


# Older Adult Attitudes toward Deprescribing Statins in Primary Cardiovascular Prevention Versus General Medications

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## Abstract

**Background:** There is little evidence for statins for primary cardiovascular prevention in older adults. Consequently, it is important to assess patient attitudes toward the use of statins, which might differ from attitudes toward other medications. We aimed to describe older patient attitudes toward deprescribing statins versus general medications. **Methods:** We conducted a survey using the revised Patients' Attitudes Toward Deprescribing questionnaire in its original version and adapted to statin use in adults  $\geq 65$  years taking a statin for primary prevention. **Results:** Among the 47 participants (mean age 74.6 years), 42 (89%) were satisfied with their current therapy, but still willing to stop  $\geq 1$  of their medications upon their doctor's advice. About 68% ( $N=32$ ) were satisfied with their statin therapy, while 83% ( $N=39$ ) would accept to consider deprescribing. Twenty-six (55%) participants were concerned about missing future benefits when stopping their general medications and 17 (36%) when stopping their statin. Eight (17%) participants believed they were experiencing side effects of statins and twice as many for general medication (38%,  $N=18$ ). **Conclusion:** Our study provides insight about differences and similarities in patient attitudes toward deprescribing general medications and statins in primary prevention. This information could support patient-centered conversations and shared-decision making about deprescribing.

## Keywords

deprescribing, older adults, statin, barriers, facilitators

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## Introduction

Statins are among the most commonly prescribed chronic medications in older adults, in primary and secondary prevention, with almost 40% over 75-year-old persons in the US, and about 30% over 65-year-old persons in Switzerland taking a statin (Gu et al., 2014; Reinau et al., 2021). While the benefits of statins for secondary cardiovascular prevention in the middle-age population at high cardiovascular risk are well demonstrated (Afilalo et al., 2008), their role in primary prevention in older patients remains uncertain (Byrne et al., 2019; Grundy et al., 2018). In this context, the guidelines of both the American Heart Association and American College of Cardiology (AHA/ACC) and the European Society of Cardiology, which are used in the country where we conducted the study, advise a shared decision-making (SDM) approach when considering statin therapy in primary prevention in older adults. This implies that decisions regarding statin

therapy should be made in partnership between clinicians and patients, considering patients' individual risks, benefits, preferences, and values (Grundy et al., 2018; Mach et al., 2020).

Older adults are particularly vulnerable to statin adverse effects (Hippisley-Cox & Coupland, 2010; Horodinschi et al., 2019). In addition, because of the frequent polypharmacy and multimorbidity among older

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adults, the risk of interaction between statins and other medications is increased in this population (Drenth-van Maanen et al., 2020).

When evidence is uncertain about the benefit of a medication, continuing or deprescribing it becomes a preference-sensitive decision (Holmes & Todd, 2017; Linsky et al., 2019). This decision might be influenced by patient beliefs and experiences and should account for individual goals of care. Patient attitudes toward deprescribing have been well studied for general medications (Lundby et al., 2021; Reeve, Low, & Hilmer, 2016; Reeve et al., 2019), but not specifically for statins. Patient views about specific medications, such as statins, might differ from their attitudes toward other medications. For statins, for example, because of controversies in the media (Kon et al., 2008; Kriegbaum et al., 2017).

The primary objective of this study was to explore attitudes toward statin deprescribing in older adults taking a statin in primary cardiovascular prevention, and the secondary objective to compare attitudes between general medications and statins.

## Methods

### *Design and Participants*

We conducted a cross-sectional quantitative survey among patients aged  $\geq 65$  years and taking a statin for primary cardiovascular prevention. Patients with cognitive impairment, who were not German-speaking or unable to provide consent, were excluded. We screened for eligible patients during their hospitalization on the ward of general internal medicine at Bern University Hospital and recruited them by phone after discharge. Ethical approval was waived by the Human Research Ethics Committee of the Canton of Bern, Switzerland (Req-2020-03065), as the study did not fall under the Human Research Act. However, written informed consent was collected from all participants. Participants received 20 CHF as financial compensation. Since this study was designed to be explorative, we planned a convenience sample of 50 patients (Setia, 2016).

