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Exploring the Knowledge and Attitudes of Physicians on Polypharmacy and Deprescribing in Clinical Practice: a Cross-Sectional Study

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ABSTRACT

Objective: *Polypharmacy, defined as the use of five or more medications, is increasingly prevalent among geriatric patients due to the complexity of managing multiple chronic conditions. This study aimed to evaluate physicians' knowledge of deprescribing, their familiarity with deprescribing tools and the factors influencing the deprescribing process.*

Materials and methods: *This cross-sectional survey was conducted among 290 physicians from four prominent tertiary care centers in South India between October 2023 and March 2024. A self-administered semi-structured questionnaire was employed to evaluate physicians' knowledge of polypharmacy, attitudes toward fall-risk-increasing drugs (FRIDs) and practices related to deprescribing interventions. Data collection was managed using Microsoft Excel, while descriptive and bivariate analyses were performed using SPSS to analyze the findings.*

Results: *The study revealed that a majority of physicians (148; 51.0%) were unfamiliar with the term "deprescribing" and reported no formal training in the practice. Analysis based on physicians' knowledge scores showed that participants with higher scores (≥28) demonstrated significantly greater awareness of the Tool to Improve Medications in the Elderly via Review (TIMER) and Fit fOR The Aged (FORTA) list compared to those with lower scores. Among these more knowledgeable physicians, 48.1% (n=13; p=0.054) were aware of TIMER but had not utilized it in practice, while 33.3% (n=9; p=0.016) reported familiarity with the FORTA list without its practical application.*

Conclusion: *Deprescribing plays a vital role in managing polypharmacy and minimizing its associated risks in the aging population. However, its adoption is constrained by significant barriers, including a lack of awareness, insufficient formal training and limited integration of evidence-based deprescribing tools into clinical practice.*

Keywords: geriatric care, polypharmacy, deprescribing, physician knowledge, physician attitudes, medication management, cross-sectional study.

INTRODUCTION

In healthcare settings worldwide, due to the substantial burden of multimorbidity (multiple health conditions), the prevalence of polypharmacy, defined as the concurrent use of five or more medications, is rising among the elderly population (1). Studies have demonstrated that multimorbidity is associated with adverse health outcomes, including reduced quality of life, increased healthcare utilization and higher mortality rates (2-4). Similarly, polypharmacy can contribute to the use of potentially inappropriate medications, which may increase the likelihood of falls. Fall risk-increasing drugs (FRIDs) are a class of medications identified as capable of inducing falls or elevating fall risk (5, 6).

The proportion of Indians aged 60 years and older is projected to increase from 7.5% in 2010 to 11.1% by 2025 (7). Among these, the Southern states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu are expected to account for a larger share, followed by states in northern India (8). Inappropriate polypharmacy increases the use of potentially inappropriate medications (PIMs), leading to inappropriate medication use (IMU). IMU includes drug overuse (use without valid indication) and misuse (inappropriate drug choice, dosing, or duration) (9, 10). This can result in adverse drug reactions, drug–drug and drug–disease interactions, particularly in older adults, whose

age-related physiological changes further complicate pharmacotherapy (9, 10). The estimated prevalence of polypharmacy in older adults in India is approximately 49% (11) and approximately 45% of elderly patients are prescribed at least one potentially inappropriate medication (PIM) (12).

Deprescribing is a structured process by healthcare professionals to reduce or discontinue medications when risks outweigh benefits. It targets PIMs, considering medical conditions, treatment goals, quality of life, and patient preferences (13). Deprescribing aims to optimize medication use while minimizing risks, guided by a standardized framework for physicians (14). Validated deprescribing tools include STOPP/START and Beers criteria, medication appropriateness index, ARMOR and TIMER. Further research is needed to assess their impact on reducing inappropriate medication use, polypharmacy and falls in geriatrics (15, 16). The limited availability of evidence-based guidelines for deprescribing poses a significant challenge to its acceptance and implementation. Physicians face barriers such as time constraints, limited awareness of PIMs, uncertainty about outcomes and patient resistance. It is crucial to explore physicians' knowledge and attitudes toward polypharmacy and deprescribing in clinical practice to address these challenges and improve acceptance of the process (17-19). Deprescribing improves medication management by reducing polypharmacy, non-adherence, inappropriate prescriptions, costs, pill burden and disability, while promoting rational drug use (18). Understanding how elderly patients and physicians perceive its challenges can guide strategies for effective implementation (13). Though deprescribing is gaining global attention, Indian physicians face challenges due to limited evidence-based guidelines, making the process complex (18, 20). As a relatively new concept in India, this study – conducted across four tertiary care hospitals in South India – evaluated physicians' knowledge, attitudes, and practices, identifying key barriers and enablers to enhance awareness and support implementation of the deprescribing process. ❑

