

Assessment of Attitudes Toward Deprescribing in Older Medicare Beneficiaries in the United States

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IMPORTANCE Use of harmful and/or unnecessary medications in older adults is prevalent. This can lead to avoidable harms such as adverse drug reactions, falls, hospitalization, and mortality. Primary care physicians report that patient resistance to discontinuing medication use is a significant barrier to deprescribing.

OBJECTIVE To describe the attitudes of older adults toward deprescribing and to determine whether individual characteristics are associated with these attitudes.

DESIGN, SETTING, AND PARTICIPANTS For this population-based survey study of US Medicare beneficiaries 65 years and older, data were obtained from the Medication Attitudes module fielded through in-person interviews in round 6 of the National Health and Aging Trends Study (weighted response rate of round 6 was 88.5%). The questions in this module were drawn from the Patients' Attitudes Towards Deprescribing questionnaire and its revised version. The Medication Attitudes module was fielded to a random one-third ($n = 2124$) of the National Health and Aging Trends Study participants (weighted response rate of this module was 94.8%).

MAIN OUTCOMES AND MEASURES Responses to 2 statements ("If my doctor said it was possible, I would be willing to stop one or more of my regular medicines" and "I would like to reduce the number of medicines I am taking") were the main outcomes of interest.

RESULTS Of the 1981 Medicare beneficiaries included in the study, 1149 (55.2%, weighted) were women, and the majority ($n = 715$ [54.6%, weighted]) were 65 to 74 years old. A total of 1752 (92.0%, weighted) older adults reported being willing to stop taking 1 or more of their medicines if their physician said it was possible, and 1241 (66.6%, weighted) older adults wanted to reduce the number of medicines that they were taking. Older adults taking 6 or more medications had greater odds than those taking fewer than 6 medications of being willing to stop taking 1 or more of their medicines (adjusted odds ratio, 2.90; 95% CI, 1.74-4.82) and wanting to reduce the number of medicines that they were taking (adjusted odds ratio, 2.31; 95% CI, 1.71-3.13).

CONCLUSIONS AND RELEVANCE Physicians considering deprescribing as part of comprehensive, patient-centered care should be reassured that a majority of older Americans are open to having 1 or more of their medicines deprescribed if their physician says it is possible, and more than two-thirds want to reduce the number of medicines that they are taking.

JAMA Intern Med. doi:10.1001/jamainternmed.2018.4720
Published online October 15, 2018.

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Polypharmacy, often defined as use of 5 or more medications by an individual, is common and is increasing in older adults in the United States and internationally. Approximately 50% of people 65 years or older are taking 5 or more medications.¹⁻⁴ Polypharmacy can be appropriate and necessary in some patients, but even when medications are recommended for individual conditions (ie, in clinical practice guidelines), they may not be effective or safe in the context of multiple conditions.^{5,6} Use of potentially inappropriate medications, in which the risks of medication use are likely to outweigh the benefit, is also common in older adults and is associated with polypharmacy.^{4,7} Inappropriate medication use can result from starting inappropriate treatment or a reduction of benefits and increase of risks as the individual ages and undergoes changes in their condition, other medications, and care goals.⁸ Polypharmacy and inappropriate medication use have been associated with harms including adverse drug reactions, hospitalization, reduced quality of life, and mortality.^{4,9,10}

The term *deprescribing* describes the physician-supervised process of discontinuation of an inappropriate medication. The goal of deprescribing is to minimize the risks associated with inappropriate medications and improve health and quality-of-life outcomes.¹¹⁻¹³

Patient involvement in health care decision making is a central aspect of patient-centered care, and a majority of older adults report wanting to be involved in decision making about their health care.¹⁴⁻¹⁶ Physicians report patient resistance or unwillingness to stop taking medications as 1 of the main factors that prevents deprescribing.¹⁷⁻¹⁹ Although patient engagement is critical in safe and effective medication use,²⁰ nationally representative data regarding patient perspectives on medication use and willingness to consider discontinuation of medication use are notably absent.

The aim of this study was to explore the attitudes of older US adults toward deprescribing. Additionally, we sought to understand whether clinical and demographic characteristics were associated with these attitudes.

