

Perceptions of Indian Physicians towards Deprescribing of Medications for Chronic Diseases in Elderly: A Questionnaire-based Study

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ABSTRACT

Deprescribing is the process of reconstructing multiple medications use by review and analysis, which concludes with the modification, replacement or elimination of drugs. Medications that were once appropriate may become inappropriate due to age-related physiological changes that increase the risk of harm from medications eliminated by the liver and kidneys and other co-morbidities. In India, with a steadfast rise in the elderly population paralleled with an augmented necessity for chronic disease management, the essence of deprescribing is rarely known and less practiced by physicians. Hence, a questionnaire-based interventional study was conducted to assess their perception and attitude towards implementing the deprescribing process. The study included 75 physicians from the departments of General Medicine and Nephrology, who were initially educated on deprescribing through a self-developed and validated educational video of three minutes duration, following which they were asked to fill the Perceptions, Attitudes and Challenges of Physicians towards Deprescribing Questionnaire. About 76% of the physicians felt that deprescribing was needed to reduce medication-related problems in older patients. Involvement of multiple prescribers (54.6%) was the main challenge stated by physicians; 92% stated deprescribing to be beneficial in current clinical scenario, and 85.3% showed a positive attitude towards integrating deprescribing into their day-to-day clinical practice. Physicians below 40 years with an experience of 0 to 10 years had a significantly positive perception and attitude towards deprescribing. In view of reducing potential medication-related adverse events in the elderly, daily practice of the deprescribing process should become a norm, thereby improving the quality of life.

Keywords: Comorbidities, Polypharmacy, Deprescribing, Elderly patients.

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INTRODUCTION

Elderly patient characteristics

The World Health Organisation predicts that by 2050, the number of people aged more than 60 would increase by 22% and an unrestrained lifestyle will implicitly indicate more chances of the development of multimorbidity.¹ It is also projected that the proportion of Indians aged 60 and older will rise from 7.5% in 2010 to 11.1% in 2025, of which southern states (Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu) may hold a larger proportion followed by other north Indian states.² Chronic illnesses

(cardiovascular diseases, metabolic disorders, renal dysfunction, hepatic dysfunction, etcetera) are found to be of higher incidence in India, in around 60% of the elderly population, according to the Centre for Disease Control and Prevention.³ Being an aged person, and taking lots of medications itself can become a burden. Under chronic co-morbid conditions, the functioning of an elderly patient's body is much more complex than an adult's and is more prone to experience drug-related problems (like drug interactions, adverse events, additional medicines to treat adverse events, etc). Medications that were once appropriate may become inappropriate due to old-age-related physiological changes that increase the risk of harm from medications metabolized by the liver and kidneys and other co-morbidities.⁴ Moreover, the safety and efficacy profile of a particular medication in an elderly person is not extensively available as more geriatrics are not included in drug clinical trials.



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Potentially inappropriate medication

Prescribing multiple medications, more than or equal to 5 drugs per day is termed polypharmacy. The overall prevalence of polypharmacy in India from 2002 to 2020, was found to be 49% which was most prevalent in the north Indian states (65%).⁵ Multiple medications for chronic illnesses might be a real necessity but at the same time can lead to an increased risk of falls, reduced physical or cognitive function, poor medication adherence, adverse drug reactions and hospitalization.⁶ Not prescribing medications that are potentially beneficial for the patient, just for the sake of reducing the number of medications prescribed is also considered inappropriate. Finding a balance between under-prescribing and overprescribing is essential to provide optimal therapy for patients.

Around 45% of elderly patients in an Indian population are prescribed at least one potentially inappropriate medication (PIM).⁷ There are tools and algorithms like Beers criteria 2019, Screening tool of older people's prescriptions/screening tool to alert to right treatment (STOPP/START) Criteria, and Anti-cholinergic burden scale, to identify PIMs. Rather than overruling the clinical assessment and intervention made by the physicians, they tend to guide and help physicians to precisely choose the best treatment option available, providing physician's a confidence to reduce medication, thereby improving their quality of life.⁴

Deprescribing

Deprescribing is the structured approach towards tapering or stopping drugs when potential harm exceeds the benefit, which is carried out by the healthcare professional in view of reducing PIMs, keeping in mind the feasibility of the process and taking into account the individual's medical and social condition, treatment care plan, quality of life and their preferences.⁸ Optimizing appropriate medication use while minimizing the risk is the essence of deprescribing.⁹ There is a generalised process to guide physicians in deprescribing a medication.¹⁰

