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Patients' experience with a community pharmacy fall prevention service

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ABSTRACT

Background: Pharmacists can contribute to fall prevention, by offering services such as fall risk screenings, counselling, and medication reviews. Patient acceptance of the role of pharmacists in fall prevention is crucial.
Objective(s): The aim of this study was to explore patients' experience with a community pharmacy fall prevention service.
Methods: Interviews were conducted with patients one month after they participated in a pharmacy fall prevention service, in the Netherlands. Patient inclusion criteria for the service were: age ≥ 70 years, use of ≥5 drugs including ≥1 fall risk-increasing drug. The service included a fall risk screening followed by counselling and a medication review. The semi-structured interview guide was based on the consolidated framework for implementation research and included the following topics: outcomes, patient's motivation, and contact with the pharmacy technician.
Results: Of the 91 participants of the fall prevention service, 87 patients were interviewed with a median age of 78.0 years (first quartile [Q1] – third quartile [Q3]: 74.0–84.75) and 46.3% were female. Many patients expressed positive feedback about receiving a medication review. Most patients whose medication was deprescribed expressed to be positive about this. Others were reassured about the appropriateness of their medication use. Patients reported that the service enhanced their awareness about fall prevention. Only a few patients were motivated to adapt their lifestyle. Patients appreciated the attention and contact.
Conclusions: Patients see a potential benefit for a community pharmacy falls prevention service, including a medication review. Patient education appeared to enhance their fall risk awareness.

1. Introduction

Falling among community-dwelling older people is a growing health care problem, among others due to population aging.[1] To date, many patients at risk of falling remain unidentified. Older patients are reluctant to inform their health professionals when they have experienced a fall.[2,3] Among other reasons, they perceive asking for such help as a loss of independence.[3] Because pharmacists are frequently in contact with older persons, their involvement in the identification of patients at risk of falls can be valuable.[4,5]

The causes of falls are multifactorial. Medication use is considered as an important modifiable risk factor among other risk factors such as impaired mobility and gait.[6–9] Therefore, pharmacists can play a valuable role in reducing fall risk by deprescribing fall risk-increasing drugs (FRIDs).[4,10–13] There has been a growing interest to involve pharmacists in multidisciplinary fall prevention programs. Such programs aim to reduce patients' fall risks by assessing and modifying multiple fall risk factors, including the medication use.[10,12,14–16]

Moreover, pharmacists could take another role in the multifactorial approach, by for example motivating patients to follow lifestyle recommendations to reduce fall risk, such as exercise and home safety, and pharmacists could refer patients to other health care providers, such as the general practitioner (GP) or a physiotherapist.[5]

Patients' perceptions need to be taken into account when developing new interventions or services in health care to ensure a patient-centered approach.[17,18] Patient engagement is especially crucial in the field of fall

Abbreviations: CFIR, Consolidated Framework for Implementation Research; CPS, cognitive pharmaceutical service; COREQ, COnsolidated criteria for REporting Qualitative research; FRID, fall risk-increasing drug; GP, general practitioner; Q1, first quartile; Q3, third quartile.

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prevention, since many effective fall prevention interventions require active participation and adaptation of lifestyle, such as exercising and home hazard modifications.[19] Furthermore, patient engagement naturally facilitates the shared decision-making process and increases guideline adherence by patients.[20]

Community pharmacy-led fall prevention services could be classified as cognitive pharmaceutical service (CPS). CPS include pharmaceutical services that support patients to make decision regarding their own care and medication use, by offering counselling and information.[21] The benefits of pharmacists providing CPS have been described in literature and include among others optimization of medication use.[22] Older patients previously indicated they value the provision of CPS.[23] However, research findings of CPS are translated slowly into pharmacy practice.[22] To guide future implementation of CPS, including pharmacy-led fall prevention services, evaluation of the provision of such services is needed.

In a qualitative study, older patients' interest to enroll pharmacy-led fall prevention services depended on their perceived fall risk and their believes about the necessity and risks of medication use. Patients expected that pharmacists could especially contribute to the identification and modification of FRID use and expected less benefits from lifestyle recommendations by pharmacy team members.[24] Yet, it is unknown how patients experience the provision of community pharmacy fall prevention services.

