



What Makes Deprescription of Psychotropic Drugs in Nursing Home Residents with Dementia so Challenging? A Qualitative Systematic Review of Barriers and Facilitators

Amalie Elisabeth Moth¹ · Pernille Hølmkjær¹ · Anne Holm¹ · Maarten Pieter Rozing¹ · Gritt Overbeck¹

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Abstract

Background Behavioral and psychological symptoms of dementia are frequently experienced in the nursing home setting and place a substantial burden on patients, relatives, and nursing home staff. Despite guidelines recommending non-pharmacological treatments, psychotropic drugs are often prescribed to address these symptoms. This is the case despite their effects being limited, and there being a risk of side effects and adverse events for the patient. Several studies have aimed to reduce the use of psychotropic drugs, with varying results. The reasons behind these variations are not well understood.

Objectives The objective of this systematic review was to investigate which factors nursing home general practitioners and nursing home staff experience as barriers or facilitators when attempting to deprescribe psychotropic drugs in nursing home residents.

Methods We searched PubMed, EMBASE, psycINFO, Web of Science, and CINAHL between April and September 2020. An inductive method using thematic analysis of the qualitative findings was applied for the derivation of themes. Quantitative studies were included but described descriptively and separately.

Results Of 8204 unique records, 14 studies were included in the review. Of these, nine were interview or focus group studies and five were survey studies. Thematic analysis resulted in five major themes identified as either facilitators or barriers or both: (1) ‘Operationality and routines’; (2) ‘Lack of resources and qualifications’; (3) ‘Patient-related outcomes’, which points to a strong belief in negative patient-related outcomes of discontinuation and a downplay of side effects of the medication; (4) ‘Policies’, including support and buy-in from nursing home leadership; and (5) ‘Collaboration’ between physicians and nursing home staff. Themes 1 and 4 consist of facilitators. Theme 2 consists of barriers. Theme 3 and 5 consist of both facilitators and barriers. Evaluation of closed-ended questions from the surveys supported the findings.

Conclusions Deprescribing psychotropic drugs used for behavioral and psychological symptoms of dementia in nursing home residents is challenging. Resources need to be in place for deprescribing, as well as there being a focus on the positive patient-related outcomes of doing so. Managerial support, staff routines, and interprofessional collaboration are some factors facilitating the process, in addition to there being routines and systematic procedures in place allowing for operationality and a common understanding. Addressing these barriers and facilitators is necessary to ensure that deprescribing can be understood as meaningful and pursued among healthcare professionals in the nursing home setting.

✉ Pernille Hølmkjær
pernille.hoelmkjaer@sund.ku.dk

¹ Department of General Practice, University of Copenhagen, Copenhagen, Denmark

Key Points

When attempts are made to deprescribe psychotropic drugs to nursing home residents, there must be a clear extrinsic incentive.

A targeted collaboration, communication, routines, and systematic procedures are mandatory for successful deprescribing.

A lack of resources and qualifications, concern about symptom relapse, and staff tolerance of the side effects and adverse events associated with the drugs need to be overcome when attempting to deprescribe.

1 Background

Behavioral and psychological symptoms of dementia (BPSD) occur very frequently among nursing home residents with dementia [1]. Reports show that up to 90% of older persons with dementia experience one or more symptom(s) of BPSD within the course of the disease [2]. The symptoms may include anxiety, agitation, hallucinations, depression, and apathy. Despite various guidelines recommending non-pharmacological interventions for the management of BPSD [3–5], psychotropic drugs are frequently prescribed in nursing homes, although usage can vary between countries [6]. As these drugs often are prescribed in an attempt to alleviate the various symptoms of BPSD, they include a range of both antipsychotics, antidepressants, hypnotics, and anxiolytics. There is strong evidence that suggests, however, that antipsychotics have modest efficacy and are associated with cerebrovascular events and death [7–9]. Despite a relatively high use of benzodiazepines [10–13], evidence supporting clinical efficacy is very limited [14–16] and may be associated with a higher risk of falls, cognitive impairment, and sedation [17, 18]. Guidelines advise against a range of antidepressants, especially those with anticholinergic effects, because of side effects and adverse effects [19]. Additionally, selective serotonin reuptake inhibitors have previously appeared to improve BPSD, but recent systematic reviews have demonstrated a limited effect [20–22]. Nursing home residents with cognitive impairment treated with antipsychotics are often prescribed drugs potentially interacting with these agents [23], and psychotropic polypharmacy seems to increase the risk of serious adverse events [24]. Considering the risk of drug–drug interactions and possible adverse events, psychotropic polypharmacy in this vulnerable population is rightfully of great concern. An American

