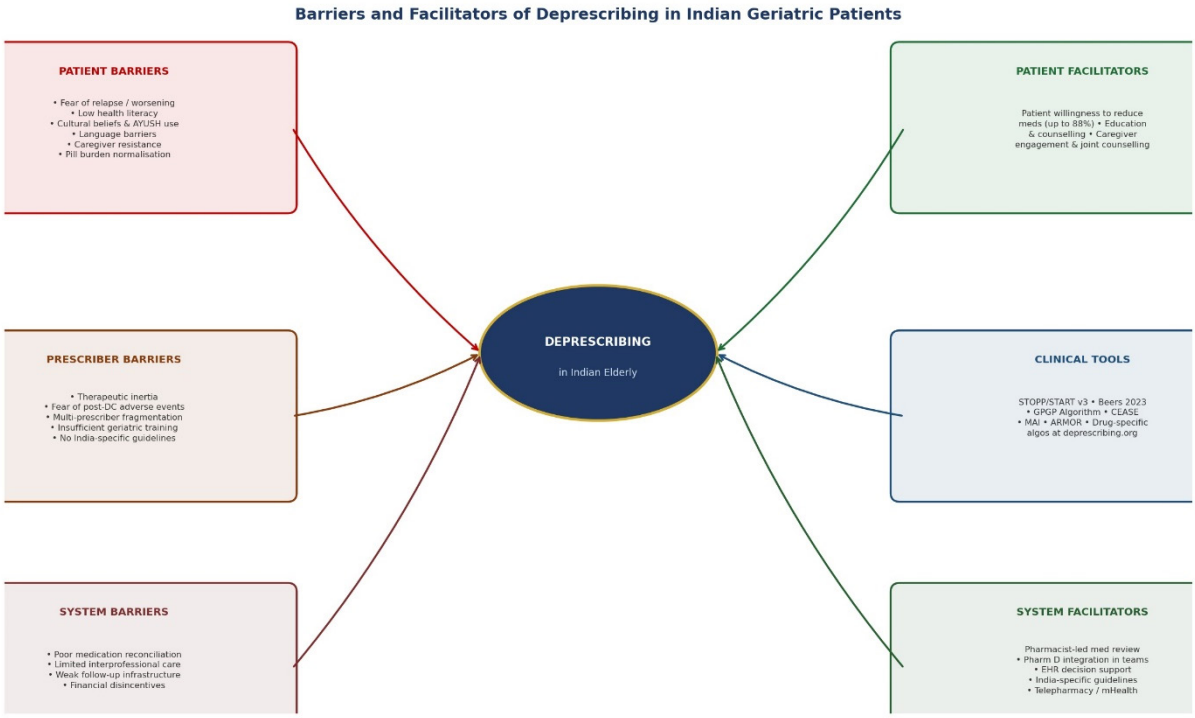

Figure 2: Conceptual framework of barriers and facilitators of deprescribing in Indian geriatric patients. Left panel: patient-level, prescriber-level, and system-level barriers. Right panel: patient education, validated tools, pharmacist-led review, shared decision-making, and digital health facilitators. Central: deprescribing in Indian elderly. Outcome: optimised geriatric pharmacotherapy.

framework for advancing deprescribing practice progressively in the Indian context.

Role of the Clinical Pharmacist and Multidisciplinary Team in Deprescribing

Clinical pharmacists occupy a pivotal position in the deprescribing process, serving as the primary driver of medication review, patient counselling, prescriber collaboration, and post-deprescribing monitoring. Figure 3 illustrates the clinical pharmacist's multifaceted roles as the central hub of deprescribing activity (Morin *et al*., 2016).

Comprehensive Medication Review (CMR)

The clinical pharmacist conducts an exhaustive review of the patient's complete medication list-encompassing prescription drugs, over-the-counter preparations, herbal and Ayurvedic remedies, and nutritional supplements-against current clinical diagnoses, laboratory parameters, and therapeutic goals (Jokanovic *et al*., 2015). This process systematically identifies PIMs, redundant drug-drug duplications, therapeutic cascades, and medications with an unfavourable benefit-harm balance in the individual patient context.