The authors have recently developed and implemented a community pharmacy-led fall prevention service. The overall aim of this study was to explore how patients experience an actual fall prevention service from the community pharmacy. Specifically, the study aimed to investigate 1) how patients experience the provided interventions and recommendations of a community pharmacy fall prevention service, and 2) the perspective of patients on the pharmacy setting as site for fall prevention interventions.

2. Methods

2.1. Study design

This qualitative observational study was performed alongside an implementation study of a fall prevention service in 10 Dutch community pharmacies.[25] The COnsolidated criteria for REporting Qualitative research (COREQ) guidelines were consulted in order to report the data according to these guidelines (supplementary information S1).[26]

2.2. Fall prevention service

The fall prevention service composed of a fall risk screening, multifactorial falls preventive assessment and intervention (fall consultation), and medication review. The content of the fall prevention service is described in a previous paper of the research team.[25] Patients meeting the following criteria underwent the fall risk screening by the pharmacy technician: aged ≥70 years, using ≥5 drugs simultaneously of which ≥1 classified as FRID.[27–29]

Regarding the fall risk screening, pharmacy technicians asked the following questions: 1) have you experienced a fall during the past 12 months?, 2) do you worry about falling?, 3) do you think your fall risk could be increased by your medication use?, 4) would you like that our pharmacists checks whether your medication use may increase your fall risk? Of these four questions, the first two were based on evidence-based fall risk screening tools, and the latter two questions were asked to ensure that patients were included who are more or less motivated to participate in a pharmacy-led fall prevention service.[5,25,30]

Patients at increased risk of falling were offered a fall consultation conducted by the pharmacy technician. The fall consultation consisted of a fall risk assessment and accompanying interventions e.g., patient education on fall risk factors (e.g., mobility, vision/hearing, incontinence) and referral to other health care workers (e.g., optometrists or physiotherapists) when appropriate. The fall consultation was followed by a quick check whether the patient used FRIDs by the pharmacist. Subsequently, if needed, a comprehensive medication review was performed together with the general practitioner focusing on deprescribing FRIDs (Fig. 1).

2.3. Interviews

All patients agreed on participating in the interview at the time of participating in the fall prevention service. Therefore, one month after inclusion in the study, all patients who participated in fall consultations were approached by telephone to be interviewed. Interviews were performed by telephone, and tape recorded, by postgraduate researcher (MG) or a master student (NK; JB).

2.3.1. Development of the interview guide

The Consolidated Framework for Implementation Research (CFIR) was used to inform the interviews.[31] The CFIR consists of 5 domains. Patients were not expected to contribute information to the CFIR domains 'inner setting' and 'process', these domains were left out. Therefore, the main topics were based on the following three domains from the CFIR: intervention characteristics, outer setting, and characteristics of individuals.[31]

This led to the following three main topics for the interview guide (supplementary information S2): outcomes (CFIR domain: intervention characteristics), patient's motivation (CFIR domain: outer setting), and contact with the pharmacy technician (CFIR domain: characteristics of individuals). The first main topic "outcomes" was divided in the following subtopics: experience with mediation check/review; behavioral change; awareness; referral. The second main topic "patient's motivation" was divided in the following subtopics: motivation to follow recommendations; motivation to participate. The third main topic "contact with the pharmacy

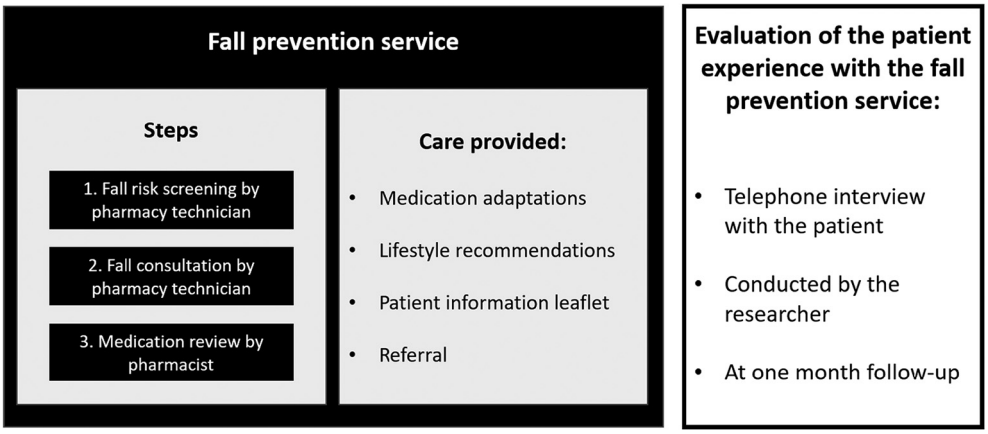

Fig. 1. An overview of the steps and interventions of the fall prevention service. One month after their participation in the fall prevention service, patients were interviewed about their experience by telephone.