MATERIALS AND METHODS

Study design and participants

This cross-sectional study was conducted in four tertiary care centers in South India, including All India Institute of Medical Sciences (AIIMS) Bibinagar, JIPMER Puducherry, Malabar Medical College Calicut and Kasturba Medical College Manipal, to ensure geographic and healthcare diversity. A total of 292 physicians from various specialties with at least one year of experience in elderly care were included. The study was approved by the Institutional Ethics Committee in all four sites and conducted in accordance with ICMR bioethical guidelines, the Declaration of Helsinki and ICH-GCP. Written informed consent was obtained from all participants prior to data collection.

Questionnaire development, validation and KAP outcome measures

The study instrument was based on existing deprescribing research and underwent thorough validation. Content validity was ensured through expert review in geriatrics, primary care and pharmacology, while face validity was confirmed *via* pilot testing with physicians to improve clarity and relevance. Six geriatric care experts rated each item's relevance on a four-point Likert scale, with scores of 3 or 4 being considered acceptable. The overall Scale-Level CVI was 92.9%. Reliability was high, with a Cronbach's alpha of 0.9 for the 21-item version. The questionnaire comprised two sections. Section 1 gathered physician demographics (age, experience, specialty). Section 2 assessed knowledge, attitudes and practices (KAP) on polypharmacy and deprescribing using 27 items 10 on knowledge, 13 on attitude, and four on practice. It employed true/false, yes/no, multiple choice and Likert scales to evaluate physicians' understanding and approach to managing polypharmacy in older adults.

To assess overall KAP, we adopted a scoring framework based on Bloom's cut-off (21-23). For the knowledge domain, the maximum achievable score was 46. A binary classification was applied, where a score of ≥28 (equivalent to 60% of the total) was considered "sufficient", and scores below 28 were categorized as "insufficient". This threshold reflects established practices in KAP research, where ≥60% is often used to indicate adequate knowledge.

Unlike previous studies that used a three-tier model (good: 80–100%, moderate: 60–79%, poor: <60%), we opted for a two-tier system. This binary approach was chosen to enhance interpretability and facilitate more actionable com-

parisons, especially in the context of identifying participants who require targeted educational interventions. Grouping moderate and good into a single "sufficient" category provided a practical lens to assess real-world preparedness among physicians regarding deprescribing.

Statistical analysis

Data were analyzed to explore associations between physician characteristics and their knowledge of deprescribing. Questionnaire reliability and construct validity were assessed through principal component analysis and Cronbach's alpha. To identify significant predictors of higher knowledge scores (≥28), binomial logistic regression was performed, and results were reported with odds ratios (ORs) and 95% confidence intervals (CIs). Chi-square tests assessed categorical data; Mann-Whitney was used for non-parametric continuous variables. Fisher's exact test was applied when appropriate. Statistical significance was set at $p < 0.05$. Analyses were conducted using Microsoft Excel (2010) and IBM SPSS Statistics Version 20.0. ❑

RESULTS

The Google form questionnaire was shared with 292 eligible faculty and treating physicians. Of these, 290 consented and completed the survey; two declined participation. Table 1 outlines their demographics. Most respondents were male (n = 169, 58.2%) and had 0–5 years of clinical experience (n = 146, 50.3%). A majority belonged to medical specialties (n = 193, 66.5%) and private institutions (n = 165, 56.9%). Malabar Medical College (MMC), Calicut, had the highest participation (n = 98, 33.8%).

TABLE 1. Demographic characteristics of physicians (N=290)

Parameters	n (%)
Age (years)	
<35	152 (52.1)
35-44	84 (28.8)
45-54	27 (9.2)
≥55	10 (3.4)
Missing	19 (6.5)
Gender	
Male	169 (58.2)
Female	120 (41.3)
Prefer not to say	1 (0.3)
Years of clinical experience	
0-5 years	146 (50.3)
6-10 years	68 (23.4)
11-20 years	49 (16.9)
>20 years	27 (9.3)
Academic position/designation	
Junior/Senior Resident	109 (37.6)
Assistant/Associate Professor	98 (33.8)
Professor/Consultant	62 (21.4)
Others (MBBS/PG)	21 (7.2)
Department category	
Medical specialties	(66.5)
Surgical specialties	97 (33.5)
Type of organization	
Government	125 (43.1)
Private	165 (56.9)
Study sites	
AIIMS Bibinagar	62 (21.4)
JIPMER Puducherry	63 (21.7)
KMC, Manipal	67 (23.1)
MMC, Calicut	98 (33.8)

Data of respondents are expressed as percentages n (%).

