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Perspectives of primary care providers on multidisciplinary collaboration to prevent medication-related falls



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ABSTRACT

Background: The causes of falls are often multifactorial. The prevention of falls benefits from a multidisciplinary approach. As people who fall are generally older and users of polypharmacy who frequently visit pharmacies, pharmacists may contribute to fall prevention.

Objective(s): This study aims to explore the perceptions of primary care providers on multidisciplinary collaboration in fall prevention especially with pharmacists.

Methods: Two focus groups were held with each of the following health disciplines: physiotherapists, home care nurses, and practice nurses. A topic list was developed based on the capability opportunity motivation – behaviour (COM-B) model and the theoretical domains framework (TDF). Focus groups were audiotaped and transcribed verbatim. Data were collected in the Netherlands between March and June 2021.

Results: Six online focus groups were held with 17 physiotherapists, 14 home care nurses, and 15 practice nurses. Participants reported to collaborate multidisciplinary to prevent falls, but they had very limited collaboration with community pharmacists regarding fall prevention. Participants had limited knowledge on drugs that increase the risk of falls. This contributed to their low awareness of the potential role of pharmacists in fall prevention. Other reasons for poor collaboration in fall prevention were lack of agreements with pharmacists, limited coordination and communication. Participants were open to more collaboration with pharmacists and believed this could potentially improve patient outcomes.

Conclusions: Multidisciplinary agreements among health care providers, including community pharmacists, about referral criteria, roles and responsibilities, communication and coordination, could stimulate further collaboration in fall prevention.

Introduction

Falling is a multifactorial problem and individual fall risk factors may vary, e.g. mobility and balance disorders, medication use, and home environmental hazards.¹ The solution to this ever-growing problem is thus in hands of diverse health care providers.^{2,3}

A multidisciplinary fall prevention team for older people living in the community should involve care givers with complementary expertise such as general practitioners (GPs), nurses, physiotherapists, and pharmacists.^{4,5} Pharmacists may especially contribute as people who fall are generally older and have a high incidence of multimorbidity, and subsequent complex drug therapy.⁶ Pharmacists can identify inappropriate drug

use in older persons, including fall risk-increasing drugs (FRIDs). Hence, pharmacists may improve medication safety, for example by providing medication reviews aimed at deprescribing of FRIDs.^{5,7,8} Furthermore, pharmacists may contribute to the identification of patients who are at risk of falls and may refer patients to other health care providers or give general education on fall prevention.^{5,9}

In current practice, however, the actual involvement of pharmacists in fall prevention seems to be limited.^{10,11} Pharmacists themselves expect that multidisciplinary collaboration would enable them to better contribute to fall prevention.¹¹ However, the role of pharmacists in fall prevention may be unclear to other primary care providers.¹² To date, the collaboration among primary care providers on how to prevent medication-related

Abbreviations: FRID, fall risk-increasing drug; COM-B model, capability opportunity motivation – behaviour model; TDF, theoretical domains framework; GP, general practitioner; COREQ, Consolidated criteria for REporting Qualitative research.

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falls has not been explored, in particular the collaboration with pharmacists.

Collaboration with pharmacists is, in general, appreciated among disciplines. For example, GPs appreciate pharmacists' support with identification of medication-related problems and pursue stronger relationships with pharmacists in order to improve prescribing and patient care, particularly for older patients.¹³ Previous studies showed that multidisciplinary care that included pharmacists improved patient outcomes in patients with chronic conditions such as hypertension, diabetes, and asthma.^{14–18} In nursing home teams pharmacists' involvement in case conferences was appreciated and improvements in drug therapy were recognized.¹⁹ Likewise, clinical medication reviews by pharmacists with care home residents resulted in adaptation of patients' medication use and even a reduction of falls.²⁰

This study aims to explore the perceptions of primary care providers on multidisciplinary collaboration in fall prevention especially with pharmacists.

Methods

Study design and setting

A qualitative study using online focus groups was conducted in three groups of health care providers: practice nurses, home care nurses, and physiotherapists. In the Netherlands, these providers have an essential role in fall prevention. In the Netherlands, most GPs have a practice nurse in their GP office. The practice nurse works together with the GP but has independent tasks and responsibilities. Practice nurses are the executives of fall prevention services in the general practices, due to limited time of GPs.²¹ They have a role in fall risk screening and assessment and coordination of care. Home care nurses provide care at home to patients and therefore have a role in monitoring, reporting falls to physicians, and screening and assessing fall risk. Physiotherapists, specialized in geriatrics, are able to perform complete fall risk assessments, often visit patients at home, and provide exercise programmes.

All data were collected between March and June 2021.

Participants

Health care providers were approached by posting invitations on LinkedIn pages, and by e-mailing national and regional health care organisations and cooperations (Supporting Information Appendix S1). Health care providers of the following disciplines were included: practice nurses, home care nurses, and physiotherapists. Two focus groups were performed with participants of each discipline. Health care providers of different disciplines were not mixed to prevent dominance of disciplines due to potential social hierarchic influences. Because it was expected that findings would overlap between disciplines, for each discipline data saturation was determined after the second focus group. Saturation was based on the lack of new themes in the second focus group. Saturation was also based on overlapping themes between the focus groups with different disciplines.