technician" was divided in the following topics: experience regarding the contact; expertise of pharmacy technician.

2.4. Data analysis

All interviews were audio-recorded and transcribed verbatim and imported in NVivo version 12 software. A topic list, prepared in advance and based on CFIR as described above, was used to guide the coding of the interviews (themes were pre-conceived). Three quarters of the interviews were coded by both a master student (NK/JB) and a female researcher and community pharmacist (MG), and a quarter was only coded by MG. This last quarter was reviewed by an experienced female researcher with a background in pharmacy health services research (EK). Possible discrepancies were resolved through discussion or submitted to a third male researcher (MB).

2.5. Ethics and confidentiality

The study protocol was approved by the Institutional Review Board of the Division of Pharmacoepidemiology and Clinical Pharmacology, Utrecht University (reference number UPF2007). Data were collected between September 2020 and September 2021.

All patients gave written consent at time of participation in the fall prevention service. Before start of the interview, the patient's oral consent for audio-recording was obtained. Participants' names were replaced by participant numbers in the transcripts to ensure anonymity.

3. Results

3.1. Background characteristics

Of the 91 patients who received a fall consultation, 87 patients were interviewed (Table 1). The median age of the participants was 78.0 years old (first quartile [Q1] – third quartile [Q3]: 74.0–84.75) and 46.3% were female. Interviews lasted an estimated 20 min.

3.2. Patients' experiences with the delivery of the pharmacy-led fall prevention service

Patients' experiences with the fall prevention service are illustrated in Table 2. In the following paragraphs their experiences are summarized according to three main topics: outcomes, patient's motivation, and contact with the pharmacy technician.

3.3. Outcomes

3.3.1. Medication review

Many patients mentioned they appreciated that their medication was evaluated, particularly that the pharmacist reassured that their medications were necessary, safe, and tailored to their needs and conditions. A few patients, whose medication was adjusted, reported experiences of relapse of their condition e.g., hypertension. One patient experienced severe relapse symptoms after an opioid rotation. Some patients were glad that their medication had not been changed. They believed medication discontinuation was unfavorable, because of absence of adverse effects, necessity of medication, and confusion caused by modifications.

Table 1
Background characteristics of the study population.

PATIENT CHARACTERISTICS (N = 87)	
Age in years (median [Q1–Q3]	78.0 (74.0–84.75)
Female gender (N, %)	42 (48.3%)
≥ 1 fall experience(s) in the past year?	
Yes (N, %)	54 (62.1%)
No (N, %)	32 (36.8%)
Not sure (N, %)	4 (4.6%)
Afraid of falling?	
Yes (N, %)	39 (44.8%)
No (N, %)	38 (43.7%)
Not sure (N, %)	13 (14.9%)
Number of dispensed medications (median [Q1–Q3])	10.0 (7.0–12.0)
Number of dispensed FRIDs (median [Q1–Q3])	4.0 (3.0–5.0)

3.3.2. Behavioral change

Most participants indicated they had not changed their behavior after participating in the fall prevention service e.g., regarding exercise, footwear or home safety. Reported reasons to continue same behaviors were a perceived a low fall risk, adaptations to prevent falls that had already been made previously, and perceiving fall risk as an established phenomena that cannot be modified.

There were some patients who reported they changed behavior after participating in the fall prevention service. They mentioned for example use of vitamin D, exercising more, a visit to the shoemaker for a check-up of shoes, and checking their homes carefully for home environmental hazards.

3.3.3. Awareness: fall risk

A part of the patients indicated that by participating in the fall prevention service they became aware of their increased fall risk. Despite that most patients did not significantly change their behavior, patients reported that they got more cautious. Not all patients became more aware of their fall risk e.g., because they indicated that fall prevention was not applicable to them.