Methods

Data Sources and Study Sample

This study draws on round 6 of the National Health and Aging Trends Study (NHATS),²¹ a nationally representative study of Medicare beneficiaries 65 years and older that aims to understand disability trends and trajectories in the United States. Details of the methods have been previously described.²² Data collection involves annual in-person interviews with participants (or a proxy if the participant is unable to respond) and includes demographics; physical and cognitive capacity; living, social, and technological environment; and economic status. The weighted response rate in round 6, fielded in 2016, was 88.5% (sampling weights take into account survey non-response and differential probabilities of selection). With weighting, this sample represents approximately 33.4 million Medicare beneficiaries (≥65 years old) living in the United States.²³

Key Points

Question What are the attitudes of older Americans toward deprescribing?

Findings In this population-based study of a nationally representative sample of older Medicare beneficiaries, 92.0% reported being willing to stop taking 1 or more of their medicines if their physician said it was possible, and 66.6% wanted to reduce the number of medicines that they were taking. Characteristics of older adults that were related to these attitudes included number of medications taken and number of medical conditions.

Meaning Physicians should be reassured that most older patients are open to deprescribing their medications within the framework of patient-centered care and shared decision making.

Medication Attitudes Module

This study relies on responses to the NHATS Medication Attitudes module,²⁴ which was fielded to a random sample of one-third of respondents (unweighted, $n = 2124$). This module had a weighted response rate of 94.8%; 119 participants responded as “don’t know” or “refused” to all questions in this module.

The Medication Attitudes module contained 10 questions from the Patients’ Attitudes Towards Deprescribing (PATD) questionnaire and revised PATD (rPATD) questionnaire (older adults’ version). The PATD and rPATD were designed to assess individuals’ attitudes, beliefs, and experiences regarding their medications, and the potential withdrawal of 1 or more of their medications. The questionnaires have established face, content, criterion, construct, and internal validity, as well as test-retest reliability in Australian older adults.^{25,26} The results are self-reported attitudes, are not medication specific, and are hypothetical in relation to intentions. To date, the PATD has been used in 6 studies internationally (3 in Australia, and 1 each in Italy, Canada, and Singapore).²⁷⁻³² The participant populations have included outpatients,²⁷ inpatients,^{28,29} care-facility residents,³⁰ and community-dwelling older adults.^{31,32}

Rating-scale statements were included from each of the 4 domains (burden, appropriateness, concerns about stopping, and involvement) of the rPATD, as well as a global statement from the PATD and rPATD (“If my doctor said it was possible, I would be willing to stop one or more of my regular medicines”).²⁶ These 8 statements had response categories of “strongly agree,” “agree,” “disagree,” and “strongly disagree.” The final 2 questions in the module were from the PATD and asked participants “About how many different regular medicines do you take?” and “What is the maximum number of pills that you would be comfortable taking daily?” (with a series of 6 photographs of an increasing number of pills as response options).

The data used in this analysis are publicly available and have no unique identifiers. This study was deemed exempt from review by the Johns Hopkins Medicine Institutional Review Board. Written informed consent was obtained from participants when they were recruited to NHATS.

Statistical Analysis

This study is limited to those who self-reported responses to the Medication Attitudes module ($n = 1981$) owing to our interest in assessing what is an inherently subjective topic (143 proxy respondents [5.1% of the population, weighted] were excluded). All analyses were conducted with sampling weights and were performed using Stata (StataCorp), version 12.1. Participant responses to the questions in the Medication Attitudes module are reported as proportions. We chose a priori to focus on 2 of the rating-scale statements as the main outcomes of interest because they provided an overview of the person's attitudes toward deprescribing. The statements, "If my doctor said it was possible, I would be willing to stop one or more of my regular medicines" and "I would like to reduce the number of medicines I am taking," are hereafter referred to as "willingness to stop" and "wanting to reduce," respectively. The responses to these 2 statements were converted to a binary outcome of agree (strongly agree or agree) and disagree (disagree or strongly disagree), which was then examined using logistic regression to assess unadjusted associations between the 2 main statements and respondents' demographic and clinical characteristics. Multivariate regression models were then used to examine the likelihood of willingness to stop and wanting to reduce medicine use after adjusting for the demographic and clinical characteristics. Significance was set at $P < .05$.