Prescriber consultation and collaborative practice

The clinical pharmacist communicates medication review findings through structured, evidence-based recommendations. Pharm D practitioners in India, through their clinical rotations and ward-based training, are well positioned for this collaborative role (Pharmacy Council of India, 2008).

Patient and caregiver counselling

The pharmacist provides patient-centred, culturally sensitive counselling on the rationale for deprescribing, the tapering schedule, and symptoms to monitor following discontinuation. In the Indian context, counselling must be adapted to the patient's language, literacy level, and cultural background. Regional-language informational leaflets and teach-back techniques substantially enhance comprehension and acceptance.

Monitoring and follow-up

Following deprescribing, the clinical pharmacist monitors the patient's clinical response-detecting symptom recurrence, withdrawal effects, rebound phenomena, or new ADRs. Regular follow-up contacts and telepharmacy visits allow timely reversal of deprescribing decisions when clinically warranted.

Documentation and pharmacovigilance

Systematic documentation of deprescribing decisions, outcomes, and patient responses contributes to the institutional evidence base and supports quality improvement. ADR reports following deprescribing should be submitted to the Pharmacovigilance Programme of India (PvPI) (Patel and Patel, 2016) to build real-world evidence on deprescribing safety in Indian geriatric populations.

Role of nurses in multidisciplinary deprescribing teams

While clinical pharmacists are well positioned to lead deprescribing initiatives, nurses play an equally vital supporting role in the multidisciplinary deprescribing team. As the healthcare professionals with the most frequent and sustained bedside contact with geriatric patients, nurses are ideally placed to identify early clinical signs of medication-related adverse effects, observe patient behaviour and functional status changes following deprescribing, and reinforce patient education delivered by the pharmacist. In Indian teaching hospitals, nurses can serve as essential communication links between patients, families, clinical pharmacists, and physicians in the deprescribing workflow. Acknowledging and formalising this nursing contribution-through nurse-specific deprescribing training and the inclusion of nurses in geriatric medication review meetings-would meaningfully strengthen the multidisciplinary deprescribing model in India.

Advocacy and policy

Clinical pharmacists have a broader advocacy role in promoting deprescribing at institutional and policy levels-incorporating deprescribing into hospital formulary policies, advocating for geriatric pharmacy services in resource planning, and participating in the development of India-specific deprescribing guidelines.

Current Status of Deprescribing in India

Despite the growing global literature on deprescribing, India-specific research and practice remain nascent. Most published Indian studies have focused on documenting polypharmacy and PIM prevalence rather than evaluating structured deprescribing interventions. Systematic deprescribing programmes are largely absent from routine Indian clinical workflows.

Figure 3: The clinical pharmacist as the central hub of deprescribing activity. Six spoke domains: (1) comprehensive medication review; (2) prescriber consultation and collaborative practice; (3) patient and caregiver counselling; (4) monitoring and follow-up; (5) documentation and pharmacovigilance; (6) advocacy and policy.

A limited but growing body of evidence demonstrates the feasibility and clinical benefit of pharmacist-led medication review in reducing polypharmacy in India. Studies from tertiary care teaching hospitals with established Pharm D programmes-in Karnataka, Kerala, Andhra Pradesh, and Tamil Nadu-report meaningful reductions in prescribed medication count, ADR incidence, and hospitalisation rates following structured pharmacist interventions (Varghese *et al*., 2021). However, these studies originate predominantly from academic medical centres; their findings have not been scaled to community or district hospital settings, representing an important research gap.

The Pharm D programme, introduced in India under the Pharmacy Council of India (PCI) in 2008 (Pharmacy Council of India, 2008), has meaningfully strengthened clinical pharmacy practice in teaching hospitals. Pharm D graduates and interns are increasingly contributing to medication review through their hospital-based clinical rotations. Formalising and expanding this contribution-through collaborative practice agreements, structured medication review protocols, and institutional deprescribing programmes-is a critical priority for the field.