study found that the majority of the prescribed drugs for nursing home residents were initiated in the nursing home [25].

Deprescribing is the planned process of withdrawing medication under supervision, to improve the health of a patient or to reduce the risk of side effects or adverse events associated with the drug. When conducting medical chart reviews with a cognitively healthy patient, it normally happens as a face-to-face consultation where risks and benefits can be weighed against each other and a common decision made. In the nursing home setting, however, and when the patient has cognitive impairment, additional people are involved in the process of deprescription. A physician has the main responsibility for prescribing, but other licensed prescribers may also be involved in the process depending on the country and region. Typically, nurse assistants manage the patients' daily care and observe possible changes in mood or behavior. Furthermore, relatives may be included in the process as they have an intimate and long-term knowledge of the resident, even if the patient is not incapable. If the patient is incapable, which may be the case for most residents in nursing homes, the legal guardian must be included in the process as well. Deprescribing psychotropic drugs in nursing home residents is, therefore, a complex process involving a number of people with possibly conflicting opinions and needs.

Over the last decades, several studies have aimed to reduce psychotropic drugs in patients with dementia, usually through complex interventions, with varying degrees of success [26, 27]. Systematic reviews point towards barriers to the implementation of complex interventions [28], and influences on decision making with regard to the prescription of antipsychotics have been assessed [29]. To our knowledge, however, no systematic review has yet investigated health professionals' experiences of barriers and facilitators in the deprescription process for psychotropic medication in the nursing home setting [30]. The aim of our study is to identify barriers and facilitators experienced by health professionals when trying to deprescribe psychotropic drugs in nursing home residents with dementia.

2 Methods

2.1 Search Strategy and Sources

To address our aim, we developed a comprehensive search strategy in collaboration with an information specialist to identify all available original research studies on the subject. The standards for enhancing transparency when synthesizing qualitative research (ENTREQ) were used to guide the reporting of the review.

First, we made a list of possible key terms according to our P.I.C.O. (Patient, Intervention, Control, and Outcome) [31]. We identified four concepts essential for the search: “residential facility,” “dementia,” “central nervous system agents,” and “deprescribing”. We applied no restrictions in terms of study design. We conducted preliminary searches from April through September 2020 with all four words and synonyms. We then looked at the relevant articles and references lists to find additional words not included in our first search by looking at the titles and abstracts of the first approximately 200 articles in PubMed. In collaboration with the information specialist, we reduced the terms to “Residential Facility,” “Dementia,” and “Central Nervous System Agents,” conducting the final search including these three terms both as subject headings and title/abstract (see the Electronic Supplementary Material [ESM] for the search string). We searched the following databases on the 17 September, 2020: PubMed, EMBASE, psycINFO, Web of Science, and CINAHL. No restrictions on year of publication, language, or types of studies were included in the search strategy. We manually searched the references list of all included studies to make sure no relevant articles were missing from the search.

2.2 Study Selection

One author (AEM) conducted a preliminary screening, identifying and removing duplicates as well as discarding articles obviously not meeting the aim of our research question (e.g., animal trials, other psychiatric diseases), based on titles and abstracts. Two authors (AEM and PH) then screened the remaining articles separately according to the inclusion and exclusion criteria (see below). If no abstract was available, and the title was of interest, the full text was screened. After having reached an agreement upon which articles to read in full text, the two authors independently assessed the selected studies. If a full text was unavailable, the first author was contacted. Any discrepancies were resolved through a third author (GO).