Results

Absolute numbers reported may not reflect the reported percentages, because all reported percentages are weighted.

Older Adults' Characteristics

Of the older adults whose responses were included in the study, 54.6% ($n = 715$) were 65 to 74 years old, 33.5% ($n = 829$) were 75 to 84 years old, and 12.0% ($n = 437$) were 85 years and older. Women made up 55.2% ($n = 1149$) of the respondents, 57.0% ($n = 1065$) reported beyond high school education, and 70.5% ($n = 1484$) had 2 or more chronic medical conditions (Table 1).³³

Older Adults' Beliefs and Attitudes Toward Deprescribing

Using weighted percentages, 92.0% ($n = 1752$) of older adults in the United States agreed or strongly agreed that they would be willing to stop 1 or more of their medicines if their physician said it was possible (Figure). Two-thirds (66.6% [$n = 1241$]) of older adults reported that they would like to reduce the number of medicines they were taking, and nearly half (42.7% [$n = 850$]) agreed or strongly agreed that they felt they were taking a large number of medicines. In addition, 89.5% ($n = 1702$) agreed or strongly agreed that all of their medicines were necessary, and 16.1% ($n = 333$) agreed or strongly agreed that they were taking a medicine that they no longer needed.

When asked to select the maximum number of pills that they would be comfortable taking from a series of photographs, about half (51.9% [$n = 973$]) of older adults chose the option with 4 pills, which was the fewest, and about one quar-

ter (25.4% [$n = 486$]) selected the second-lowest option of 8 pills (Figure). Thirteen percent of older adults chose an option in which the photograph depicted fewer medications than the number they reported taking.

Characteristics Associated With Willingness to Stop

Older adults' characteristics stratified by responses to the 2 main outcomes are detailed in Table 1.

A number of demographic and clinical characteristics were associated with willingness to stop and wanting to reduce (Table 2).³³ In the multivariate analysis, older adults taking 6 or more medications compared with fewer than 6 (adjusted odds ratio [aOR], 2.90; 95% CI, 1.74-4.82) and older adults with 2 to 3 (aOR, 2.87; 95% CI, 1.75-4.69) and more than 3 medical conditions (aOR, 2.87; 95% CI, 1.53-5.37) compared with fewer than 2 had almost 3 times greater odds of willingness to stop. Additionally, compared with non-Hispanic white respondents, non-Hispanic black respondents (aOR, 0.60; 95% CI, 0.37-0.96) and respondents of other races (aOR, 0.46; 95% CI, 0.24-0.89), and those reporting fair/poor health compared with excellent/very good health (aOR, 0.46; 95% CI, 0.24-0.86) had lower odds of willingness to stop.

Similarly, the odds of wanting to reduce were higher for those taking 6 or more medications compared with those taking fewer than 6 (aOR, 2.31; 95% CI, 1.71-3.13) and for those with 2 to 3 (aOR, 1.80; 95% CI, 1.28-2.53) and more than 3 medical conditions (aOR, 2.00; 95% CI, 1.27-3.13) compared with fewer than 2. Older adults 85 years and older compared with adults aged 65 to 74 years (aOR, 0.61; 95% CI, 0.43-0.86), and those with probable dementia compared with those without (aOR, 0.47; 95% CI, 0.32-0.71) had lower odds of wanting to reduce.