Knowledge of physicians towards deprescription

The survey assessed physicians' perceptions of medication management and their KAP toward deprescribing. Of 290 participants, 148 (51.0%) were unfamiliar with the term "deprescribing", revealing a major awareness gap. A structured multiple-choice questionnaire evaluated core topics such as polypharmacy definitions, fall risk, FRIDs and deprescribing tools. True/false and example-based questions assessed knowledge depth and application. Responses were scored and grouped using Bloom's criteria to identify significant differences in knowledge levels and highlight key educational needs.

Physicians were grouped by their knowledge scores: ≥28 (sufficient) and <28 (insufficient). Demographic variables (age, designation, specialty, workplace, organization type and clinical experience) showed no significant association with knowledge levels ($p > 0.05$). However, gender differences were significant. In the <28 group, 55.0% of subjects were males and 44.6% females; in the ≥28 group, 74.0% of subjects were males and 26.0% females. The chi-square test ($\chi^2 = 6.225$, $df = 1$, $p = 0.044$) confirmed a statistically significant gender-based difference in knowledge levels (Table 2).

A binary logistic regression model was used to identify predictors of sufficient knowledge scores (≥28). The model included variables such as age, gender, years of clinical experience and type of

TABLE 2. Physicians' demographic characteristics by their knowledge score

Parameters	Knowledge score <28 (N=240)	Knowledge score ≥28 (N=50)	χ^2	*P*
Age, years	35.4 ± 8.2	37.4 ± 9.4		0.127
Gender				
Male, n (%)	132 (55.0)	37 (74.0)	6.225	**0.044***
Female, n (%)	107 (44.6)	13 (26.0)		
Prefer not to say, n (%)	1 (0.4)	-		
Academic designation				
Additional Professor, n (%)	10 (4.2)	2 (4.0)	7.600	0.473
Assistant Professor, n (%)	53 (22.1)	12 (24.0)		
Associate Professor, n (%)	28 (11.7)	5 (10.0)		
Consultant, n (%)	18 (7.5)	6 (12.0)		
Junior Resident, n (%)	15 (6.3)	2 (4.0)		
MBBS graduate, n (%)	2 (0.8)	1 (2.0)		
Postgraduate, n (%)	18 (7.5)	0 (0.0)		
Professor, n (%)	19 (7.9)	7 (14.0)		
Senior Resident, n (%)	77 (32.1)	15 (30.0)		
Categories				
Medical specialties, n (%)	160 (66.7)	32 (64.0)	0.131	0.176
Surgical specialties, n (%)	80 (33.3)	18 (36.0)		
Place of work				
AIIMS Bibinagar, n (%)	54 (22.5)	8 (16.0)	1.902	0.592
JIPMER Puducherry, n (%)	51 (21.2)	12 (24.0)		
KMC, Manipal, n (%)	57 (23.7)	10 (20.0)		
MMC, Calicut, n (%)	78 (32.5)	20 (40.0)		
Type of organization				
Government, n (%)	105 (43.8)	20 (40.0)	0.237	0.626
Private, n (%)	135 (56.2)	30 (60.0)		
Years of clinical experience				
0-5 years, n (%)	124 (51.7)	22 (44.0)	5.690	0.127
5-10 years, n (%)	56 (23.3)	12 (24.0)		
10-20 years, n (%)	42 (17.5)	7 (14.0)		
>20 years, n (%)	18 (7.5)	9 (18.0)		

Data are expressed as mean ± SD unless stated otherwise.
Respondents' data are expressed as percentages n (%). Chi-square test was used.
*$p < 0.05$ was considered statistically significant.

organization. The model showed good fit and explanatory capacity with an intercept estimate of −2.327 ($p < 0.001$), indicating a low baseline probability of a high knowledge score in the reference group. Among these, only gender was found to be a statistically significant predictor of sufficient knowledge scores, while age, clinical experience and type of organization did not demonstrate significant associations with the outcome.