FUTURE DIRECTIONS AND RESEARCH GAPS

Development of India-specific deprescribing guidelines

Professional organisations including the Indian Geriatrics Society, APTI, and the Indian Society for Pharmacology should collaborate to develop and validate deprescribing guidelines tailored to the Indian geriatric context, accounting for local drug availability, disease burden, and healthcare infrastructure.

Curricular integration

Deprescribing and geriatric pharmacotherapy should be formal, assessable competencies in MBBS, MD (General Medicine/ Geriatrics), and Pharm D curricula, with dedicated case-based learning modules and simulation exercises.

Formalised pharmacist-led medication review services

Hospitals should institutionalise structured medication review as part of geriatric care protocols, with Pharm D practitioners empowered through collaborative practice agreements to initiate and document deprescribing recommendations.

Regional-language patient education resources

Multimedia educational resources explaining deprescribing should be developed in regional Indian languages and distributed through pharmacy departments, community health workers-Accredited Social Health Activists (ASHAs)-and digital platforms.

Telepharmacy and digital health

Mobile applications and telepharmacy platforms should be developed to extend medication review to elderly patients in rural India, with integration into the ABDM framework.

Multi-centre prospective research

Prospective Indian studies evaluating clinical and economic outcomes of structured deprescribing programmes in geriatric patients are urgently needed to build a local evidence base.

Pharmacovigilance linkage

Outcomes following deprescribing should be systematically reported through the PvPI to build a national geriatric deprescribing database.

CONCLUSION

Deprescribing should not be viewed as the withdrawal of therapeutic care but as a proactive, evidence-based approach to ensure that older adults receive the right medications, at the right doses, for the right duration, aligned with their goals and quality of life.

This review has demonstrated that the barriers to deprescribing in Indian geriatric patients are real, multifactorial, and deeply interconnected-spanning patient fears, cultural attitudes, prescriber inertia, systemic fragmentation, and the absence of India-specific tools and guidelines. Equally, the facilitators are compelling: patient willingness, validated clinical tools, the expanding Pharm D workforce, growing interprofessional collaboration, and emerging digital health opportunities.

Clinical pharmacists, working within multidisciplinary teams that include nurses, physicians, and social workers, are uniquely positioned to champion deprescribing as a routine component of geriatric care in India. With appropriate curricular training, institutional support, collaborative practice frameworks, and India-specific guidelines, the clinical pharmacist can transform deprescribing from an underutilised concept into an everyday clinical practice that meaningfully improves the lives of India's ageing population.

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ABBREVIATIONS

ABDM: Ayushman Bharat Digital Mission; **ADRs:** Adverse Drug Reactions; **AGS:** American Geriatrics Society; **APTI:** Association of Pharmaceutical Teachers of India; **ARMOR:**

Assess, Review, Minimise, Optimise, Reassess; **ASHAs:** Accredited Social Health Activists; **BZD:** Benzodiazepines; **CEASE:** Current Medications, Elevated Risk, Advised to Stop, Slow Tapering, Explain Stopping; **CME:** Continuing Medical Education; **CMR:** Comprehensive Medication Review; **COPD:** Chronic Obstructive Pulmonary Disease; **EHR:** Electronic Health Records; **GPGP:** Good Palliative-Geriatric Practice; **MAI:** Medication Appropriateness Index; **NSAIDs:** Non-Steroidal Anti-Inflammatory Drugs; **PCI:** Pharmacy Council of India; **PIMs:** Potentially Inappropriate Medications; **PPDQ:** Patient Preferences for Deprescribing Questionnaire; **PPIs:** Proton Pump Inhibitors; **PvPI:** Pharmacovigilance Programme of India; **SDM:** Shared Decision-Making; **START:** Screening Tool to Alert to Right Treatment; **STOPP:** Screening Tool of Older Persons' Prescriptions.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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AUTHOR CONTRIBUTIONS

Nagadeepthi N is the sole author of this manuscript and was fully responsible for the conceptualisation, literature search, writing-original draft, writing-review and editing, visualisation, and final approval of the manuscript.