Discussion

To our knowledge, this is the first nationally representative study of attitudes toward deprescribing among older Medicare beneficiaries. We found that the majority of older adults were willing to have a medicine deprescribed if their physician said it was possible. This suggests that clinicians can be reassured about broaching the topic of deprescribing with their older patients. Additionally, we found that the majority of older adults do not report that they get stressed when changes are made to their medicines. Deprescribing, including the actual determination of whether the medication is suitable for trial withdrawal, is conducted within the framework of patient-centered care and shared decision making.^{11,34} Most older adults reported that their medicines were necessary, and a substantial proportion expressed concern about stopping a medicine that they had been taking for a long time. These seemingly contradictory beliefs (ie, being willing to have a medication deprescribed but also thinking that their medicines are necessary) may reflect a combination of traditional deference to physician recommendations coupled with a medical culture focused on prescribing and starting medications rather than deprescribing. Qualitative studies with older adults have previously reported this disconnect of wanting to reduce their medications while also believing that the

Table 1. Characteristics of Older Adults, Stratified by Attitudes About Deprescribing^a

Respondent Characteristics	Total (n = 1981) (Weighted %)	If My Doctor Said It Was Possible, I Would Be Willing to Stop One or More of My Regular Medicines (n = 1917) (Weighted %) ^b				I Would Like to Reduce the Number of Medicines I Am Taking (n = 1911) (Weighted %) ^c			
		Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree
Age, y									
65-74	715 (54.6)	324 (48.5)	308 (42.5)	37 (4.8)	24 (4.3)	202 (31.9)	266 (36.2)	156 (20.9)	70 (11.0)
75-84	829 (33.5)	329 (44.8)	410 (48.2)	41 (4.3)	23 (2.6)	201 (25.4)	325 (40.4)	218 (26.1)	61 (8.1)
≥85	437 (12.0)	171 (41.6)	210 (49.0)	29 (6.6)	11 (2.8)	91 (22.8)	156 (38.4)	139 (32.5)	26 (6.3)
Sex									
Men	832 (44.8)	365 (48.9)	381 (43.6)	39 (4.7)	22 (2.8)	229 (30.2)	329 (40.7)	193 (21.2)	58 (7.9)