3.3.4. Awareness: risk of medication use

A part of the participants indicated that they became more aware of the risks of their medication use by participating in the fall prevention service. A few reported they had been questioning the appropriateness of their medication already for a long time. Others reported that their believes about their medications did not change e.g., because of absence of adverse effects or having trust in health care providers prescribing the correct medications, and necessity of medications for the treatment of their conditions. Even after participation, most patients continued believing that their medications could not increase their risk of falls.

3.3.5. Referral

Only a few patients indicated they had been in contact with another health care provider in response to the service. These patients were referred by their general practitioner, as a result of a discussion between the GP and pharmacist during the medication review. One patient was referred to a geriatrician and the geriatrician referred her to a physiotherapist. Two more patients indicated they were referred to a physiotherapist.

Some patients, to whom physiotherapy or home care was already provided, mentioned to discuss fall prevention with them, whilst others to whom such care was provided, reported that they have never discussed fall prevention with them.

3.3.6. Knowledge on fall prevention

Most of the patients indicated that their knowledge on fall prevention did not increase by participating in the fall prevention service. One patient mentioned that the only thing he learned was that he could approach the pharmacy if he had questions about fall prevention and medication.

3.4. Patient's motivation

3.4.1. Motivation to participate

Patients had different reasons for participating in the fall prevention service. A minority was specifically interested in fall prevention. Some patients participated under the guise of "better safe than sorry", as it might turn out that they were at risk of medication-related falls. A part of the patients was specifically interested in their medication being reviewed or they hoped

Table 2
Patients' experiences with the provided fall prevention service.

CFIR Domain / Topic	Subtopic	Patient's experience
Intervention characteristics / Outcomes	Medication review	*"I am using less now. […] I think that if I would not have participated in the fall prevention service, I would still have been using the same medications."* Pharmacy 3, Patient 10, 85-year-old man *"I had a tablet for blood pressure and a diuretic and the diuretic has been withdrawn. This week my blood pressure was measured, but it was too high. And then I think: 'give me back the old one.' But they give me a new drug."* Pharmacy 3, Patient 9, 74-year-old woman
	Behavioral change	*"I just never think about such things as falls. I am happy and physically healthy."* Pharmacy 2, Patient 1, 88-year-old man *"The recommendations about calcium and vitamin D intake, and going outside, exercising, I took these advice. Because of this I go to a sort of bicycle-gym now."* Pharmacy 4, Patient 4, 74-year-old woman
	Awareness: fall risk	*"I started thinking about it and I came to the conclusion that I need to pay attention to fall prevention for myself."* Pharmacy 9, Patient 1, 74-year-old woman *"I started thinking more about falling, but it is not really applicable to me, because I have been doing sports all my life."* Pharmacy 5, Patient 3, 79-year-old man
	Awareness: risk of medication use	*"Well, I have been thinking different about my medication for a long time. I think: six years of the same medication? Has my body not been changed during that time?"* Pharmacy 3, Patient 12, 78-year-old woman *"The general practitioner and pharmacist told me: 'you really need those'. Thus, I did not start thinking differently about my medications. Because I feel that I am only using what I need and nothing unnecessary. I have accepted that, and I am satisfied with it."* Pharmacy 3, Patient 17, 65-year-old man
	Referral	*"After participating in the fall prevention service, I went to the general practitioner for my annual examination. He screened me and he told me the same, that I could go in therapy for fall prevention. In the same building of the pharmacy and general practice, there is a physiotherapist. […] Then I went there for a conversation about fall prevention."* Pharmacy 8, Patient 1, 73-year-old man *"I visit a physiotherapist, but this is because I had COVID-19. For the longs, I need to have physiotherapy, but not for fall prevention."* Pharmacy 3, Patient 20, 73-year-old woman
Outer setting / Patients' Motivation	Following recommendations	*"It depends on what kind of recommendations they give, because I'm old but also critical, so they should not tell me: 'Mind the steps, because you may fall'. […] They don't need to tell me that. I know that. When there is a doorstep, then I see that, I also got eyes in my head."* Pharmacy 3, Patient 21, 65-year-old woman *"Recommendations were not given to me, but I mean, I don't have problems with experiencing falls. So, there is nothing for them to recommend to me."* Pharmacy 8, Patient 4, 78-year-old man
	Motivation to participate	*"Well, I am also 82 years, and I thought: 'when would that happen to me?' That's why I was 100% motivated to participate."* Pharmacy 3, Patient 25, 81-year-old man *"Of course, I also belong to the category of persons who are afraid of falling, are dizzy sometimes, and that I need to grab walls for stability. That's why I participated, maybe that it could bring me relief or progression in some aspects."* Pharmacy 6, Patient 3, 86-year-old man
Characteristics of individuals / Contact with pharmacy technician	Experience	*"She listened well; the questions were clear. I did not think: 'what do you mean?' It was all very well"* Pharmacy 3, Patient 3, 75-year-old woman *"Some questions were quite simple for me, and it made me think: 'well, are you really asking that?' But well, I understand that one needs to ask the questions in a manner that everyone can answer them."* Pharmacy 9, Patient 3, 74-year-old woman