### *Survey Instrument*

The survey was based on the revised Patients' Attitudes Toward Deprescribing (rPATD) questionnaire, which has been developed and validated to capture patient willingness and beliefs toward deprescribing (Reeve et al., 2013; Reeve, Low, Shakib, & Hilmer, 2016). The first part of our survey included questions regarding deprescribing of general medication, while the second part focused on investigating attitudes toward statin deprescribing by adapting the rPATD for statin use.

The original rPATD includes two global statements ("Overall, I'm satisfied with my current medicines" and "If my doctor said it was possible, I would be willing to

stop one or more of my regular medicines") and four domains assessed through five questions each: "overall burden," "appropriateness," "concerns about stopping," and "involvement" (Linsky et al., 2019). Questions are rated on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

The adaptation for statin use was done only for the 11 questions that could be modified to be statin-specific, modifying "medicine(s)" by "statin(s)." For example, "If one of my medicines was stopped, I would be worried about missing out on future benefits" was modified as "If the statin was stopped, I would be worried about missing out on future benefits." In addition, only one to three questions could be retained per each domain.

The questionnaire also assessed demographic and medical characteristics (age, gender, level of education, comorbidities, number and names of medications, and information on statin therapy). The German translation of the survey was reviewed by several native-speaking individuals to ensure clarity of understanding for our target population. It was pilot-tested with three patients meeting the inclusion criteria to ensure the questions were clear and easy to understand and answer. The time required to complete the survey was approximately 30 min.

### *Data Collection*

Participants received the questionnaire in paper format by post and were asked to send it back using a pre-franked envelope. In case patients did not return it within 3 weeks, they were reminded twice by phone to do so before they were considered to have withdrawn from the study.

### *Statistical Analyses*

Baseline characteristics were reported as mean with standard deviation (SD) or number with frequency. For ease-of-interpretation, we grouped the 5 Likert-scale answer possibilities into 3 categories: "disagree" (merging "strongly disagree" and "disagree"), "neutral," and "agree" (merging "strongly agree" and "agree"). We used Pearson's correlation coefficient to compare the answers to statin-specific and general medication questions. We performed all analyses using Stata version 16.0 (StataCorp, College Station, TX 2015).

## Results

Among 198 patients contacted, 89 accepted to participate, and 47 actually completed the survey. Mean age was 74.6 (SD 5.0) years, with 66% male. Twenty-six (55%) participants had five or more chronic medications, and 44 (94%) at least two chronic diseases. The study population characteristics are presented in Table 1.

**Table 1.** Study Population Characteristics.

	N (%) (N=47)
Age (years)	
65-74	25 (53)
75 -84	19 (40)
≥85	3 (7)
Male	31 (66)
Number of chronic medical conditions <sup>a,b</sup>	
1-2	14 (30)
3-5	27 (57)
6-8	6 (13)
Number of years of statin use <sup>a</sup>	
1-4	16 (34)
5-9	9 (19)
≥10	17 (36)
Unknown	5 (11)
Number of chronic medications <sup>a</sup>	
1-4	13 (28)
5-9	26 (55)
≥10	8 (17)

Note. Data are N (%) = number of complete responses to this questions.

<sup>a</sup>Number of diseases, of years of statin use and of chronic medications were self-reported. Number of diseases and chronic medications were checked in patient files at Bern University Hospital.

<sup>b</sup>Chronic medical conditions included lipid metabolism disorders, hypertension, diabetes mellitus, heart failure, chronic kidney disease, chronic pulmonary diseases, cancer, hepatic diseases, HIV/AIDS, pancreatic or gastrointestinal diseases, depression or other psychiatric diseases, neurological diseases, diseases of the connective tissue, bone diseases.

Survey answers are displayed in Figure 1. Medication intake was experienced as inconvenient by 12 (26%) participants for general medications and six (13%) participants for statins. Seven (15%) participants considered that they might be taking one or more medicines that they no longer needed and three (7%) participants considered that they might not need their statin anymore.

Willingness to try stopping medication to see how they felt without it was agreed by 18 (38%) participants for general medications and 10 (21%) for statins.

Eighteen (38%) participants believed they were experiencing potential side effects of their current medication and eight (17%) of the statin. Twenty-one (45%) participants said they would be reluctant to stop a medication they had been taking for a long time and 19 (41%) that they would be reluctant to stop their statin. Twenty-six (55%) participants reported concerns about missing out on future benefits when stopping their current therapy and 17 (36%) when stopping their statin.