Data collection

Prior to the focus groups background information of the participants was obtained (Supporting Information Appendix S2). The focus groups were held in an online setting: ZOOM. There were 5 to 9 participants per session. The duration of each session was 1.5 h. The focus groups were chaired by the main researcher (MG), a community pharmacist with previous experience in conducting focus groups. A second researcher (EK) was present at each focus group to stimulate group discussion occasionally and to take field notes. All focus groups were audio-taped and transcribed verbatim. The transcription was manually completed by MG and quality checked by EK. Participants received a summary of the transcript of the focus group for correction, and were asked to return comments within a week.

A topic list was made to guide the focus groups (Table 1). The semi-structured questions of the topic list were based on the capability opportunity motivation - behaviour (COM-B) model and theoretical domains

framework (TDF). The topics of the questions were also based on findings of a previous study of the research team, investigating pharmacists' perceptions on providing fall prevention. Main finding of this study was that pharmacists wished collaboration would be improved, including clarification of roles (e.g., for screening and referral).¹¹ The interview guide was evaluated after the first focus group to make small adjustments in case data collection would benefit from this.

The COM-B model describes that behavioural changes, needed for the implementation of services, could be categorized in persons' capability, opportunity and motivation, and has been widely used in implementation science.²² To define the content of the COM-B components, domains of the TDF were mapped to the COM-B model as has been recommended previously. The TDF contains 14 domains that are important to achieve behaviour change of health care providers. These domains were used as input for questions related to each domain of the COM-B model.^{23,24}

Data analysis

Focus group transcripts were imported in NVivo version 12 software. Two researchers (MG and EK) independently coded all transcripts. Any coding discrepancies were discussed with MB to reach consensus. A mix of inductive and deductive coding was used. Inductive coding was used, based on the domains of the COM-B model and TDF, and the related topics from the topic list (Table 1). Subtopics that could be related to the theoretical frameworks were derived during the coding process. Therefore, additional codes were deductively identified and added. Health care providers' capabilities, opportunities, and motivations for multidisciplinary collaboration in fall prevention were qualitatively described: overlapping findings were summarized, incongruent opinions were highlighted, and the framework domains were illustrated by quotations.

Ethics and privacy

The study was approved by the institutional review board of the Division of Pharmacoepidemiology and Clinical Pharmacology, Department of Pharmaceutical Sciences, Utrecht University. Results were reported according to the Consolidated criteria for REporting Qualitative research (COREQ) guidelines (Supporting Information Appendix S3).²⁵ Participants' anonymity was ensured by replacing their names by a study code in all data.

Results

Six focus groups were held with 46 participants (17 physiotherapists, 14 home care nurses, 16 practice nurses; Table 2). Each focus group included five to nine participants. No new themes emerged in the second focus group of each discipline, therefore it was discussed that data saturation was reached for each discipline after the second focus group.

Fig. 1 presents an overview of the identified main topics according to the COM-B model. Table 1 shows the relation between the main topics and the two applied theoretical frameworks TDF and the COM-B. In Table 3, participants' quotations are related to the COM-B model and topics.

Capability

Theme: Identification of FRIDs (TDF: knowledge)

Home care nurses, practice nurses and physiotherapists mostly ask their patients about FRID use in an unstructured way. Most participants, however, felt they had insufficient knowledge about FRIDs. For example, a home care nurse stated that her colleagues were not able to identify fall-related side effects of drugs. Only one home care nurse mentioned to discuss the necessity of patients' medication every three months with the practice nurse. Practice nurses generally reported to have more attention for other fall risk increasing factors than medication use, but some mentioned they tried to avoid strict blood pressure control in older patients or they mentioned to warn patients for dehydration symptoms at hot days. Physiotherapists reported to have basic knowledge on medication and could

Table 1

Design of topic list to guide the focus groups, based on the theoretical domains framework (TDF) and capability opportunity motivation – behaviour (COM-B) model.

