Table S5
 Illustrative quotations for barrier themes and subthemes

Themes & subthemes (reference)	Quotations from participants in primary study	Interpretations of findings offered by authors
Prescriber-related factors		
inadequate knowledge (61-64, 66 67, 70-73)	What do you mean by deprescribing? The term? I don't know ⁷³	The FPs lacked the knowledge of deprescribing in a safe and effective manner ⁷³
	Inappropriate connotes carelessness, and I think very few of us are careless ⁶²	The term "potentially inappropriate prescribing" evoked mixed reactions in the GPs, with six of them reporting that they found the term particularly negative, value-laden and accusatory and did not incorporate the difficulties of prescribing for older patients faced by the GPs ⁶²
	In our practice all this happens automatically already and this is why there was nothing that needed changed ⁶⁴	Several statements suggested that the participants were not aware of the care problem or the deficiencies in their own practice and therefore saw no need to implement the recommendations ⁶⁴
concerns of adverse consequences (61, 64, 65, 67, 69, 70, 73, 74)	Fear, that they'll have a negative outcome from you reducing some of these medicines ⁶⁷	the fear of contributing to a worse outcome, possibly death, as a result of deprescribing was part of the justification for maintaining the status ${\sf quo}^{67}$
	You could be viewed as being neglectful, as being a bad doctor, as being not competent, if you're taking medications away and someone has an event ⁷⁰	they feared reputational damage (being seen to be a "bad doctor"—GP-5), accountability repercussions, and moral blame and shame ("feeling terrible"—GP-2) ⁷⁰
clinical inertia (61, 63, 65, 70, 72-74)	And that is simply a drug that the patient is using for 30 years now and under which she is well managed concerning her blood levelsI would not touch it, that is [a case of] "never change a winning team", therefore these are things I wouldn't change ⁶¹	Frequently they had been prescribing the medication for years and lacked motivation to reconsider it or did not want to diverge too far from a standard of therapy (guidelines) ⁶¹
	Sometimes the medication is prescribed under another treating team, so I ignore it ⁷³	The FPs in our study were reluctant to deprescribe medications that had been prescribed by a specialist or another practitioner. This study also illustrates that FPs feel pressured into continuing the prescription of certain medicines initiated by specialists ⁷³
	He prescribed it to me anyway and then he always said afterwards "Ah, do you know what? Shall we cancel that? No" he said, "we won't do that. You are so old now, it doesn't matter anymore. Just go on taking it" 63	Some patients reported that their age was used as an argument against PIM discontinuation or for continuation by their GPs ⁶³
lack of communication (62, 63, 65, 68, 71, 73)	People may then get the feeling, "Don't I count anymore, am I not important?" ⁶⁸	GPs are reluctant to initiate a discussion about stopping medication because they are concerned that patients may interpret this as a sign of being given up on 68
	I call them and it is prescribed (laughs). [] They know that I, the girls know that I don't come around regularly because I can't ⁶³	Some patients reported that they obtain prescriptions for their PIM without regular personal contact. For example, a rather uncomplicated request by phone was described for benzodiazepines and other PIM ⁶³
Patient-related factors		
limited understandings (62-64, 66, 68, 69-71, 73)	What I quite always have then, dry mouth, dry eyes, stuff like that, you know? That should also be caused by the medication, but I don't certainly know ⁶³	A lack of knowledge might contribute to the chronic usage of PIM as patients are probably hindered to initiate its cessation ⁶³
	Part of the problem is that patients do not dare to say: I have not understood this! Communicating on an equal level is not so well developed in many cases. The patients sits there reverently and nods ⁶⁴	Some patients had limited understanding about their medicines and were not interested to know more 71
patient nonadherence (61-64, 68)	Because sometimes, if a tablet is upsetting them, some of them [patients] can be embarrassed to tell you, and they just don't take them, and they end up with a stock pile, so I ask them to bring everything in ⁶²	However, it is unclear if this paternalistic model was employed by choice, or if GPs felt compelled to take responsibility where patients adopted a more passive approach to their medication management ⁶²
	And she doesn't like doing that, because she just says "It damages your brain". What can you damage in mine anymore, I'm going to be ninety years old soon ⁶³	Some patients made fatalistic statements that implied ageism as they reported that different medication-based efforts or alterations were not worthwhile due to their own age or due to already established impairments ⁶³

I'm comptimes a little hit income that a	The intensity and valence of these side offices and side of the second