Concerns in deprescribing

Potential adverse drug withdrawal reactions, pharmacokinetic and pharmacodynamic alterations to the withdrawal of medication, and return of the medical condition are some of the risks that may be faced while withdrawing a medication. Hence, tapering of doses, close monitoring of the patient's condition, and finding an appropriate alternative is essential to avoid these risks.⁴ The limited availability of an evidence-based approach for deprescribing a medication is a major concern for acceptance of the process. Patients are generally wired to think more medications are required for their chronic condition and that it is formidable to remove any medication that they have been taking for a long time. A patient's willingness to stop a medication plays a pivotal role in deprescribing.¹⁰

Barriers to deprescribing

Some physicians are not in favour of deprescribing due to some of the constraints that they face during consultation. Lack of time, lack of insight about PIMs, fear of unknown consequences, lack of data on discontinuing and monitoring medication, and patients' unwillingness towards deprescribing.^{1,4,9}

Advantages of deprescribing

Deprescribing ultimately improves the medication outcome by overcoming the challenges of non-adherence, polypharmacy, risk of potentially inappropriate medication use, increased cost and pill burden, and disability in patients and promotes rational use of prescription.⁴ A better understanding of how elderly patients and prescribing physicians perceive the problems related to deprescribing, can make us find effective ways to overcome those potential issues, thereby implementing them in daily practice.⁸

Rationality of the study

Widespread adoption of deprescribing is becoming a trend worldwide to rationalize the prescription and reduce PIM. At the same time, avoiding medications that are known to be problematic or those considered inappropriate is a challenge for physicians, especially for those physicians involved in chronic disease management in the elderly. A major hurdle faced by Indian physicians is the less evidence available about the various guidelines and algorithms for deprescribing medication in elderly patients.^{4,11}

Deprescribing is a very new and less familiar concept among Indian physicians, hence, this study focused on assessing their perception, identifying various enablers and barriers towards deprescribing and making physicians aware which is the first big step towards implementing the deprescribing process.

MATERIALS AND METHODS

Research design

A questionnaire-based interventional study was conducted in the departments of General medicine and Nephrology of Sri Ramachandra Medical Center and hospital, Chennai, Tamil Nadu, India, for a period of 6 months (from November 2021 – April 2022).

Sample size

The sample size for enrolling physicians was based on the literature,¹¹ with a 95% confidence interval and a relative perception of 20%, the sample size needed for the study was calculated as 75.

Study subjects

75 physicians who have at least completed a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree from the

above-mentioned clinical departments and gave their voluntary consent were included in the study. The physicians who provide consultations in the mentioned departments on an appointment basis were excluded from the study due to their time constraints.

Materials used

The study was conducted after obtaining approval from the Institutional Ethics Committee (IEC) (CSP/21/NOV/102/592). A self-developed and validated educational video explaining the deprescribing process for three minutes was shown to physicians individually with the intention of creating awareness or furthering their knowledge on deprescribing. The video was developed and validated in four steps. The first step was the construction of the script for the development of the video on deprescribing, the second step was the validation of the script for its content by five subject experts and the third step was the recording of the video. The final step was the validation of the video by eight subject experts for its creativity, relevance to the educational goal, audio-visual quality; language clarity, content adequacy and learning potential for the target audience, with each criterion being evaluated using a four-point scale of 1 to 4 ranging from not relevant to somewhat relevant, quite relevant and highly relevant to the measured criterion. The overall relevance of the educational video was calculated using a content validation index which met the satisfactory level.

Data on the demographic details were obtained from the Physicians, which included their age, gender, educational qualification, and years of clinical experience. Physicians were assessed for their perception of deprescribing in the elderly using a validated instrument "Perceptions, Attitudes and Challenges of Physicians towards Deprescribing (PACPD-12) Questionnaire" which consists of 12 questions.¹² This questionnaire covers the physicians' benefits, preferred age, preferred drugs, reasons, specific criteria, views, enabling factors, barriers, and implementing factors for deprescribing a medication. It also focuses on the positivity, attitude and perception towards deprescribing a medication. Necessary approval was obtained from the author for the use of this questionnaire.