Questions of topic list mapped to COM-B and TDF			
COM-B	Topics	Example of questions	TDF
Capability	<i>Identification of use of FRIDs</i>	Do you recognize medication as risk factor for falls?	<i>Knowledge</i>
	<i>Communication</i>	What is your experience with communication with pharmacists?	<i>Cognitive and interpersonal skills</i>
	<i>Screening patients at fall risk</i>	What do you do when you presume a patient's medication use is a risk factor for falling?	<i>Memory, attention and decision processes</i>
Opportunity	<i>Initiating collaboration</i>	What could you do to improve fall prevention collaboration with pharmacists?	<i>Behavioural regulation</i>
	<i>Collaboration experiences</i>	How is your position related to the pharmacist's position and what is the impact of this on the collaboration?	<i>Social influences</i>
Motivation	<i>Agreements/Coordination</i>	What kind of agreements support the collaboration in medication-related fall prevention?	<i>Environmental context and resources</i>
	<i>Role (un)clarity</i>	What role should pharmacists have in a multidisciplinary fall prevention collaboration?	<i>Social/Professional Role and Identity</i>
	<i>Potential results</i>	What tasks could pharmacists perform in a multidisciplinary fall prevention collaboration?	<i>Beliefs about capabilities</i>
	<i>Potential results</i>	Are there any emotional factors influencing you to collaborate with pharmacists (e.g., stress)?	<i>Emotion</i>
	<i>Potential results</i>	When would you refer a patient to the pharmacist to prevent falls?	<i>Intentions</i>
	<i>Potential results</i>	What goals would you like to be defined in a multidisciplinary fall prevention collaboration?	<i>Goals</i>
	<i>Expectations</i>	What difference do you think it makes when pharmacists are involved in fall prevention?	<i>Beliefs about consequences</i>
	<i>Expectations</i>	Do you think financial compensation is needed for multidisciplinary fall prevention collaboration?	<i>Reinforcement</i>
	<i>Expectations</i>	How much confidence do you have in collaboration with pharmacists to prevent falls?	<i>Optimism</i>

identify some FRIDs, but they realised they had insufficient expertise. As an example, physiotherapists reported that they often do not take any action after the identification of FRIDs.

Theme: Screening patients at fall risk (TDF: memory, attention and decision processes)

As home care nurses visit patients at home, they see how patients perform their daily activities, and communicate with relatives. They also have basic knowledge about risk factors for falling, therefore they were considered to be in the best position to identify patients with increased fall risk. Because physiotherapists have expertise on identification of mobility problems, participants thought they can identify patients at risk of falling. However, it was reported that their role in early signalling is limited, because most patients are referred to them by other health care providers. For early identification all health care providers have opportunities, particularly nurses and GPs, but potentially also community pharmacists. Practice nurses mentioned about themselves that they have more time than GPs for fall prevention and hence have more opportunities to signal fall risk. Home care nurses and practice nurses also mentioned to collaborate extensively with each other to assess fall risk.

Theme: Initiating collaboration (TDF: behavioural regulation)

Physiotherapists, practice nurses and home care nurses reported that multidisciplinary collaboration to prevent falls is common practice. Particularly, they collaborate with each other, GPs, and occupational therapists. Other disciplines, as dieticians and elderly care physicians, were also mentioned. Practice nurses mentioned that their time and activities for fall prevention partly depend on the focus of the GP.

All participants reported that when they question drug safety in patients, they generally contact the GP. Most physiotherapists mentioned that they have never collaborated with pharmacists. The extent to which home care nurses collaborate with pharmacists varied. With regard to fall prevention, however, home care nurses did not mention collaboration with the pharmacist. Practice nurses reported more extensive collaboration

with pharmacists, seven of them reported recent contact with the pharmacist about fall prevention.

Theme: Communication (TDF: cognitive and interpersonal skills)

Frequent communication was seen as most important to achieve multidisciplinary collaboration. However, physiotherapists reported they barely communicate with pharmacists. One physiotherapist indicated a need for clearer agreements about the manner of communication with pharmacists.

Communication experiences with pharmacists among home care nurses and practice nurses varied, and some mentioned to experience difficulties. For example, it was mentioned that pharmacists are often unable to solve drug-related issues and refer home care nurses to the general practice. All home care nurses, with exception to one, mentioned that community pharmacists do not warn them when a new FRID is prescribed. They hoped that pharmacists would start informing them about this, because this would aid them to detect drug-related problems. One practice nurse was very satisfied with how pharmacists communicated issues of patients with her.

Furthermore, a few physiotherapists suggested that increased interprofessional education would result in more collaboration in practice. Nurses mentioned they would like to be educated by pharmacists about FRIDs.

Opportunity

Theme: Agreements (TDF: environmental context and resources)

Participants mentioned fall prevention is generally regionally organized. One physiotherapist mentioned that national or regional agreements on collaboration in fall prevention, would facilitate implementation of fall prevention. Participants often already participated in multidisciplinary meetings to discuss patient cases. Pharmacists, however, were often not involved in these multidisciplinary meetings. On the other hand, practice nurses mentioned to have recurring multidisciplinary meetings with pharmacists on other topics e.g., to discuss medication reviews, but they did not specifically focus on fall prevention during these meetings.

Table 2

Focus group participants' background characteristics.