medication to be deprescribed. At last, some patients wanted to support the research project, some were just curious, and some participated just because they were invited.

3.4.2. Following recommendations

Most patients indicated they did not receive nor could remember any given recommendations by the pharmacy technician. They reported that recommendations were not discussed with them, that they did not need them, or that the recommendations were already known. A minority of the patients reported to be motivated to follow the recommendations given by the pharmacy technician.

3.5. Contact with the pharmacy technician

All participants reported a good experience regarding the conversation held with the pharmacy technician. They appreciated the attention and were satisfied those questions were clearly explained. A minority of the patients had some comments on the conversation. For example, a few patients mentioned that they expected that the pharmacy would be faster in contacting them about outcomes of their medication review. Also, a few patients reported that they had the experience that instead of having a conversation, the pharmacy technician was ticking off answers from a questionnaire.

4. Discussion

Patients were primarily positive about the community pharmacy-based falls prevention service, predominantly about the medication review that reassured them they have the correct medications prescribed. They appreciated the attention that was given to them and reported that they became more aware of their fall risk. Regardless of the efforts of pharmacy technicians to motivate patients to adapt their lifestyle during the fall consultations, most patients reported that they had not followed these recommendations.

Patients have previously reported that, with regard to fall prevention, they expect from pharmacists to focus on medication-related interventions.[24] It could be assumed that, in order to motivate patients to accept health care interventions, there is a need for sufficient clinical expertise.[32] Due to the multicausality of falls, clinical expertise covering all fall risk factors may only be guaranteed by working interprofessional.[33–37] This might also explain the engagement of patients in our study towards receiving a medication review, as patients consider pharmacists have sufficient clinical expertise of medication use.

An important finding of our study was that patients indicated that their fall risk awareness had increased. In order to decide to act on fall prevention, patients need to be aware of their own fall risk.[38–41] This could motivate them to adapt their behavior to prevent falls. Nevertheless, the motivation among participants to change behavior was limited. A previous

study reported that educating patients on fall prevention had only limited effect on engaging patients to fall prevention and that patients were often unable to recall recommendations.[42] It thus may be a challenge to engage patients in fall prevention education, as it often appears that it is hardly accepted by older people.[42,43] This is in line with that the finding that patients in our study were unable to recall recommendations that were given to them. Multiple patient-provider interactions may be needed to change patients' behaviors.[44]

Interestingly, most pharmacists who were involved in this study, as they had performed the medication reviews, felt that their patients were largely motivated to follow recommendations given by pharmacy technicians.[25] This is contrast to the patients' perspectives in this study, which indicate a low adherence of patients to the lifestyle recommendations. In a previous study, however, physiotherapists have indicated that their patients might give socially desirable answers about their adherence to exercise-based fall prevention programs, making it difficult for them as health care providers to determine whether their patients are following the recommendations. In correspondence to the findings of our study, physiotherapists have therefore indicated a low adherence to exercise programs, thus poor motivation of their patients to follow recommendations.[45]

Evidence suggests that multifactorial fall prevention programs including medication reviews, are effective in reducing falls.[46] However, a lack of effectiveness has been described previously in a few settings of multifactorial fall prevention programmes.[47,48] In these studies, the lack of effectiveness had been attributed to several factors including study populations e.g., relatively younger or less vulnerable populations. Also, in Dutch healthcare settings fall prevention services have already been implemented to some extent in primary care settings, such as at GPs. Therefore, the fall prevention programs possibly had limited benefit to these and our settings.[47–49] Also, a lack of patient compliance to the fall prevention program could have resulted in a lack of effectiveness in these studies.[47,48]