Women	1149 (55.2)	459 (44.4)	547 (46.5)	68 (5.0)	36 (4.1)	265 (27.4)	418 (35.6)	320 (26.3)	99 (10.7)
Race									
White, non-Hispanic	1415 (79.6)	633 (49.0)	648 (44.2)	63 (3.8)	34 (2.9)	358 (28.6)	557 (39.3)	348 (22.4)	111 (9.6)
Black, non-Hispanic	384 (7.9)	133 (38.9)	192 (48.3)	29 (9.1)	14 (3.7)	87 (26.4)	140 (37.2)	109 (28.3)	27 (8.1)
Other	182 (12.6)	58 (33.9)	88 (50.0)	15 (8.8)	10 (7.4)	49 (30.5)	50 (28.7)	56 (31.6)	19 (9.3)
Education									
Below high school	395 (15.5)	122 (33.3)	204 (54.2)	36 (8.7)	18 (3.8)	70 (20.6)	153 (40.1)	128 (33.0)	30 (6.3)
High school	489 (24.5)	187 (40.9)	253 (49.9)	23 (4.9)	15 (4.3)	119 (28.2)	187 (38.0)	134 (24.7)	38 (9.1)
Beyond high school	1065 (57.0)	506 (52.8)	457 (40.8)	46 (3.6)	23 (2.7)	300 (31.1)	399 (37.7)	241 (21.1)	85 (10.1)
No. of different regular medicines									
≤5	1115 (56.1)	449 (44.4)	508 (44.2)	74 (6.1)	47 (5.3)	227 (23.6)	380 (33.7)	347 (29.6)	125 (13.1)
≥6	831 (39.8)	372 (49.4)	411 (46.5)	32 (3.1)	11 (1.1)	264 (35.9)	365 (44.1)	161 (15.9)	30 (4.1)
No. of chronic medical conditions ^d									
0-1	497 (29.6)	197 (44.7)	210 (40.9)	26 (5.5)	37 (8.9)	98 (23.5)	152 (29.4)	149 (29.1)	72 (18.0)
2-3	1048 (52.3)	437 (46.7)	516 (47.5)	54 (4.5)	11 (1.2)	261 (29.4)	425 (41.2)	266 (23.2)	64 (6.2)
>3	436 (18.2)	190 (48.2)	202 (45.2)	27 (4.7)	10 (1.9)	135 (34.6)	170 (41.6)	98 (18.4)	21 (5.4)
Health									
Excellent/very Good	812 (45.2)	386 (52.7)	334 (39.4)	31 (3.0)	28 (4.9)	199 (27.4)	262 (31.6)	225 (26.5)	91 (14.5)
Good	732 (36.9)	280 (42.9)	369 (49.6)	46 (5.3)	16 (2.2)	173 (28.8)	310 (42.6)	184 (23.1)	43 (5.4)
Fair/poor	435 (17.9)	157 (38.0)	225 (50.6)	29 (8.3)	14 (3.1)	122 (31.4)	174 (43.8)	104 (19.7)	22 (5.1)
Recent fall									
Yes	208 (9.4)	69 (40.4)	110 (50.0)	18 (6.8)	7 (2.7)	56 (31.0)	84 (41.4)	47 (22.6)	13 (5.0)
No	1773 (90.6)	755 (47.0)	818 (44.7)	89 (4.6)	51 (3.6)	438 (28.4)	663 (37.5)	466 (24.1)	144 (9.9)
Probable dementia ^e									
Yes	150 (5.0)	46 (34.8)	73 (53.3)	15 (9.9)	5 (1.9)	29 (22.1)	37 (30.5)	56 (35.4)	14 (12.0)
No	1831 (95.0)	778 (47.0)	855 (44.8)	92 (4.6)	53 (3.6)	465 (29.0)	710 (38.2)	457 (23.5)	143 (9.3)
Any drug coverage									
Yes	1784 (89.8)	758 (46.6)	849 (45.5)	92 (4.7)	46 (3.2)	454 (28.8)	689 (38.6)	459 (23.3)	139 (9.4)
No	158 (8.3)	55 (42.2)	70 (44.2)	12 (6.1)	12 (7.6)	33 (26.9)	51 (31.3)	48 (31.8)	15 (10.1)