Gender was found to be a significant predictor of higher knowledge scores. Male physicians were significantly more likely to score ≥28 compared to female physicians, with an odds ratio (OR) of 2.31 (95% CI 1.17–4.56; $p = 0.016$). This suggests that male participants had more than twice the odds of having a high knowledge score relative to their female counterparts. These findings indicate a significant gender difference in knowledge levels regarding deprescribing practices, which may reflect disparities in training exposure, role expectations, or self-reported confidence. Addressing this gap may require targeted educational strategies that ensure equitable access to deprescribing knowledge and tools across all demographics.

Measurement of physician attitudes towards deprescribing

A 12-item questionnaire using varied formats, including Likert scales, was administered to assess physicians' attitudes, perspectives and behaviors toward deprescribing (Figure 1). To examine the impact of knowledge on attitudes, physicians were grouped by their knowledge scores: ≥28 (suf-

ficient) and <28 (insufficient). Chi-square analysis showed no significant association between knowledge and attitudes or practices ($p > 0.05$), suggesting knowledge alone did not influence deprescribing behavior.

Assessment of physician skills and training

To assess the practical application of knowledge, physicians answered multiple-choice clinical scenarios. One question on fall risk assessment offered options like "History," "Questionnaire," and "fall efficacy scale (FES)". Most (50.8%) used all three methods. Others used history alone (11.5%), history with FES (6.7%), history with questionnaire (11.5%), FES alone (9.8%), or only questionnaires (8.2%). One used FES and questionnaire. These varied responses highlight differences in clinical approaches to fall risk assessment.

The findings highlight a major gap in deprescribing education – 93.4% of physicians lacked formal training, with only 6.6% having received it. This is concerning given the risks of polypharmacy

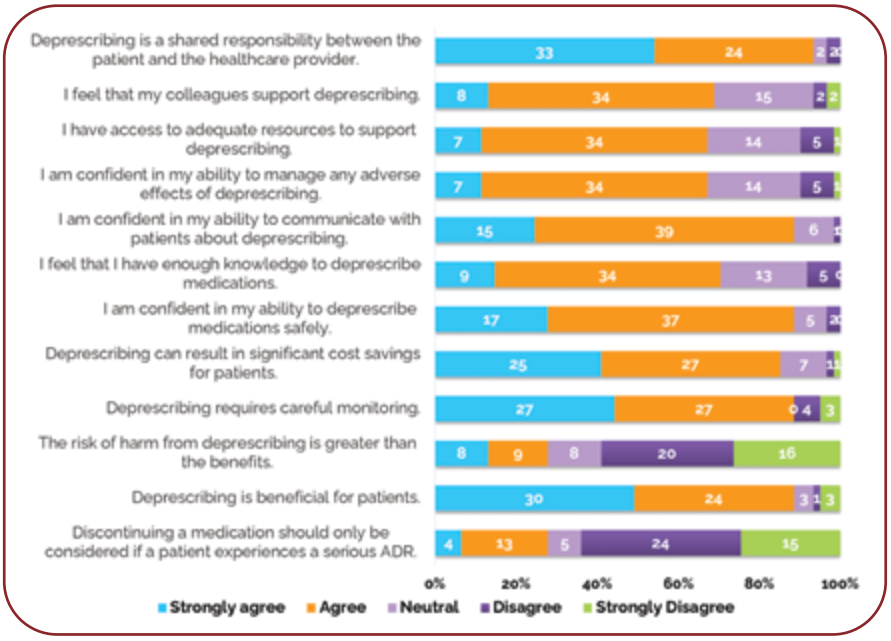

FIGURE 1. Physicians' attitudes towards deprescribing – 12 questions (Likert scale items)