To promote uptake of patient-centered interventions, patient engagement in healthcare interventions should be evaluated regularly as should novel approaches.[50,51] In previous studies, patients seemed more engaged in fall prevention interventions that demand minor adjustments than interventions that request major adjustments.[52] This might explain why patient seemed more engaged in the medication review, that most often demanded minor adjustments, compared to other fall prevention interventions, such as exercising and modification of home environment, which generally requires major adjustments. On the other hand, a recent nurse-led pragmatic falls prevention trial in the US, showed that a medication review and accompanied deprescribing was only seldom prioritized by the participants.[53] Possibly, the explanations of this differing outcomes between the studies can be explained by the setting and the professionals providing the services. Patients may have different expectations, trust and beliefs depending on which professional leads the service, as in our case, the patients expected a medication review from their pharmacists and trusted their judgement.

To ensure the multifactorial approach that is essential in fall prevention, pharmacists should be recommended to work interprofessional.[5] In such an interprofessional team, pharmacists should be responsible for the medication management. Physiotherapists, home care nurses and practice nurses have recently indicated to be open for collaboration with community pharmacists in fall prevention.[14] These healthcare providers specifically indicated that they lack knowledge about how to identify and adjust the use of FRIDs and they hope that collaboration with pharmacists helps them to solve this.[14,37]

If community pharmacists would like to extend their role in fall prevention services beyond the identification and monitoring of FRIDs, education of pharmacy staff is needed. Patient engagement in pharmacy-led fall prevention activities might enhance when pharmacy technicians' skills are advanced. For instance, pharmacy team members could be offered trainings in motivational interviewing as communication method as such skills have been shown to be effective to encourage patients to change behaviors to prevent falls in physiotherapy and hospital settings.[54,55]

4.1. Strengths and limitation

The most important strength of this study was that the qualitative evaluation with patients was an indispensable augmentation of the in-depth evaluation of the implementation process of the pharmacy-led fall prevention service.[25] By interviewing patients, we could investigate their behavioral changes and engagement in fall prevention, and those are essential for ensuring effectiveness of fall prevention services. Altogether, the evaluations aid the formulation of implications for implementation on a larger scale. Another strength was the high participation rate. Data saturation was not determined, since all participants of the fall prevention service were invited to participate in the follow-up. A limitation of this study was that the purpose of CFIR is to underpin implementation research studies and it fits less well to exploring patient perceptions, as two domains needed to be left out. As this study was an augmentation to the aforementioned implementation research,[25] the authors determined that application of CFIR was justified in order to guarantee consistency in applied evaluation frameworks in both studies. Furthermore, the CFIR is a widely used framework in implementation research and ideal to investigate barriers and facilitators explaining the implementation outcomes.[56,57] At last, the fall prevention service was implemented in nine Dutch pharmacies, including both urban and rural settings. However, the findings might be less applicable to settings where pharmacy practice is organized differently.[58]

The accurate fall risk of patients in our study has not been determined. The interventions of our implemented pharmacy-led fall prevention service are less applicable to patients with a low fall risk. Many patients in our study, however, reported that they perceived a low fall risk. On the other hand, based on their background characteristics, most of them could possibly be classified as being at moderate or high risk of falls (62.1% of the patients reported a history of falls and all were polypharmacy patients). As underestimation of one's own fall risk is common among older patients,[3,59,60] participants might have been at high risk of falls after all. However, it has been shown that patients with a perceived low fall risk may also participate in fall prevention programs.[3]

5. Conclusion

Patients see benefit from a community pharmacy falls prevention service and they stated that they wish that their pharmacists reassure them about the appropriateness and safety of their medication use. Correspondingly, they highly value a medication review aimed at reduction of fall-related adverse drug effects. Patient education on fall prevention, provided by pharmacy technicians, could be effective to make older patients aware of their fall risk.

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CRediT authorship contribution statement

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

Data statement

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

Declaration of Competing Interest

There were no conflicts of interest.

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Appendix A. Supplementary data

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