SUMMARY

Deprescribing is a vital, patient-centred intervention for managing polypharmacy among India's ageing population. While patient-level, prescriber-level, and system-level barriers hinder its implementation, strategic facilitators-pharmacist-led medication review, validated deprescribing tools, structured patient counselling, multidisciplinary collaboration, and digital health integration-can meaningfully optimise therapeutic outcomes and reduce drug-related harm. Pharm D practitioners and nursing professionals, working together within geriatric care teams, are uniquely positioned to lead this transformation in Indian clinical pharmacy practice.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the author used AI-assisted writing tools (including Claude, Anthropic) to support literature organisation, draft structuring, and language refinement. All content was conceptualised, directed, and verified by the author, who takes full and sole responsibility for the integrity, accuracy, and originality of all content. No AI tool has been listed as an author or co-author of this article.

REFERENCES

Ailabouni NJ, Nishtala PS, Mangin D, Tordoff JM. (2016). Challenges and enablers of deprescribing: A general practitioner perspective. PLOS ONE, 11(4), e0151066.

American Geriatrics Society Beers Criteria Update Expert Panel. (2023). American Geriatrics Society 2023 updated AGS Beers Criteria for potentially inappropriate medication use in older adults. Journal of the American Geriatrics Society, 71(7), 2052-2081.

Anderson K, Stowasser D, Freeman C, Scott I. (2014). Prescriber barriers and enablers to minimising potentially inappropriate medications in adults: A systematic review and thematic synthesis. BMJ Open, 4(12), e006544.

Bain KT, Holmes HM, Beers MH, Maio V, Handler SM, Pauker SG. (2008). Discontinuing medications: A novel approach for revising the prescribing stage of the medication-use process. Journal of the American Geriatrics Society, 56(10), 1946-1952.

Dhirir SA, Ali H, Lim YMF, Ibrahim MIM. (2020). The pharmacist's role in deprescribing: A systematic review. Research in Social and Administrative Pharmacy, 16(5), 601-609.

Dhananjay K, Bhanu P, Naveen CH. (2019). Polypharmacy and potentially inappropriate prescribing in elderly patients in a tertiary care hospital in South India. Indian Journal of Pharmaceutical Sciences, 81(3), 543-549.

Farrell B, Pottie K, Thompson W, Boghossian T, Pizzola L, Rashid FJ, Strader Knowles C, Dolovich L, McCarthy L. (2017). Deprescribing proton pump inhibitors: Evidence-based clinical practice guideline. Canadian Family Physician, 63(5), 354-364.

Galazzi A, Lusignani M, Chiarelli MT, Molin A, Rasero L. (2016). Attitudes towards polypharmacy and medication withdrawal among older inpatients in Italy. International Journal of Clinical Pharmacy, 38(2), 454-461.

Garfinkel D, Mangin D. (2010). Feasibility study of a systematic approach for discontinuation of multiple medications in older adults: Addressing polypharmacy. Archives of Internal Medicine, 170(18), 1648-1654.

Hilmer SN, Gnjidic D, Le Couteur DG. (2012). Thinking through the medication list: Appropriate prescribing and deprescribing in robust and frail older patients. Australian Family Physician, 41(12), 924-928.

Indian Geriatrics Society. (2021). State of geriatric care in India: A white paper. Indian Geriatrics Society.

Jokanovic N, Tan EC, Dooley MJ, Kirkpatrick CM, Bell JS. (2015). Prevalence and factors associated with polypharmacy in long-term care facilities: A systematic review. Journal of the American Medical Directors Association, 16(6), 535.e1-535.e12.