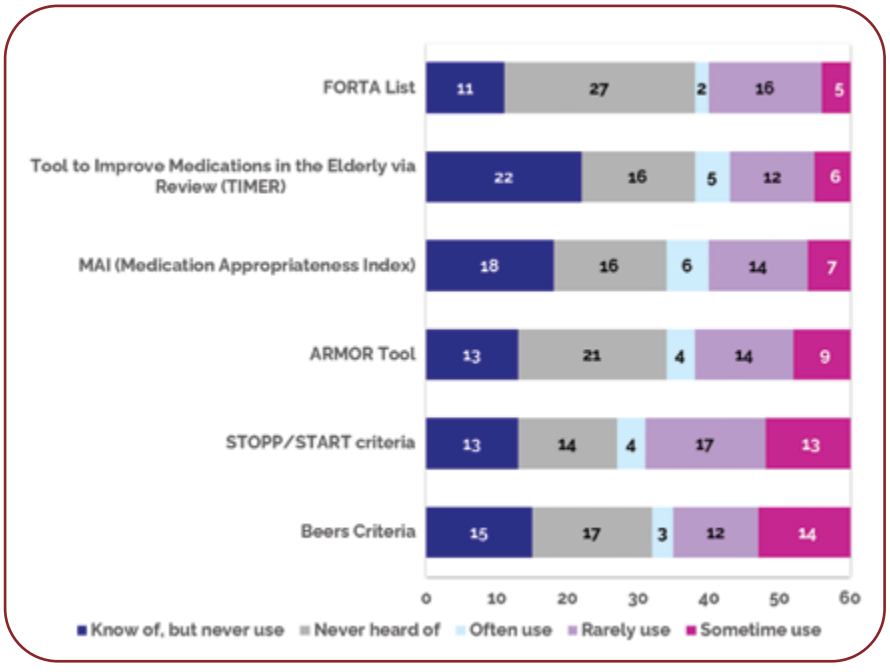

FIGURE 2. Frequency of use of specific deprescribing tools

TABLE 3.
Frequency of use of specific deprescribing tools by knowledge score

Parameter	Knowledge score <28 (N=34)	Knowledge score ≥28 (N= 27)	χ^2	P value
Frequency of use of specific deprescribing tools				
Beers criteria				
Often use, n (%)	2 (5.9)	1 (3.7)	2.249	0.690
Sometime use, n (%)	8 (23.5)	6 (22.2)		
Rarely use, n (%)	7 (20.6)	5 (18.5)		
Know of, but never use, n (%)	6 (17.6)	9 (33.3)		
Never heard of, n (%)	11 (32.4)	6 (22.2)		
STOPP/START criteria				
Often use, n (%)	3 (8.8)	1 (3.7)	5.314	0.256
Sometime use, n (%)	10 (29.4)	3 (11.1)		
Rarely use, n (%)	9 (26.5)	8 (29.6)		
Know of, but never use, n (%)	7 (20.6)	6 (22.2)		
Never heard of, n (%)	5 (14.7)	9 (33.3)		
ARMOR tool				
Often use, n (%)	3 (8.8)	1 (3.7)	6.466	0.166
Sometime use, n (%)	8 (23.5)	1 (3.7)		
Rarely use, n (%)	7 (20.6)	7 (25.9)		
Know of, but never use, n (%)	5 (14.7)	8 (29.6)		
Never heard of, n (%)	11 (32.4)	10 (37.0)		
MAI (medication appropriateness index)				
Often use, n (%)	6 (17.6)	0 (0.0)	6.822	0.145
Sometime use, n (%)	5 (14.7)	2 (7.4)		
Rarely use, n (%)	7 (20.6)	7 (25.9)		
Know of, but never use, n (%)	9 (26.5)	9 (33.3)		
Never heard of, n (%)	7 (20.6)	9 (33.3)		
Tool to improve medications in the elderly *via* review (TIMER)				
Often use, n (%)	5 (14.7)	0 (0.0)	9.296	0.054*
Sometime use, n (%)	5 (14.7)	1 (3.7)		
Rarely use, n (%)	8 (23.5)	4 (14.8)		
Know of, but never use, n (%)	9 (26.5)	13 (48.1)		
Never heard of, n (%)	7 (20.6)	9 (33.3)		
FORTA list				
Often use, n (%)	2 (5.9)	0 (0.0)	12.144	**0.016***
Sometime use, n (%)	5 (14.7)	0 (0.0)		
Rarely use, n (%)	10 (29.4)	6 (22.2)		
Know of, but never use, n (%)	2 (5.9)	9 (33.3)		
Never heard of, n (%)	15 (44.1)	12 (44.4)		

Respondents' data are expressed as percentages n (%).
Chi-square test was used.
*$p < 0.05$ was considered statistically significant.

in older adults. Without training, physicians may hesitate to initiate deprescribing, miss opportunities to optimize therapy and increase adverse outcomes. Integrating deprescribing into medical education and continuing programs is essential to improve patient safety and medication management in geriatric care.