Statistical analysis

The obtained data were entered into a Microsoft Excel spread sheet. Results were analyzed and expressed using descriptive statistics. Categorical variables were expressed as frequency and percentage. Continuous variables were expressed as mean and standard deviation. The association between the baseline characteristics (age, gender, educational qualification and years of experience) and the perception and attitude of the physicians towards deprescribing was assessed using chi square test. The question 1 (Deprescribing is beneficial in the current clinical scenario) was taken to assess the perception of the physicians. Responses strongly agree and agree were taken as positive perception and responses disagree and strongly disagree were

taken as negative perception. Likewise, question 11 (Positivity towards deprescribing on a scale of 0-5) was taken to assess the extent of positive attitude of the physicians towards deprescribing. Responses at the scale of 0 to 3 were taken as poor attitude and 4 and 5 were taken as positive attitude towards deprescribing. A *p* value of <0.05 was considered statistically significant.

RESULTS

Table 1 explains the baseline demographic characteristics of the 75 physicians with a mean age of 32.1 ± 9.44 years. The majority of the physicians (92%) agreed that deprescribing is beneficial in the current clinical scenario. Around 60% of physicians preferred to deprescribe in the geriatric population. Antibiotics (61.3%) followed by Benzodiazepines (56%), Antidepressant drugs (56%) and Antipsychotic drugs (53.3%) were majorly considered by the physicians for deprescribing. The cardinal reason for deprescribing is to reduce harm to patients in view of adverse drug reactions (76%) and to reduce the pill burden in patients (73.3%). Around 90% of the physicians disagreed with not making deprescribing a point in daily practice and 78.7% of them do have an approach towards deprescribing a medication. 45.3% of physicians chose AGS Beers Criteria over STOPP-START Criteria (26.6%) for identifying PIM. Most of the physicians (84%) perceived that deprescribing will do more good than harm to the patients. Among the factors that might allow physicians to deprescribe, 65.3% believed that learning how to deprescribe a specific medication and 49.3% felt that complete focus on deprescribing in their respective departments would help them. With concerns to various challenges faced by the physicians while deprescribing, 54.6% perceived that the physician who is about to

Table 1: Baseline demographics of the physicians.

Baseline characteristics	No. of participants =75 n (%)
Gender	
Male	39 (52)
Female	36 (48)
Age (years)	
<40	57 (76)
41-50	14 (18.6)
51-65	4 (5.4)
Mean (SD)	32.1± 9.44
Highest educational degree	
MBBS	18 (24)
MD	57 (76)
Years of practice	
0-10	55 (73.3)
11-20	8 (10.6)
21-30	9 (12)
>31	3 (4)

deprescribe is unsure of the rationale with which the particular medication was prescribed by another physician; 46.6% felt they would have less time to properly deprescribe and 42.6% have concerns about the less evidence available on the risk/benefit assessment on deprescribing a medication. A huge number of medications (76%), lower economic status of the patient (74.6%) and advanced age (64%) were some of the apparent situations that might make physicians more likely to deprescribe. On the whole, 85.3% of physicians showed a strong positive attitude towards deprescribing (Table 2).

Table 3 depicts that age ($p=0.037$) and years of experience ($p=0.005$) had a significant association with positive perception towards deprescribing. Likewise, age ($p=0.039$) and years of experience ($p=0.024$) also had a significant association with the positive attitude of the physicians towards deprescribing (Table 4).

DISCUSSION

This study was conducted to assess the attitude and perceptions of physicians towards the deprescribing of medications in the elderly population. This study included 75 physicians from the General Medicine and Nephrology departments of which 39 (52%) physicians were males and 36 (48%) physicians were females with a mean age of 32.1 ± 9.44 years.

The majority of the physicians (92%) in our study agreed that deprescribing is beneficial which is also found high in the study conducted by Sweta, *et al.*¹² The study conducted by Farrell, *et al.*, found that 92%, 88% and 77% of physicians agreed that Benzodiazepines, Antipsychotics and Antidepressants, respectively, were the most preferred drug for deprescribing.¹³ In another study conducted by Sweta, *et al.*, only 34.6%, 32.5% and 33.2% of physicians agreed that these drugs were most preferred for deprescribing, respectively.¹² Both these studies showed different responses than our study.