Discipline/Group	Physiotherapists N = 17	Home care nurses N = 14	Practice nurses N = 15
Age in years (median [Q1 – Q3])	40.0 (31.5–53.0)	41.0 (27.0–49.8)	50.0 (33.0–54.0)
Female gender (N, %)	13 (76.5%)	14 (100%)	15 (100%)
Years of work experience (median [Q1 – Q3])	15.0 (9.5–30.0)	17.0 (5.0–21.3)	22.0 (10.0–33.0)
Recent collaboration in fall prevention with pharmacists (N, %)	2 (11.8%)	1 (7.1%)	7 (46.7%)

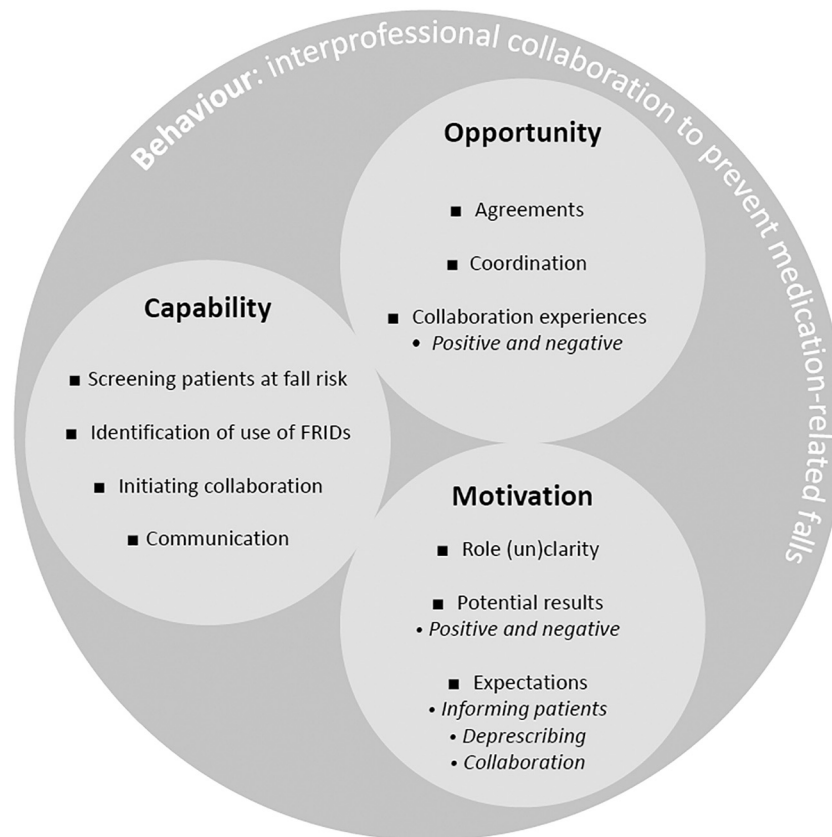


Fig. 1. An overview of how the topics of the focus groups are categorized into the domains of the capability opportunity motivation – behaviour (COM-B) model.

Theme: Coordination (TDF: environmental context and resources)

Participants mentioned that coordination is often lacking in fall prevention. Interestingly, sometimes physiotherapists or home care nurses informally took on a coordinating role. However, most of them believed this role should be assigned to the general practice as the general practice has the most collaboration partners and has the ability to refer patients. In accordance, practice nurses felt they were often the coordinator, but some reported to have limited time to fulfil this task. Practice nurses stated that the starting point is to appoint a care coordinator for each individual patient e.g., a practice nurse, home care nurse or admiral nurse. An admiral nurse is only involved in cases patients are suffering from dementia, and provides clinical and emotional support to patients and their families.

Physiotherapists and home care nurses mentioned to contact general practices when they had doubts about patients' medication use. For most physiotherapists and home care nurses, in these particular cases, pharmacists' potential contribution was unclear. For example, they did not know if GPs discussed these cases with pharmacists. In fact, physiotherapists assumed they could not refer patients to pharmacists themselves.

Theme: Collaboration experiences (TDF: social influences)

Physiotherapists mentioned they collaborated with many disciplines, but only a few mentioned collaboration with pharmacists. Physiotherapists who had collaborated with pharmacists generally appreciated this. Home care nurses more frequently collaborated with pharmacists, but seldomly discussed fall-related medication problems with pharmacists. Some nurses had positive experiences with pharmacists, whilst others had not. For example, a few nurses experienced that for pharmacists, with whom they have collaborated, it is a trigger to collaborate when money can be earned, and they did not understand that pharmacists were more driven by financial purposes than the intrinsic motivation to provide good care. Some practice nurses indicated that collaboration with pharmacists has improved over the years.

Participants primarily discussed issues with regard to pharmacotherapy with GPs. One physiotherapist mentioned she was reluctant to approach GPs about medication-related issues, as she assumed GPs might think that pharmacotherapy would be none of her business.

Motivation

Theme: Role (un)clarity (TDF: social/professional role and identity)

All physiotherapists, practice nurses and home care nurses were of the opinion that they had a role in fall prevention. Physiotherapists believed to have an essential role in the assessment of mobility problems regarding fall risk. Nurses reported to have a role in patients' complete fall risk assessment.

Nurses especially saw a role for pharmacists in signalling of medication-related problems and education of patients about fall-related side effects. Some home care nurses thought pharmacists could have an essential role in reviewing medication. Some practice nurses reported to conduct such medication reviews with pharmacists. Participants, however, were of the opinion that geriatricians have better understanding of FRID deprescribing than GPs and pharmacists. Some home care nurses mentioned that the role division regarding medication-related issues between general practitioners and pharmacists was unclear to them.