^a Numbers reported refer to the unweighted number of respondents to the Medication Attitudes module.

^b Weighted proportion of participants who agreed or strongly agreed to this question, 91.6%; 95% CI, 89.5% to 93.4%; unweighted, 91.4%; 95% CI, 90.1%-92.6%.

^c Weighted proportion of participants who agreed or strongly agreed to this question, 66.6%; 95% CI, 63.6% to 69.4%; unweighted, 64.9%; 95% CI, 62.8%-67.1%.

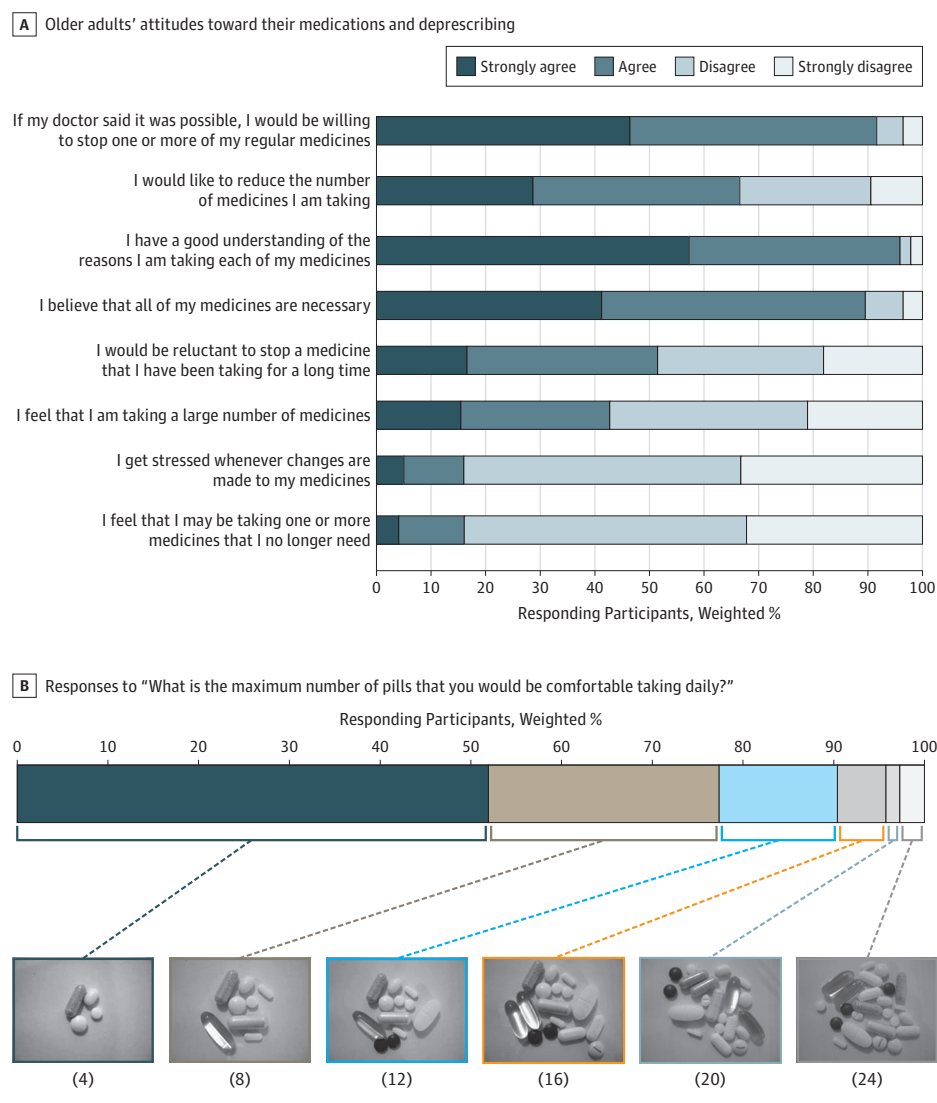
^d Chronic medical conditions refer to the number of self-reported physician diagnoses of heart attack, heart disease, high blood pressure, arthritis, osteoporosis, diabetes, lung disease, stroke, cancer, and hip fracture.

^e Composite dementia measure developed and validated for use in the National Health and Aging Trends Study.

medications are still necessary, as well as the strong influence that their physician can have on their attitudes toward medications and deprescribing.³⁵⁻³⁷ Therefore, in practice, discussion of these concepts will be essential for reaching an informed decision about deprescribing with older adults.

It has been noted that increasing public awareness about deprescribing is a necessary step toward changing the culture around prescribing, which currently encourages continuation of medications and maintaining the status quo.^{17,34,38,39} A recent nationwide survey of older Canadians found that fewer

Figure. Participant Responses to the Medication Attitudes Module Questions



than 10% were aware of the term deprescribing, although 41% reported previously initiating a conversation with their physician about medication withdrawal.³⁸ Encouraging older adults to ask their physicians whether all of their medications are still appropriate aligns with the current international Choosing Wisely campaigns that aim to educate health care professionals and the public that "less is more."⁴⁰ Based on the results of the present study, public education campaigns should inform why medications may no longer be necessary (ie, that benefits and risks can change over time) and encourage older adults to discuss concerns they have about their medications with their physicians or other health care professionals. However, increasing public awareness of deprescribing does not replace the physician's responsibility for appropriate use of medications.

The finding that more than 90% of older adults are willing to have a medicine deprescribed is consistent with previous investigations internationally (71%-93%).²⁷⁻³² More than half of older adults reported that the photograph with

4 pills is the maximum that they would be comfortable taking. It is interesting that this result corresponds with research showing that the cutoff of 5 different medications is associated with increased risk of several harms, including falls, frailty, and mortality.⁴¹ However, this may simply demonstrate that most people picked the smallest option, rather than public awareness of the harms of polypharmacy. We found that 13% of older adults selected a photograph with fewer pills than the number of medications they reported taking, which is to say they were taking more medications than they would be ideally comfortable with. However, there was an imbalance in response options for number of medications (eg, 1-2, 3-5, 6-10) vs the photographs (eg, 4, 8, 12, 16). Additionally, number of different regular medications and number of pills taken daily may not be equivalent because many medications are taken more than once a day. Given that two-thirds of older adults wanted to reduce the number of medications that they were taking, the true result may be greater than 13%.