Physician familiarity and utilization of deprescribing tools

The assessment revealed limited awareness and use of deprescribing tools among physicians. While 23% of participants used the Beers criteria regularly, 24.6% knew about it but did not apply it and 27.9% had never heard of it. Only 6.7% of subjects used the STOPP/START criteria frequently, with 23.3% being unaware of it. Awareness of the ARMOR tool was especially low: 34.4% were unfamiliar and none used it often. For the MAI, 29.5% were aware but did not use it, while 11.5% applied it frequently. TIMER had 36.1% awareness without use and 9.8% regular users. FORTA had the lowest familiarity, with 44.3% unaware and just 3.3% frequent users. These results underscore the need for focused training and integra-

tion of deprescribing tools into everyday clinical practice (Figure 2).

Association between knowledge score and deprescribing tool utilization

Comparison of deprescribing knowledge and tool use showed no significant differences in the application of the Beers criteria, STOPP/START, ARMOR, or MAI based on knowledge scores. However, significant associations were found for TIMER and the FORTA list ($p < 0.05$). Physicians with sufficient knowledge scores (≥28) were more familiar with these tools, though many had not used them. Notably, 48.1% ($p=0.054$) knew of TIMER without applying it, and 33.3% ($p=0.016$) were aware of FORTA but had not used it. This highlights a gap between knowledge and practical tool adoption in clinical settings (Table 3). ❑

DISCUSSION

Physicians play a pivotal role in the practice of deprescribing and must be adequately prepared to address the complex needs of an aging population (24). It has been suggested that incorporating instruction on deprescribing into medical education is a crucial step to equip physicians for this important role (25). This exploratory study assessed physicians' knowledge, attitudes, perceptions, confidence and understanding of polypharmacy and deprescribing in clinical practice. In our study, 63.1% of physicians did not identify polypharmacy as the use of five or more medications and 51.0% were unfamiliar with the term "deprescribing", which reflected limited awareness of this key practice. Additionally, 93.4% reported no formal training in deprescribing. In contrast, a study by Wuraola Akande-Sholabi *et al* found that 80.0% of physicians were familiar with deprescribing and 75.7% understood its steps (26). However, even in their study, fewer than 25% had received formal training or were aware of specific deprescribing tools. Despite the availability of evidence-based tools and guidelines, awareness and use remain low. These findings highlight the urgent need for focused educational efforts to improve understanding, tool utilization and clinical outcomes.

Polypharmacy and high-risk medications significantly increase fall risk in older adults (27, 28), a growing concern with demographic shifts (29). In India, fall prevalence among the elderly is estimated at 31% (95% CI 23%–39%) (30). A systematic review by Isha Biswas *et al* identified key risk factors, including age, female gender, balance issues, vision problems and comorbidities like hypertension and diabetes (31). In our study, 80.4% of physicians could not accurately define a "fall", with only 19.6% identifying it correctly as an unintentional descent to the ground or lower level. Physicians were asked to identify fall risk assessment tools from a list, allowing multiple selections. Only 2.4% identified five tools correctly, 5.9% identified four, 19.0% identified three, 34.5% identified two and 38.3% recognized just one. These results highlight limited awareness of fall risk tools among physicians. Given the importance of early risk identification, improving knowledge in this area is essential for effective fall prevention in older adults.

Deprescribing is the planned, safe discontinuation of medications that may do more harm than good. Though essential, it can be complex, especially for high-risk patients (32). In our study, 51.0% of physicians were unfamiliar with the term, while 49.0% reported awareness. Among those familiar, 98.5% correctly identified deprescribing as a systematic process, 97.8% acknowledged its role in reducing medication burden and 96.4% agreed it improved health outcomes. However, 9.1% incorrectly believed professional supervision was not required. About 75.3% correctly identified FRIDs and 86.6% prioritized drug-drug interactions, unwanted drugs, and those with severe ADRs for deprescribing. Still, 57.0% of subjects were unaware of deprescribing tools. These results highlight knowledge gaps and emphasize the need for targeted education, especially on deprescribing tools and their clinical use.

A study by Swetha *et al* found that 71.8% of Indian physicians viewed deprescribing as beneficial (20). Similarly, in our study, 49.1% of participants strongly agreed with this view. When asked if medications should only be stopped after a serious ADR, 21% agreed, reflecting caution. Most physicians supported key deprescribing principles: 44.2% strongly agreed it requires close monitoring, 44.2% acknowledged cost-saving potential and 32.7% disagreed that its risks outweigh benefits. Confidence levels were encouraging: 60.6% of subjects felt capable of deprescribing safely, 63.9% were confident in patient communication, 56.6% felt knowledgeable and 57.3% believed they could manage potential side effects.