The role of pharmacists was mostly unclear to physiotherapists. Most physiotherapists did not know whether and how frequently pharmacists performed medication reviews, how frequently pharmacists collaborate with GPs, and how collaboration between pharmacists and GPs looks like.

Theme: Potential results (TDF: beliefs about consequences)

With regard to medication use in older patients, physiotherapists thought patients often benefit from deprescribing. However, in their opinion, both pharmacists and GPs don't pay enough attention to this. Home care nurses agreed that coordination of deprescribing is often lacking, and believed this needs more attention from pharmacists. They believed

Table 3

Health care providers' quotes that describe their perspectives on multidisciplinary collaboration to prevent medication-related falls, linked to the topics and the domains of the capability opportunity motivation – behaviour (COM-B) model.

COM-B	Topic	Perspective
Capability	Identification of use of FRIDs	<i>"In my opinion, FRID identification stops after the observation. I mean, I know that certain medication increases fall risk, but when do I need to take action on this? [...] I think physiotherapists need more guidance on this."</i> Physiotherapist 5, 27-year-old man
		<i>"I notice colleagues have a lack of knowledge: what are the medicines that increase fall risk? Is it a diuretic, or the opiates, or an antihypertensive? Which one increases fall risk and which combination?"</i> Home care nurse 6, 34-year-old woman
	Screening patients at fall risk	<i>"When patients report a fall, we always try to find out whether something has recently changed that causes their falls, and this could sometimes also be a tablet that just has been started or stopped."</i> Practice nurse 7, 33-year-old woman
		<i>"When I think someone has an increased fall risk, I report this to the practice nurse, but maybe it would be smart to approach the pharmacy directly. However, I think for everyone it is unknown which route you should take."</i> Physiotherapist 3, 33-year-old woman
		<i>"With regard to screening, I think the difference is that we see people in their own situation. A physiotherapist sees them and trains them, but often in an exercise room, and not often at home. And we also see patients in all kinds of actions, while a physiotherapist is focused on a training. Hence, I think we have a wider picture of patients' fall risks."</i> Home care nurse 14, 53-year-old woman
		<i>"I think the GP primarily investigates the problems of patients. There is a problem and for that reason he sees a patient. As practice nurses, we often visit patients at home and we are more proactive. We examine them for other diseases, such as diabetes or something else, and because we have a wider picture, we also screen for falls."</i> Practice nurse 8, 50-year-old woman
	Initiating collaboration	<i>"I think it is most important that you have a conversation with the local pharmacy, or the local GP, because otherwise you may be guided by own assumptions. While, a GP may welcome direct contact between physiotherapist and pharmacy, because it could relieve him."</i> Physiotherapist 5, 27-year-old man
		<i>"I have the impression that pharmacists work, more or less, as a soloist. Recently, we had a pharmacist replacement in the region. We, hence, hope it will improve now. The previous pharmacist stated very clear: 'this is my piece of work, and what I want to do.' He did not want to go along with all other changes. He thought that was out of his scope. We hope it is going to improve now."</i> Home care nurse 2, 49-year-old woman
		<i>"I learn about elderly care that you need to be alert when patients are using more than five kinds of drugs, and that you should examine what can be deprescribed. In my experience, the physicians respond to this: 'well, it is going fine'. [...] And I am sometimes so tired of this. I think why do we have such agreements, but are GPs experiencing difficulties with this."</i> Practice nurse 1, 65-year-old woman
		<i>"When I think about a multidisciplinary collaboration, then I do think about pharmacists, but to date I did not collaborate with them."</i> Physiotherapist 12, 28-year-old woman
Communication	<i>"Maybe, when one experiences more communication during education, this will lead to more results in the work field."</i> Physiotherapist 9, 44-year-old man	
	<i>"The communication lines with the pharmacist are very short, as well as the communication lines between the pharmacist and GP. The GP and pharmacists annually perform a medication check. And when I have doubts, I ask the pharmacist: 'could you check this for me?' and the day after, I got a message in return: 'yes, we checked it', and, 'it is fine as it is', or, 'we need to change something'."</i> Home care nurse 14, 53-year-old woman	
	<i>"Pharmacists know where to find me when they have questions about patients – then, we have very short lines. It is going well, but you need to go after it actively. It is not coming spontaneously from all other pharmacies, with exception to the two with who we collaborate very well."</i> Practice nurse 12, 57-year-old woman	
Opportunity	Agreements	<i>"In the past I participated in a multidisciplinary project to get everyone together, a dietician, a GP, a practice nurse, and a pharmacist. And you notice, that when you don't make agreements anymore, it bogs down. And you lose contact with another."</i> Physiotherapist 17, 40-year-old woman
		<i>"I work in a city with on estimation fifteen different pharmacies in the city, and of them we have most extensive collaboration with one pharmacy, and this pharmacist is always present in our multidisciplinary team meetings. And even when we discuss a patient of another pharmacy, he still advises and we listen to his recommendations. This is a collaboration agreement in the city."</i> Practice nurse 6, 31-year-old woman
	Coordination	<i>"I think there is limited coordination of medication use; it is neither coordinated by GPs nor by pharmacists [...]. And collaboration, which includes much more than medication, is a search in primary care."</i> Physiotherapist 11, 50-year-old man
		<i>"I notice collaboration with pharmacists generally works well, but not in the field of fall prevention. And when we notice medication-related problems, we prefer to discuss this with the GP."</i> Home care nurse 11, 52-year-old woman
Collaboration experiences: positive		<i>"The GP should also know, then, that physiotherapists directly contact the pharmacy. This may be clarified by making agreements about when physiotherapists can call pharmacists, for example, in case of certain complaints. Probably, there are GPs who like that."</i> Physiotherapist 8, 37-year-old woman
		<i>"Once we were able to organize a multidisciplinary team meeting, and back then it was very useful. It helps to understand who is doing what, and to create same mindsets."</i> Physiotherapist 16, 56-year-old woman
		<i>"My experience with the pharmacist there was directly, at start, very good. She approached me herself when I was working there for three months to have an introductory meeting. She is therefore easily accessible in case of issues."</i> Home care nurse 11, 52-year-old woman
		<i>"In our health care centre works a pharmacist who is also doing: 'less is more'; he tries to deprescribe as much as possible. Thus, with this pharmacist I sometimes have interesting discussions."</i> Physiotherapist 5, 27-year-old man
Collaboration experiences: negative		<i>"I got this feeling that pharmacists are available when they can earn money, but otherwise, you don't hear from them."</i> Home care nurse 3, 27-year-old woman
		<i>"In my experience, pharmacists are doing many things out of own initiative, which is fine, but they now and then forget to include the general practitioner in the process."</i> Practice nurse 9, 33-year-old woman
		<i>"Previously, I have worked for ten years at a different place. The collaboration with the pharmacists was much warmer back then. It just all went</i>