I'm sometimes a little bit insecure then, you know? [] But I made arrangements therefore, I know	The intensity and valence of these side effects varied and side effects did not affect the patients in a sufficiently strong way to create a wish
exactly where my slippers are, [] So, that's working well ⁶³	to stop the intake ⁶³
[Patients say] "I don't really know why the doctor's wanting me to do this", they'll get all defensive and just go, "I'm fine, I can manage my medication fine" ⁷¹	patients can feel as if they are being tested or their GP thinks they have done something $wrong^{71}$
I was demanding that. I said [to him] "My wife always got your prescription for that [drug]", and then I said "and she always fell asleep immediately ⁶³	Patient demands and their relative interest in medication were noted to strongly influence the changing or discontinuation of medication. Some patients were described as demanding treatment and not being content to adjust their medication due to fear of change or loyalty to the doctors' prescription orders ⁶⁹
Some patients love his or her medications even more than their kids, even if you recommend something better they resist to change ⁷³	Patients may not always be willing to stop or change medicines they have been taking for a long time, despite the physician's recommendations ⁷³
I don't know, if it is psychogenic or, but I do think so, that it is being addicted ⁶³	Several patients that chronically used benzodiazepines or hypnotics in particular reported some sort of dependency on the drug ⁶³
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A lot of the time when we get the prescriptions, it's from an outpatient clinic. It might be in good cases 2 weeks later, in other cases, 5 or 6 months later when we get a letter of explanation for why the changes were made, ok, so do we ignore the prescription until we get an explanation for it ⁶²	Communication between primary and secondary care was identified as problematic in both directions. However, for the study participants, the most salient issue was that changes made in hospital/outpatient settings were often not communicated in a timely manner to inform decision making ⁶²
I think a lot ends up falling on primary carewe're often called upon to reconcile things that we're not necessarily managing. So it has to be something that the whole medical center buys into so that we can get the help of subspecialistswe might not be able to resolve the discrepancies ourselves ⁶⁶	Many providers acknowledged a lack of support staff to assist with medication reconciliation, primarily taking on this task alone ⁶⁶
All doctors should speak with one voice. Different stories provoke distrust ⁶⁸	Contacting the specialist to change medication, however, took additional effort and GPs feared that it would be difficult to reach a consensus as the specialists often have a different viewpoint ⁶¹
A classic is of course Ibuprofen. Well, Diclofenac, NSAIDs which are taken very, very often. [] I always try to include the orthopaedist, [] they very, very quickly recommend [] this group [of medications] without asking themselves, "Is there a pre-existing internal condition?"65	Compared with the GP, they know much less about the patients concerning comorbidities, established medications or other specifics (e.g. medication sensitivity, changed metabolism) and may, therefore, consider risks and benefits less ⁶⁵
This actually is a relatively long process, as I don't have internet access here. [] I print it [the CMR] and make notes. [] Then I wait until the patient comes again. But I have [a study patient] who doesn't come very often and then it's difficult ⁶¹	The functions of the practice software were another issue because not all systems allowed easy adaption of the template for medication lists, and compatibility with the systems in hospitals or other practices was usually not given ⁶⁴
It's a very difficult system to use. It's oftennot working and it's not easy to get intoIf I need to use secure messagingI have to look [the patient] up and wait and wait for the delay ⁶⁶	The functions of the practice software were another issue because not all systems allowed easy adaption of the template for medication lists, and compatibility with the systems in hospitals or other practices was usually not given ⁶⁴
Some of it has been abused it's really deplorable, but I think that is probably a reflection of the status of what the [pharmacy] profession is in. They're trying to re-invent themselves in another way because everything's so badly paid ⁷¹	Pharmacists talked about the financial difficulties related to the monthly cap on HMRs – that remuneration was not enough for the time spent with patients and on HMR paperwork – and how this may have led to a subset of pharmacists over-servicing HMRs ⁷¹
There is no time [You've got] complicated, complex patients and you never have more than 15 minutes and sometimes its double booked. There's never time to spend on this 70	The FPs reported lack of time as one of the barriers, as time constraints may stop them from addressing all of the patients' concerns, which may lead to suboptimal medicine management ⁷³