Kumar NB, Kishore PV, Bhanu PR. (2017). Use of traditional medicine among elderly patients attending a tertiary care hospital: Implications for drug interaction and patient safety. Indian Journal of Traditional Knowledge, 16(3), 420-425.

Morin L, Laroche ML, Texier G, Johnell K. (2016). Prevalence of potentially inappropriate medication use in older adults living in nursing homes: A systematic review. Journal of the American Medical Directors Association, 17(9), 862.e1-862.e9.

Narain JP. (Ed.).(2013). Health of the elderly in South-East Asia: A profile. WHO South-East Asia Regional Office.

National Health Authority. (2022). Ayushman Bharat Digital Mission: Vision and implementation framework. Ministry of Health and Family Welfare, Government of India.

O'Mahony D, Cherubini A, Guiteras AR, Byrne S, Chaquin P, Bahat G, Mair A, Onder G, Pérez-Jover V, Rajska-Neumann A, Wehling M, Fagard K. (2023). STOPP/START criteria for potentially inappropriate prescribing in older people: Version 3. European Geriatric Medicine, 14(3), 625-632.

Parekh N, Ali K, Stevenson JM, Davies JG, Schiff R, Van der Linden M, Masud T, Rajkumar C. (2018). Incidence and cost of medication harm in older adults following hospital discharge: A multicentre prospective study. British Journal of Clinical Pharmacology, 84(8), 1789-1797.

Patel TK, Patel PB. (2016). Adverse drug reactions in hospitalised patients: A systematic review of Indian studies. Indian Journal of Pharmacology, 48(4), 366-371.

Pharmacy Council of India. (2008). Pharm D regulations 2008 and curriculum guidelines. Pharmacy Council of India.

Reeve E, Gnjidic D, Long J, Hilmer S. (2015). A systematic review and narrative synthesis of the prevalence of and reasons for medication non-adherence in older adults. Age and Ageing, 44(6), 853-861.

Reeve E, Thompson W, Farrell B. (2017). Deprescribing: A narrative review of the evidence and practical recommendations for recognizing opportunities and taking action. European Journal of Internal Medicine, 38, 3-11.

Reeve E, To J, Hendrix I, Shakib S, Roberts MS, Wiese MD. (2013a). Patient barriers to and enablers of deprescribing: A systematic review. Drugs and Aging, 30(10), 793-807.

Reeve E, Wiese MD, Hendrix I, Roberts MS, Shakib S. (2013b). People's attitudes, beliefs, and experiences regarding polypharmacy and willingness to deprescribe. Journal of the American Geriatrics Society, 61(9), 1508-1514.

Scott IA, Hilmer SN, Reeve E, Potter K, Le Couteur D, Rigby D, Gnjidic D, Del Mar CB, Roughead EE, Page A, Jansen J, Martin JH. (2015). Reducing inappropriate polypharmacy: The process of deprescribing. JAMA Internal Medicine, 175(5), 827-834.

Sharma M, Bansal D, Nanda A. (2020). Assessment of potentially inappropriate prescribing in geriatric patients using Beers Criteria in a tertiary care hospital in Rajasthan. Journal of Pharmacy Practice and Community Medicine, 6(2), 41-46.

Sinnott C, McHugh S, Browne J, Bradley C. (2013). GPs' perspectives on the management of patients with multimorbidity: A systematic review and synthesis of qualitative research. BMJ Open, 3(9), e003610.

Thomas T, Jose A, Varghese B. (2018). Polypharmacy and its associated drug-drug interactions in geriatric patients of a tertiary care hospital in Kerala. International Journal of Basic and Clinical Pharmacology, 7(11), 2131-2136.

United Nations Population Fund. (2023). India ageing report 2023: Caring for our elders. UNFPA India.

Varghese D, Sabu C, Mathew A. (2021). Impact of clinical pharmacist interventions on potentially inappropriate prescribing in geriatric inpatients: A prospective interventional study. Indian Journal of Pharmacy Practice, 14(3), 218-224.

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