The present study found that only half of the physicians agreed towards deprescribing Benzodiazepines, Antipsychotics and Antidepressants. The study found that 45.3% of physicians used AGS-Beers criteria while the study conducted by Sweta, *et al.*, reported only 6.6% of physicians used this criterion.¹² This study identified that majority of the physicians considered deprescribing to reduce harm to the patients which is in accordance with the study conducted by Sweta, *et al.*¹²

Among the barriers faced by physicians, this study showed that 54.6% and another study conducted by Sweta, *et al.*, showed that 55.2% of physicians felt that prescriptions provided by another physician were a major barrier.¹² The study conducted by the same author found that 53.8% and 51.7% of physicians would consider the existence of PIMs and acute symptoms related to medications, respectively, as the main indication for deprescribing a medication, whereas, our study showed that

76% and 74.6% of physicians would consider a large number of prescription medications and lower socioeconomic status of the patient, respectively, as the main indicator for deprescribing a medication.¹²

The present study had attempted to assess the association of age, gender, educational qualification and years of experience of the physicians with their perception and positive attitude towards deprescribing by taking question 1 and question 11 of the study questionnaire respectively as they were found to be direct and more suitable to obtain the desired outcome. The study identified that the physicians in the age group of less than 40 years and those with the experience of 0-10 years had agreed and strongly agreed as deprescribing to be beneficial in clinical practice and also expressed more positive attitude towards deprescribing

In India, to our knowledge, there are very few studies to assess the practice of deprescribing in the elderly from Physicians' perspectives. There are studies¹⁴ reported on the benefits of

Table 2: Responses to the Perceptions, Attitudes and Challenges of Physicians towards Deprescribing (PACPD-12) Questionnaire.

Sl. No.	Questions	Responses n (%)
1.	Deprescribing is beneficial in the current clinical scenario	
	Strongly agree	45(60)
	Agree	24(32)
	Neutral	6(8)
	Disagree	0(0)
2.	Not making deprescribing a point in daily practice	
	Strongly agree	1(1.3)
	Agree	7(9.3)
	Neutral	20(26.6)
	Disagree	36(48)
3.	Have an approach to deprescribe a medication	
	Strongly agree	31(41.3)
	Agree	28(37.3)
	Neutral	15(20)
	Disagree	1(1.3)
4.	Preferred Age*	
	All	27(36)
	Paediatrics	1(1.3)
	Adults	12(16)
	Geriatrics	46(61.3)
	None	1(1.3)

Sl. No.	Questions	Responses n (%)	Sl. No.	Questions	Responses n (%)	
5.	Preferred drugs for deprescribing*		9.	Enabling factors*		
	Benzodiazepines	42(56)		Flags by pharmacist to deprescribe medications in a patient-centered approach	21(28)	
	Antidepressant drugs	42(56)		Training on de prescribing specific medications	49(65.3)	
	Antipsychotic drugs	40(53.3)		Strong department focus on deprescribing medication	37(49.3)	
	Anticonvulsant drug	27(36)		Having a pharmacist in your team	18(24)	
	Antiplatelet drugs	18(24)		Others	7(9.3)	
	Antihypertensive drugs	15(20)		10.	Barriers to deprescribing*	
	Antibiotics	46(61.3)			Medication usually prescribed by another doctor and the current doctor is unsure of the rationale	41(54.6)
	Opioids	36(48)			Concerned about adverse events after deprescribing medication	27(36)
	Proton pump inhibitor	25(33.3)	Damaging relationship with original doctor who prescribed medication		19(25.3)	
	Cholinesterase inhibitors	2(2.6)	Resistance from patient/family		25(33.3)	
	Vitamin supplement	23(30.6)	Lack of benefit/risk information about deprescribing		32(42.6)	
	Bisphosphonates	9(12)	Lack of time to consider deprescribing		35(46.6)	
	Statins	14(18.6)	Pressurized to prescribe according to guidelines		30(40)	
	Antiarrhythmic drug	3(4)	Patients' belief that you are giving up on them	16(21.3)		
	Steroids	35(46.6)	Lack of experience	28(37.3)		
	Analgesics	31(41.3)	11.	Positivity towards deprescribing on a scale of 0-5		
Glucocorticoids	26(34.6)	0		1(1.3)		
Diuretics	13(17.3)	1		0(0)		
Bronchodilators	5(6.6)	2		1(1.3)		
Based on patient profile count	27(36)	3		9(12)		
		4		19(25.3)		
6.	Reason for Deprescribing*		5	45(60)		
	To reduce harm to patient in view of adverse drug reaction	57(76)	12.	Factors that make physicians more likely to deprescribe*		
	Based on latest guidelines, the medication is not indicated	26(34.6)		Existence of potentially inappropriate medication listed in Beers criteria	27 (36)	
	To reduce cost of treatment	51(68)		Large number of prescription medication	57 (76)	
To reduce pill burden	55(73.3)	Advanced age		48 (64)		
Because medication has minimal benefit for patient in view of age and comorbidities	19(25.3)		Lower economic status of patient	56 (74.6)		
7.	Specific criteria for deprescribing*			Concomitant co-morbidities likely hepatic/renal dysfunction that affects drug metabolism	36 (48)	
	STOPP-START Criteria	20(26.6)		Existence of chronic condition	27 (36)	
	AGS-Beers Criteria	34(45.3)		Concomitant ethanol abuse	11 (14.6)	
	No criteria used	10(13.3)				
Others	13(17.3)					
8.	Statement that best expresses view on deprescribing					
	Does more harm than good	63(84)				
	Does neither good nor harm	2(2.6)				
	Does more harm than good	7(9.3)				
	Not sure	3(4)				