Table 2. Unadjusted and Adjusted Associations Between Older Adults' Demographic and Clinical Characteristics and Their Attitudes Toward Deprescribing

Characteristic	If My Doctor Said It Was Possible, I Would Be Willing to Stop One or More of My Regular Medicines, OR (95% CI)		I Would Like to Reduce the Number of Medicines I Am Taking, OR (95% CI)	
	Unadjusted	Adjusted ^a	Unadjusted	Adjusted ^a
Age, y				
65-74	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
75-84	1.33 (0.87-2.04)	1.13 (0.73-1.75)	0.90 (0.65-1.24)	0.80 (0.56-1.13)
≥85	0.96 (0.59-1.56)	0.82 (0.45-1.49)	0.74 (0.53-1.02)	0.61 (0.43-0.86) ^b
Sex				
Women	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Men	1.25 (0.84-1.86)	1.52 (0.98-2.35)	1.43 (1.13-1.80) ^b	1.64 (1.27-2.11) ^b
Race				
White, non-Hispanic	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Black, non-Hispanic	0.50 (0.31-0.80) ^b	0.60 (0.37-0.96) ^b	0.82 (0.59-1.16)	0.84 (0.57-1.23)
Other	0.38 (0.21-0.66) ^b	0.46 (0.24-0.89) ^b	0.68 (0.45-1.04)	0.66 (0.38-1.15)
Education				
Below high school	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
High school	1.41 (0.74-2.72)	1.08 (0.55-2.13)	1.27 (0.93-1.73)	1.36 (0.94-1.97)
Beyond high school	2.09 (1.22-3.57) ^b	1.49 (0.84-2.64)	1.43 (1.05-1.94) ^b	1.56 (1.08-2.22) ^b
≥6 Different regular medicines	2.96 (1.80-4.86) ^b	2.90 (1.74-4.82) ^b	3.00 (2.27-3.96) ^b	2.31 (1.71-3.13) ^b
No. of chronic medical conditions^c				
0-1	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
2-3	2.77 (1.74-4.43) ^b	2.87 (1.75-4.69) ^b	2.14 (1.56-2.94) ^b	1.80 (1.28-2.53) ^b
>3	2.38 (1.29-4.37) ^b	2.87 (1.53-5.37) ^b	2.85 (1.93-4.20) ^b	2.00 (1.27-3.13) ^b
Health				
Excellent or very good	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Good	1.06 (0.64-1.77)	0.81 (0.50-1.32)	1.74 (1.38-2.20) ^b	1.52 (1.19-1.94) ^b
Fair or poor	0.67 (0.38-1.16)	0.46 (0.24-0.86) ^b	2.21 (1.57-2.83) ^b	1.68 (1.18-2.38) ^b
Recent fall	0.85 (0.50-1.44)	0.79 (0.46-1.38)	1.36 (0.87-2.12)	1.33 (0.79-2.24)
Probable dementia ^d	0.66 (0.38-1.15)	0.80 (0.43-1.49)	0.54 (0.38-0.77) ^b	0.47 (0.32-0.71) ^b
Any drug coverage	1.84 (1.05-3.21) ^b	1.39 (0.75-2.59)	1.48 (0.95-2.31)	1.13 (0.69-1.87)

Abbreviation: OR, odds ratio.

^a Adjusted for age, sex, race, education, number of medications taken, number of chronic medical conditions, health, recent fall, probable dementia, and any drug coverage^b Significant association ($P < .05$).^c Chronic medical conditions refer to number of self-reported physician diagnoses of heart attack, heart disease, high blood pressure, arthritis, osteoporosis, diabetes, lung disease, stroke, cancer, and hip fracture^d Composite dementia measure developed and validated for use in the National Health and Aging Trends Study.