Eleven (24%) participants reported a bad experience when stopping a medication and three (7%) when stopping their statin.

Forty-three (92%) participants reported a good understanding of their medication.

Forty-two (89%) participants were willing to stop one or more medication(s) and 39 (83%) their statin, if

their doctor said it was possible. Forty-two (89%) reported being satisfied with their current therapy and 32 (68%) with their statin therapy.

Comparison of responses revealed statistically significant correlations, particularly in terms of the desire to stop medications or statins to see how it is without them ( $r=.57$ ,  $p=.0000$ ), concerns about losing future benefits if general medications or statins were stopped ( $r=.57$ ,  $p=.0000$ ) and the trust in the physician's suggestion to deprescribe a medication or statin ( $r=.89$ ,  $p=.0000$ ).

## Discussion

Our study provides important findings about older patient attitudes toward deprescribing general medications versus statins used in primary cardiovascular prevention. Almost all older adults receiving statin treatment were willing to consider deprescribing one or more of their general medications, if deemed appropriate by their physicians, with a similar high percentage of acceptance for statins.

The high acceptance rate toward deprescribing general medications (89%) is in line with previous findings (Drenth-van Maanen et al., 2020; Hippisley-Cox & Coupland, 2010; Kalogianis et al., 2016; Kua et al., 2021; Lundby et al., 2021). The similarly high acceptance rate for statin deprescribing might be explained by patient perceiving a lack of need for the statin or by beliefs on statins, notably nourished by reports in the media (Kon et al., 2008; Kriegbaum et al., 2017). This high acceptance rate might be related to participant health literacy, with patients with higher health literacy being more likely to engage in deprescribing (Gillespie et al., 2019).

We further observed that participants expressed greater concerns about missing out on possible future benefits when stopping general medications than statins, despite reporting more side effects for general medications. These findings might reflect patients' perception of certain medications as more essential to their health or wellbeing, overshadowing concerns over side effects. In contrast, statins in primary prevention might be perceived as a preventive rather than therapeutic measure comparing to other medications, leading to lower concerns about missing out on future benefits. Although with a different study population (age 40-65 years, African American persons), such perceptions were previously described in another study, where hypertension was considered as more severe than hyperlipidemia (Long et al., 2017). Another study found that older adults were more reluctant to stop taking insulin or anti-hypertensive medication compared to statins (Crutzen et al., 2021). These observations underscore the complexity of patient perspectives on deprescribing, with acceptance rates and concerns varying depending on the specific medication and condition in question.

Through the incorporation of statin-specific questions, we were able to gain a more profound

Domains	r	Percentages (%)		Questions	GM / S
Burden factor	0.47	72	26	Taking my medicine every day is very inconvenient.	GM
	p<.001	85	13	Taking the statin is inconvenient.	S
Appropriateness factor	0.34	62	15	I feel that I may be taking one or more medicines that I no longer need.	GM
	p=0.02	55	7	I feel that I no longer need my statin.	S
	0.57	47	38	I would like to try stopping one of my medicines to see how I feel without it.	GM
	p<.001	46	21	I would like to try stopping my statin to see how I feel without it.	S
Appropriateness factor	0.50	41	38	I believe one or more of my medicines may be currently giving me side effects.	GM
	p<.001	53	17	I believe that I am experiencing side effects of the statin I am taking.	S
Concerns about stopping factor	-0.17	34	45	I would be reluctant to stop a medicine that I had been taking for a long time.	GM
	p=0.25	26	41	I would be reluctant to stop my statin.	S
	0.57	24	55	If one of my medicines was stopped, I would be worried about missing out on future benefits.	GM
	p<.001	34	36	If my statin was stopped, I would be worried about missing out on future benefits.	S
Concerns about stopping factor	0.89	98	2	If my physician recommended stopping a medicine, I would feel that he/she was giving up on me.	GM
	p<.001	96	2	If my physician recommended stopping the statin, I would feel that they were giving up on me.	S
Involvement factor	0.27	74	24	I have had a bad experience when stopping a medicine before.	GM
	p=0.07	80	7	I have had a bad experience when stopping the statin before.	S
	0.40	4	92	I have a good understanding of the reasons I was prescribed each of my medicines.	GM
Involvement factor	p=0.005	4	87	I have a good understanding of the reasons I was prescribed a statin.	S
	0.15	9	89	If my physician said it was possible, I would be willing to stop one or more of my regular medicines.	GM
Global statements	p=0.30	4	83	If my physician said it was possible, I would be willing to stop my statin.	S
	0.47	9	89	Overall, I am satisfied with my current medicines.	GM
	p<.001	7	68	Overall, I am satisfied with my statin.	S