(continued on next page)

Table 3 (continued)

COM-B	Topic	Perspective
		easier. You asked something or you discussed a plan with each other, and it was done. But when you need to wrestle with the pharmacy to accomplish thing, it is not fun.” Practice nurse 11, 52-year-old woman “We have a big network, including GPs, home care, and other disciplines. But indeed, we don't have professional contacts with pharmacists. However, to me, medication is an important point of attention.” Physiotherapist 11, 50-year-old man “In the past I collaborated with pharmacists, multidisciplinary, and we investigated if we could start the collaboration again, but in my experience, it always dilutes... it is difficult to find each other.” Physiotherapist 17, 40-year-old woman
Motivation	Role (un)clarity	“Maybe it is on our end, that we do not know well for what things we should contact the pharmacy. Everything concerning medication goes through the GP. The GP has the ultimate responsibility. Possibly, when we would know better for what things we can approach the pharmacy, this would improve our collaboration.” Home care nurse 2, 49-year-old woman “In particular, I think it is a task of the pharmacist that he screens when someone is using many medications, are those all still necessary? And then discuss this with the physician.” Home care nurse 11, 52-year-old woman “I think it is important to be clear on who is doing what, and who is making decisions about what. The physician is prescribing and not the pharmacist, he is just delivering prescriptions.” Practice nurse 5, 54-year-old woman “When I look at our medication reviews, the pharmacist has sufficient knowledge about medication, and we see the patient frequently and have the latest labs. So together, in case someone falls or has hypotension, I can imagine there is a role for the pharmacist in fall prevention.” Practice nurse 4, 47-year-old woman “Yes, in my view, the role of pharmacists is still pretty unclear, or actually not unclear, it is invisible.” Physiotherapist 13, 55-year-old man
	Potential results: positive	“I would appreciate it if pharmacists would inform us about when a patient is using FRIDs, or when a patient starts using a FRID. [...] Then I could adapt my care plan, and evaluate this medication use.” Home care nurse 2, 49-year-old woman “I worked in an intramural setting and there, when the elderly care physician became involved, then many drugs were deprescribed. And, as a consequence, often people flourished afterwards.” Physiotherapist 7, 44-year-old woman “I think for pharmacists it is very important that they review which medications someone is using. [...] There is no-one who has the total overview of these medications. [...] I think more attention could be spent on this.” Home care nurse 13, 40-year-old woman
	Potential results: negative	“I don't know what the value is of us approaching pharmacists directly. Because I still have this feeling that GPs control the medication use.” Physiotherapist 2, 29-year-old woman “I think, how difficult it is for the pharmacist to concretize whether patients may fall because of their medication, especially when they are using it for long term.” Practice nurse 1, 65-year-old woman
	Expectations: informing patients	“In particular, I would like to see improvements with regard to pharmacists' involvement in fall prevention, and them informing patients. And that pharmacists feel and take responsibility.” Home care nurse 13, 40-year-old woman “There are also many older patients who come and move outside, and fall with the bike or whatever. I think there are gains to be made here, thus that pharmacies name side effects and warn patients more often about this, and not only about whether or not to drive.” Practice nurse 15, 32-year-old woman
	Expectations: deprescribing	“I often notice patients visiting the GPs again and again, and every time they are prescribed another medicine. I think, if there was collaboration with pharmacists, there could be an extra screening on this. [...] In my opinion: 'less is more'. There are major gains to be gained there, I hope.” Physiotherapist 7, 44-year-old woman “Fall prevention is, of course, a multifactorial problem and I think you can see it in two ways. By this I mean, as someone who is doing the overarching analysis, and as someone who can zoom into one or a few risk factors. And when I think about the last one, then I think the pharmacist is the right person to conduct medication reviews, in order to reduce fall risk-increasing drug use.” Physiotherapist 5, 27-year-old man
	Expectations: collaboration	“I believe the recommendation is that people who are using medicines for osteoporosis for over five years, they can stop using it. And sometimes I see patients who are using it for ten years. [...] I think why did no one react on this. I suppose that a pharmacist sees this prescription come by every time.” Practice nurse 1, 65-year-old woman “I think it is good if pharmacists would educate home care nurses about medication. And, also, educate patients in a plain way. Not only by the use of a written patient information leaflet, but by explaining the medication risks clearly to patients.” Home care nurse 9, 54-year-old woman “In my experience, which is also my conviction, it is not achievable to organize such meetings. [...] The agendas don't permit it and the financing is not arranged in primary care. This is much more a barrier in secondary care than in primary care. Privacy law hinders immensely.” Physiotherapist 11, 50-year-old man “Collaboration with other parties is far more accessible, we have visited each other much more often. Possibly, this is because we need each other more often. I certainly think the pharmacist could get a position in this.” Home care nurse 3, 27-year-old woman