Several participant characteristics were associated with willingness to stop taking 1 or more of their medicines. Previous studies have identified some, but not all of these associations, likely owing in part to limitations of small sample size.²⁷⁻³² Taking 6 or more medications was the greatest predictor of willingness to deprescribe and was associated with nearly 3 times greater odds of agreeing to deprescribe relative to those taking fewer than 6 medications. This finding may reflect the burden of polypharmacy experienced by these individuals. As number of medications increases, the likelihood of taking an inappropriate medication also increases, as does the risk of medication-induced harm.^{4,41} Therefore, this finding may indicate an understanding by these individuals that 1 or more of their medications may be inappropriate and, thus, suitable for deprescribing.^{35,36,42}

In the unadjusted analyses, those with any drug coverage had greater odds of being willing to stop taking a medi-

cine; however, this association was attenuated and no longer statistically significant in the adjusted analyses. Further research is required into the impact of cost of medications and socioeconomic status on attitudes toward medications and deprescribing, in particular to inform systems to ensure equal access to appropriate medications.⁴³

Limitations

There are several limitations to this study. First, because of time limitations for the Medication Attitudes module, only a subset of the rPATD questions were used and, therefore, creating factor scores was not possible. Additionally, the questions were originally developed and validated in Australia and were not formally validated in the United States. However, many of the questions have been used in studies internationally and have not required adaptation, and no language translation was required for the United States.

Second, the statements within the rPATD are hypothetical and do not ask about specific medications. The statement about willingness to have a medicine stopped has not yet been externally validated for predictive ability.²⁶ Therefore, it is unclear whether these results would translate to respondents actually being willing to have 1 of their medications deprescribed in practice. It is unknown what the actual rate of acceptance of deprescribing recommendations by patients and their families is in practice, and it likely varies depending on the type of medication.¹¹ A study in Australia⁴⁴ reported a patient acceptance rate of 95% for deprescribing recommendations, while another study in the United States⁴⁵ reported a combined physician-patient acceptance rate of only 33%. Acceptance rates in studies may be biased by individuals who are willing to consent to study participation (ie, those who did not consent may have done so because they did not want their medications changed).

Third, number of medications and number of medical conditions is based on self-report, which may not be entirely accurate. Finally, results are weighted to the population of older Medicare beneficiaries, which is approximately 96% of all adults 65 years and older living in the United States.²³ As there are pharmaceutical care services available to Medicare ben-

eficiaries (such as Medication Therapy Management), it is possible that those enrolled in Medicare may have different attitudes than those who are not.

This study has filled an important knowledge gap in the field of deprescribing by providing nationally representative data of patient attitudes toward deprescribing. However, this new knowledge must be placed within the context of the wider fields of deprescribing and appropriate prescribing, such as the potential benefits and harms of deprescribing, determining which medications are appropriate to deprescribe in the individual, how physicians can be supported in deprescribing, and how the wider health care system and governing policies can be used to optimize medication use in older Americans.^{5,12,46}

Conclusions

Physicians considering deprescribing as part of comprehensive, patient-centered care should be reassured that a majority of older Americans are open to having 1 or more of their medicines stopped if their physician said it was possible, and two-thirds want to reduce the number of medicines that they are taking.

ARTICLE INFORMATION

Accepted for Publication: July 20, 2018.

Published Online: October 15, 2018.
doi:10.1001/jamainternmed.2018.4720

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Author Contributions: Dr Reeve had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Obtained funding: Boyd.

Administrative, technical, or material support: Wolff.

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Conflict of Interest Disclosures: None reported.

Funding/Support: The National Health and Aging Trends Study is sponsored by the National Institute on Aging (grant number NIA U01AG032947) through a cooperative agreement with the Johns Hopkins Bloomberg School of Public Health with data collection by Westat. This analysis and article were also supported by a National Institutes of Health grant (K24AG056578, PI Boyd). Dr Reeve was supported by a National Health and Medical Research Council (NHMRC)-Australian Research Council Dementia Research Development Fellowship and the NHMRC Cognitive Decline Partnership Centre (CDPC). The CDPC receives support from the NHMRC and funding partners including HammondCare, Alzheimer's Australia, Brightwater Care Group, and Helping Hand Aged Care. Project funding from the CDPC was delivered through the Aging and Pharmacology group at the University of Sydney.

Role of the Funder/Sponsor: The sponsors had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

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