Additionally, 55.7% of subjects agreed they had sufficient resources and peer support, while 54.0% strongly believed deprescribing should be a collaborative effort with patients. In fall assessment, 50.8% of physicians used history, questionnaires and FES. However, familiarity with deprescribing tools was limited: 27.8% had never heard of the Beers criteria, a similar percentage rarely used STOPP/START, 34.4% were unfamiliar with ARMOR and 29.5% knew MAI but had not used it. Furthermore, 36.0% of participants knew about TIMER but did not apply it and 44.2% were unaware of the FORTA list.

Despite growing awareness of deprescribing, our findings revealed limited application of structured deprescribing tools. Several factors may explain this discrepancy between awareness and implementation. First, the majority of physicians reported no formal training in deprescribing strategies or the use of validated tools. This lack of structured exposure during undergraduate and postgraduate medical education limits clinicians' confidence in initiating deprescribing (33). This is consistent with prior literature, where insufficient training and uncertainty about deprescribing protocols were identified as key barriers (19, 34). Given that deprescribing intersects with patient safety, pharmacovigilance and clinical decision-making, its integration into India's national medical curricula and continuing medical education (CME) programs remains limited (35, 36). Secondly, time constraints in busy outpatient settings pose a practical barrier. Physicians often prioritize acute clinical concerns over medication optimization during short consultations. This is particularly challenging in resource-limited healthcare settings where polypharmacy is common and comprehensive medication reviews are rarely feasible within routine practice (35). Thirdly, this study relied on self-reported data, which may be subject to social desirability bias, especially in a sensitive area like self-assessment of prescribing competence (37). Fourthly, there is often a lack of clinical decision support tools in many Indian hospitals, especially in settings without electronic health record (EHR) systems (36). The absence of automated prompts or embedded guidelines within prescribing software reduces opportunities to identify potentially inappropriate medications (14). Lastly, patient-related barriers, such as resistance to medication changes and fear of symptom recurrence, contribute to physicians' reluctance (38). The cultural context, including patients' beliefs that more medications equate to better care, adds to the complexity of deprescribing in India (39). These beliefs must be addressed through patient-centered communication strategies and public health awareness initiatives (38). These findings underscore the need for system-level changes in medical education policy and clinical governance (36). Incorporating deprescribing competencies into medical curriculum and PG training programs, alongside supporting infrastructure like EHRs and interdisciplinary deprescribing teams, may improve uptake and safe implementation of deprescribing practices across India (14, 26).

Limitations of our study include reliance on self-reported data from physicians regarding their awareness, knowledge and use of deprescribing tools, which may introduce recall or social desirability bias. The participant cohort consisted predominantly of early-career physicians, with approximately 50% of them having 0-5 years of clinical experience, which may limit insights into the perspectives of more seasoned physicians. Furthermore, as the study was conducted at a teaching hospital, the sample may not adequately represent the broader physician population, potentially restricting the generalizability of results to other clinical settings. These factors suggest caution when applying the findings to different practice environments or more experienced physician groups. ❑

CONCLUSION

This study highlights significant knowledge gaps and limited use of validated deprescribing tools among physicians, particularly those with fewer years of clinical experience. Although nearly half of respondents were aware of the concept of deprescribing, formal training was lacking in over 90% of participants. Moreover, while familiarity with tools like the Beers and STOPP/START criteria was moderate, their application in clinical practice remained low. These findings underscore the urgent need for structured training programs focused on deprescribing, particularly targeting early-career physicians. Incorporating deprescribing education into undergraduate and postgraduate medical curricula, as well as continuous medical education (CME) modules, could improve awareness and competence. At a systems level, integrating

deprescribing decision-support tools into electronic health records (EHRs) and promoting interdisciplinary team-based care can facilitate safer prescribing practices. Institutional protocols should also include routine medication reviews, particularly for elderly patients on fall-risk increasing drugs (FRIDs). In conclusion, addressing the educational and systemic barriers identified in this study is essential to promote rational prescribing and reduce medication-related harms in older adults. Future interventions should prioritize practical tool adoption, interprofessional collaboration, and policy-level support to embed deprescribing into routine clinical practice. ❑

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