Abbreviations: GP, general practitioner.

necessity of medication should be checked periodically in older adults. Practice nurses indicated that such medication reviews were periodically performed, but also underlined that GPs had ultimate prescribing responsibility and pharmacists were dependent on them.

Nurses believed that involving pharmacists in fall prevention primarily could contribute to patients' awareness of fall-related drug side effects. Apart from that, home care nurses specifically would appreciate to be informed by pharmacists about start and adaptation of medications.

Theme: Expectations (TDF: optimism)

Medication was seen as an important risk factor for falls, and therefore, participants agreed pharmacists have potential to contribute to fall prevention.

Physiotherapists did not know what they could expect from pharmacists, and how the relationship between pharmacists and GPs looks like. One physiotherapist mentioned that she expected collaboration between GPs and pharmacists could be improved. Physiotherapists were open for

collaboration with pharmacists, however, generally believed structural multidisciplinary team meetings with pharmacists would not be feasible.

Since most nurses already collaborated with pharmacists, generally, they had more expectations from pharmacists. Still, they believed collaboration with pharmacists could be improved. Additionally, they believed pharmacists could be more involved in fall prevention, for example, by educating patients about their medication.

Discussion

Dutch physiotherapists, home care and practice nurses frequently collaborate with one another to prevent falls, although agreements about roles and responsibilities, in particular with pharmacists, are often lacking. Therefore, clear coordination in fall prevention is often lacking. Medication use receives limited attention as risk factor for falls. Consequently, collaboration with community pharmacists on fall prevention is sparse. Limited knowledge on the potential contribution of pharmacists and lack of structural meetings with pharmacists are important reasons for this. Despite this, all participating primary care providers were open to more collaboration with community pharmacists to prevent medication-related falls. They believed this collaboration could lead to improved patient outcomes.

Previous identified reasons for limited collaboration among primary care providers, excluding pharmacists (e.g., general practitioners, nurses, geriatricians, physiotherapists and occupational therapists), in fall prevention were role unclarity and limited communication.^{3,26} In our study, we found that primary care providers also had limited collaboration with pharmacists and similar reasons were identified. Poor multidisciplinary collaboration in fall prevention results in fragmented care.^{3,26}

Primary care providers valued collaboration in general and, hence, also hoped that the collaboration with pharmacists in fall prevention would improve. Physiotherapists, home care and practice nurses already collaborated with one another in fall prevention, except with pharmacists. Participating primary care providers mentioned they lacked knowledge on when collaboration or referral to community pharmacists was beneficial. Previous studies showed that by enhancing the knowledge of one another's skills and tasks, relationships between community pharmacists and general practitioners could be improved, e.g. by interprofessional education.^{27,28}

Previous studies investigating multidisciplinary collaboration, emphasized the importance of communication and coordination of care, e.g. by a coordinator or by use of rules and protocols.^{27,29} Participating primary care providers in our study underlined the relevance of communication and well-coordinated fall prevention care as well. Participants mentioned that their degree of communication with primary care providers was dependent on the collaboration partner and ranged from limited to extensive. Communication with community pharmacists was, in particular, often lacking. Likewise, participants reported limited attention for patients' medication use, potentially resulting in unnecessary high exposition to FRIDs by the older population at fall risk.