Well it's just, I guess, everybody's busy. Ehm, things maybe are not reviewed as often as they should be (). So, you know, it does not, it just flies by and you	Being busy with serving many patients and doing administrative work were believed to restrict time to do medication reviews and to have follow-up contact with prescribers to discuss potential changes ⁶⁹
	exactly where my slippers are, [] So, that's working well ⁶³ [Patients say] "I don't really know why the doctor's wanting me to do this", they'll get all defensive and just go, "I'm fine, I can manage my medication fine" ⁷¹ I was demanding that. I said [to him] "My wife always got your prescription for that [drug]", and then I said "and she always fell asleep immediately ⁶³ Some patients love his or her medications even more than their kids, even if you recommend something better they resist to change ⁷³ I don't know, if it is psychogenic or, but I do think so, that it is being addicted ⁶³ A lot of the time when we get the prescriptions, it's from an outpatient clinic. It might be in good cases 2 weeks later, in other cases, 5 or 6 months later when we get a letter of explanation for why the changes were made, ok, so do we ignore the prescription until we get an explanation for it ⁶² I think a lot ends up falling on primary carewe're often called upon to reconcile things that we're not necessarily managing. So it has to be something that the whole medical center buys into so that we can get the help of subspecialistswe might not be able to resolve the discrepancies ourselves ⁶⁶ All doctors should speak with one voice. Different stories provoke distrust ⁶⁸ A classic is of course Ibuprofen. Well, Diclofenac, NSAIDs which are taken very, very often. [] I always try to include the orthopaedist, [] they very, very quickly recommend [] this group [of medications] without asking themselves, "Is there a pre-existing internal condition?" ⁶⁵ This actually is a relatively long process, as I don't have internet access here. [] I print it [the CMR] and make notes. [] Then I wait until the patient comes again. But I have [a study patient] who doesn't come very often and then it's difficult ⁶¹ It's a very difficult system to use. It's oftennot working and it's not easy to get intoIf I need to use secure messagingI have to look [the patient] up and wait and wait for the dela

	prescribing, that you need to look out for ⁶⁹	
Technology-related factors		
complexity of implementation (62, 63, 66-68, 70, 72, 73)	These elderly people who have a lot of symptomatic illnesses as well, you know, attend me, and I have less and less options ⁶²	GPs felt that polypharmacy, multimorbidity, and patient heterogeneity, all contributed to complexity at the patient level. Potential side-effects and drug interactions, and perceived poor patient medication adherence, further compounded these difficulties from the GP perspective ⁶²
	The problem is that you are trying to weigh up unmeasurable harm quite often against unmeasurable benefit. We are trying to do that in our minds and trying to work out—Is it more likely to be doing benefit or more likely to harm? ⁶⁷	The process of making a decision in a patient with potentially inappropriate polypharmacy involved trying to estimate and weigh up the harms and benefits of therapeutic options in the face of many unknowns in this diverse and complex patient group ⁶⁷
	It's harder to access other services. Non-pharmaceutical options are often a lot harder to access than medications ⁷⁰	These alternative treatments either were not effective or they were used in addition to the intake of the PIM ⁶³
	A very cognitively impaired person, who's living independently, is going to take a lot more time, because we are going to look in the bottles and potentially do some pill counts to check ⁶⁶	Participants in the GP focus groups viewed deprescribing as a time and resource intensive process, requiring not just an up-front, but ongoing commitment of effort, particularly when there are competing clinical priorities ⁶⁷
inapplicable guidance (61, 62, 64, 65, 67-70, 72-74)	To me, the guidelines are kind of a hindrance. At the moment they do not cater for older patients ⁶⁸	Sometimes GPs found the new recommendations not comprehensible or considered the recommendations as not applicable to the individual patient who was perceived biologically younger ⁶¹
	So you have to ultimately stick to the general guidelines, because if you go there now radically, then you contravened the guidelines of the professional societies. It's difficult ⁶¹	Discrepancy between guidelines' recommendations and lack thereof for older patients ⁷³
	I think, therefore, sometimes you are doing it without the really significant evidence-based security—or at least I don't even know ⁶⁷	The lack of scientific evidence presented difficulties for professional accountability ⁶⁷