*Multiple responses were given for the question; hence, the addition of n will not yield a total of 75. STOPP-START Criteria - Screening Tool of Older Person's Prescriptions and Screening Tool to Alert to Right Treatment, AGS Beers Criteria - American Geriatrics Society Beers Criteria.

Table 3: Association between baseline demographics and perception towards deprescribing.

Question	Baseline characteristics	No. of Responses		Significance P
		Strongly agree/agree	Disagree/ Strongly disagree	
Q. 1. Deprescribing is beneficial in the current clinical scenario	Age (years)			0.037*
	<40	55	2	
	40-50	11	3	
	51-65	8	1	
	Gender			0.109
	Male	34	5	
	Female	35	1	
	Highest education degree			0.151
	MBBS	18	0	
	MD	51	6	
	Years of practice			0.005*
	0-10	53	2	
11-20	8	0		
21-30	6	3		
>30	2	1		

* $p < 0.05$ - Significant value**Table 4: Association between baseline characteristics and attitude towards deprescribing.**

Question	Baseline characteristics	No. of Responses		Significance P
		0-3	4 and 5	
Q. 11. Positivity towards deprescribing on a scale of 0-5	Age (years)			0.039*
	<40	9	47	
	40-50	1	14	
	51-65	0	4	
	Gender			0.075
	Male	3	36	
	Female	8	28	
	Highest education degree			0.642
	MBBS	2	16	
	MD	9	48	
	Years of practice			0.024*
	0-10	10	45	
11-20	0	8		
21-30	0	8		
>30	0	4		

* $p < 0.05$ - Significant value

deprescribing in older patients and the role of general physicians and primary care doctors in educating the elderly towards the discontinuation of PIMs. However, it is also reported that deprescribing should be patient-centric and the prescribers should involve the patients in the medication management process for successful implementation of deprescribing.

Limitations

The major limitations of this study were the smaller sample size and the presence of recall bias observed when the questionnaire was answered by the physicians.

CONCLUSION

The present study was conducted to assess the attitude, perception, willingness and challenges towards deprescribing medications. Even though there were various challenges perceived by the physicians, the majority of them expressed a positive attitude towards deprescribing. In a developing country like India, where there is an increase in the elderly patient population, implementing deprescribing in daily clinical practice will reduce potential adverse events related to medication use, increase patients' medication adherence and thus increase the clinical outcome. Future studies can implement deprescribing in any particular class of drug and find their exact effect on reducing the cost, pill burden and adverse effects.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

PIM: Potentially Inappropriate Medications; **PACPD 12:** Perceptions, Attitudes and Challenges of Physicians towards Deprescribing questionnaire; **STOPP/START:** Screening tool of older people's prescriptions/screening tool to alert to right

treatment; **MBBS:** Bachelor of Medicine and Bachelor of Surgery; **IEC:** Institutional Ethics Committee.

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