The value of multidisciplinary collaboration in fall prevention has previously been expressed by various health care providers, such as GPs, nurses, occupational therapists and physiotherapists.^{3,26,30,31} However, perspectives on the role of community pharmacists in such collaborations had not been studied yet. In our study, participants expressed their motivation to collaborate with other primary care providers, including pharmacists, to provide fall prevention care. However, collaboration with pharmacists in fall prevention was very limited. Their current reluctance to collaborate with pharmacists seemed to be especially related to unclarity of pharmacists' role in fall prevention. In accordance with previous studies, participants reported that better understanding of one another's role was needed to improve the collaboration and communication.^{27,32,33}

Participants expected community pharmacists may contribute to fall prevention by screening for patients at fall risk, performing medication reviews, deprescribing, and patient education on fall-related drug side effects. Altogether, they predicted that this contribution of pharmacists would lead to safer use of FRIDs in patients at fall risk. Studies have shown positive

contributions of involving pharmacists in a range of settings.³⁴ For example, physician-pharmacist collaboration has shown to improve blood pressure control and diabetes control.^{35–37} In other settings, including fall prevention, enhanced multidisciplinary collaboration may have similar positive effects on patient outcomes. Yet, the effectiveness of multidisciplinary collaboration on improving patient outcomes is mostly unclear.

With regard to medication-related fall prevention, participants thought patients would benefit from deprescribing. Some thought community pharmacists could take more responsibility to check rationales for prescribed FRID combinations. Likewise, community pharmacists previously mentioned to be less involved than they wished in fall prevention. They particularly emphasized the need of GPs' co-operation with regard to deprescribing.¹¹ However, GPs may be reluctant to deprescribe FRIDs. Deprescribing is often seen as a time-consuming intervention, as it requires involvement of patients, and, moreover, prescribers may be concerned about consequences of deprescribing.^{11,38}

Strengths and limitations

The major strength of this study was the parallel inclusion of three different health disciplines in focus group sessions. This enabled us to distinct viewpoints that were specific for disciplines from viewpoints that were similar for all disciplines. Furthermore, the focus group design allowed participants to share experiences and react on each other; this supported the identification of overlapping and distinct perspectives. We also achieved sufficient participant rates in the focus group sessions. However, a limitation was that perspectives of some collaboration partners in fall prevention were not studied, including GPs, occupational therapists, and dieticians. Since we found some overlap of perspectives among the three included disciplines, these perspectives are possibly also transferable to other primary care providers. The findings of this study are applicable to Dutch health care, but the findings are possibly also transferable to settings of pharmacy practice in other high income countries.³⁹

Another strength was the application of the theoretical frameworks during the study design and analysis. By support of the COM-B model and the TDF, the major needs could be identified to increase primary care providers capability, opportunity, and motivation to collaborate in medication-related fall prevention.^{22–24}

A limitation of this study was that the focus group sessions were hosted by a community pharmacist (MG) and data analysis was also completed by a community pharmacist. Since participants knew that the host was a community pharmacist, they might have been reluctant with sharing their negative experiences related to collaboration with community pharmacies. Despite this, as negative experiences of collaboration with pharmacists were shared by many participants, this did not seem to affect data collection much.

Another limitation was the use of LinkedIn and regional networks to recruit participants. The use of Zoom could also prevented potential candidates for joining e.g., people without stable internet connections or computers. Despite that this might have influenced the transparency of our results, we managed to include participants from different areas, rural and urban, and from diverse age categories.

Implications

First, coordination of fall prevention should be enhanced e.g., by concluding agreements among all relevant primary care providers, stimulating the clarification of the role of each provider including the pharmacist. For example, fall prevention guidelines for health care providers including pharmacists are available in the United States, but lacking in many other countries.⁵ Second, by paying more attention to interprofessional education the communication among primary care providers, including community pharmacists, could be improved.^{40,41} At last, community pharmacists have to be their own advocate by their contributions in fall prevention e.g., by screening for fall risk at medication reviews and subsequent referral or deprescribing.

Conclusions

Primary care providers are motivated and feel capable to collaborate with one another, including community pharmacists, to prevent falls. Currently, coordination of fall prevention care, and medication-related fall prevention in particular, is lacking. Formulation of agreements with one another, including community pharmacists, could support role clarification, communication, and, thus, coordination of medication-related fall prevention.

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Data statement

Author elects to not share data due to privacy/ethical restrictions.

CRediT authorship contribution statement

Marle Gemmeke: Conceptualization, Investigation, Data curation, Writing – original draft. **Katja Taxis:** Conceptualization, Supervision, Writing – review & editing. **Marcel L. Bouvy:** Conceptualization, Supervision, Writing – review & editing. **Ellen S. Koster:** Conceptualization, Investigation, Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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