**Figure 1.** Survey answers.

Note.  $r$  = correlation coefficient;  $p$  = probability value, based upon Pearson's correlation coefficient; GM = general medication; S = statin medication; Color Legend: red = "disagree" (merging "strongly disagree" and "disagree"), gray = "neutral", blue = "agree" (merging "strongly agree" and "agree").

understanding into attitudes toward deprescribing statins, with potential relevance for both future research and daily clinical practice. Subsequent investigations should consider a transition from generic questions to inquiries tailored to those customized for specific medications or therapeutic classes, with the potential for enhancing our understanding of patient attitudes toward medication management. Nevertheless, it is essential to note that before implementing medication-specific components of the questionnaire on a broader scale, further validation within a larger cohort will be necessary.

Our findings emphasize the important role physicians play for patients when deprescribing their medications, and their statin in particular, as we found that a high proportion of patients would agree to deprescribe if it was proposed by their physician—especially for their statin. This shows that patients might feel particularly insecure with statins given the controversies on

this medication class (Redberg & Katz, 2017). This finding is relevant for clinical practice, underscoring the importance of the relationship and an open, informed discussion between patients and prescribers when it relates to the use of statins in particular. Clinicians need to explain the pros and cons of statins in light of the current limited scientific evidence, including various potential benefits, side effects and outcomes, as well as the financial implications such as medication costs, in order to ensure that patients can make an informed decision and that their choice regarding prescribing or deprescribing can be considered. It is essential to tailor conversations to individual patient needs, recognizing their concerns about medication and actively involving them in the decision-making process to foster a partnership built on trust and mutual understanding. Evidence is currently indeed limited on statin deprescribing in primary prevention (Mangione et al., 2022), but a larger



trial is ongoing (<https://clinicaltrials.gov/ct2/show/NCT05178420>).

Our study has several limitations. First, the response rate was low (47 out of 89 patients who accepted to participate). This is explained by the setting and type of patients recruited, that is, older adults recently acutely hospitalized, who can be easily overwhelmed by additional tasks. Such patients are often multimorbid and frail and thus hard to recruit and rarely represented in studies (Aeschbacher-Germann et al., 2023). Although this small sample size does not allow to generalize the findings, our results still provide some insights on perspectives of such patients, which is very important given that they frequently receive polypharmacy and inappropriate prescribing. Second, while there was notable variability in the duration of statin use among the participants, our sample size did not allow to assess whether this was associated with different perspectives regarding deprescribing. Third, our study did not focus on the side effects of statin use and the limited number of questions might not have captured the full complexity of older adult perspectives toward deprescribing statins. Finally, a validated German version of the rPATD questionnaire was not available, in contrast to other languages such as French (Roux et al., 2021). It was out of the scope of our study to perform a cross-cultural translation and validation of the survey from English to German. However, our translation was reviewed by several native-speaking individuals to ensure clarity for our target population. The main strength is the focus on an older population who is more vulnerable to inappropriate prescribing and frequently excluded in research.

## Conclusion

Our study provides important insight about differences and similarities in patient attitudes toward deprescribing general medications and statins. Our findings offer valuable insights that could facilitate patient-centered conversations and shared-decision making about deprescribing in everyday practice.

## Author Contributions

CEA and LB conceived the project. CEA and LB contributed to data collection. CEA, LB, and JBB contributed to data analysis. JBB wrote the first draft of the manuscript under direct supervision of CEA. All authors critically revised the manuscript and have approved its final version for publication.

## Availability of Data and Material

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## Ethics Approval

Ethical approval was waived by the Human Research Ethics Committee of the Canton of Bern, Switzerland (Req-2020-03065), as the study did not fall under the Human Research Act.

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