To be included, studies had to be original qualitative, quantitative, or mixed-method research and had to explore general practitioners’, nursing home physicians’, and/or nursing home staff experience with the discontinuation or reduction of psychotropic drugs for residents with dementia living in nursing homes. We included qualitative research (interviews, focus groups, observational studies) and questionnaires with open-ended questions. Closed-ended questions in questionnaires were included when reporting on barriers and facilitators, and reported descriptively even though the methodology was quantitative. Studies were only included if in English, Danish, Swedish, or Norwegian. No limitations on year of publication, study design, or language was included in the search strategy. Studies addressing only

the initiation and continuation of psychotropic drugs were also excluded.

2.3 Quality Assessment

One author (AEM) examined all the qualitative studies that were included and assessed their levels of transparency; they followed the consolidated criteria for reporting qualitative research (COREQ) [32]. The term ‘transparency’ refers to actions to ensure comprehensiveness in the analytical work, in such a way that facilitates the evaluation of the validity of the presented evidence by those who were not involved in the analyses. Transparency implies openness, communication, and accountability. The COREQ checklist consists of three domains, and addresses three aspects of the studies: (1) research team and reflexivity; (2) study design; and (3) analysis and findings. Studies were assessed upon the information provided in the articles and available supplementary material. Another author (PH) assessed the included survey studies using the Burns’ [33] assessment tool for survey reports. The tool includes seven main items, and 22 sub-items, concerning the following: research question, study population, development, testing and administration of the surveys, response rates, and results.

Questions arising during the process were discussed with a senior researcher (GO). Studies were neither excluded nor their results given more emphasis during the following analysis based upon the COREQ or Burns’ assessment.

2.4 Data Extraction and Synthesis of Results

Thematic analysis is a recognized and widely used method for identifying, analyzing, and reporting patterns (themes) within qualitative data [34] and was applied for the meta-synthesis. Data were extracted from the results of the interview studies and the open-ended section of the questionnaires. The aim of this review was exploratory, which made it relevant to apply an inductive method. No ‘a priori’ theory or framework was used. First, two authors (AEM and PH) independently performed a pilot coding on one article to identify and agree upon barriers and facilitators relevant to the research question of this review. The other articles were then coded independently by the same authors according to those factors. The coding and analysis of each of the articles were then discussed, and potential themes were developed. Only topics with a considerable prevalence, both in terms of significance across all studies and within each study, were classified as themes. The aim of the analysis was to provide a rich thematic description of the predominant or important themes in this field of research that is not well understood. A third senior, researcher (GO) supervised the entire process and facilitated review and refinement of the developed themes. Additional findings from the surveys

containing closed-ended questions were extracted and reported separately.

3 Results

3.1 Study Selection

A flow chart of study selection is seen in Fig. 1. The search identified 14,983 references, of which 6779 were identified as duplicates. Screening of titles and abstracts resulted in the selection of 179 articles for a full-text assessment of eligibility. For five articles, the full texts were not available and the first author was contacted, though we received no replies. Out of the 179 articles, 165 were excluded, mainly because of (1) not explicitly focused on deprescribing (n

= 52), (2) not an original study ($n = 37$), (3) not explicitly focused on barriers/facilitators ($n = 22$), or (4) more than one of the mentioned ($n = 30$); 14 were included in our final review. The references within those articles were also checked for potentially eligible articles, though no new studies were identified.

3.2 Study Characteristics

Table 1 shows the characteristics of the 14 studies we included; the majority were from the USA ($n = 5$) and Australia ($n = 3$). The rest were from Ireland ($n = 2$), the UK ($n = 2$), Belgium ($n = 1$) and The Netherlands ($n = 1$). Nine of the 14 studies were interview studies using semi-structured interviews, with the exception of two studies using focus group(s) [35, 36]. Five of the studies were survey studies

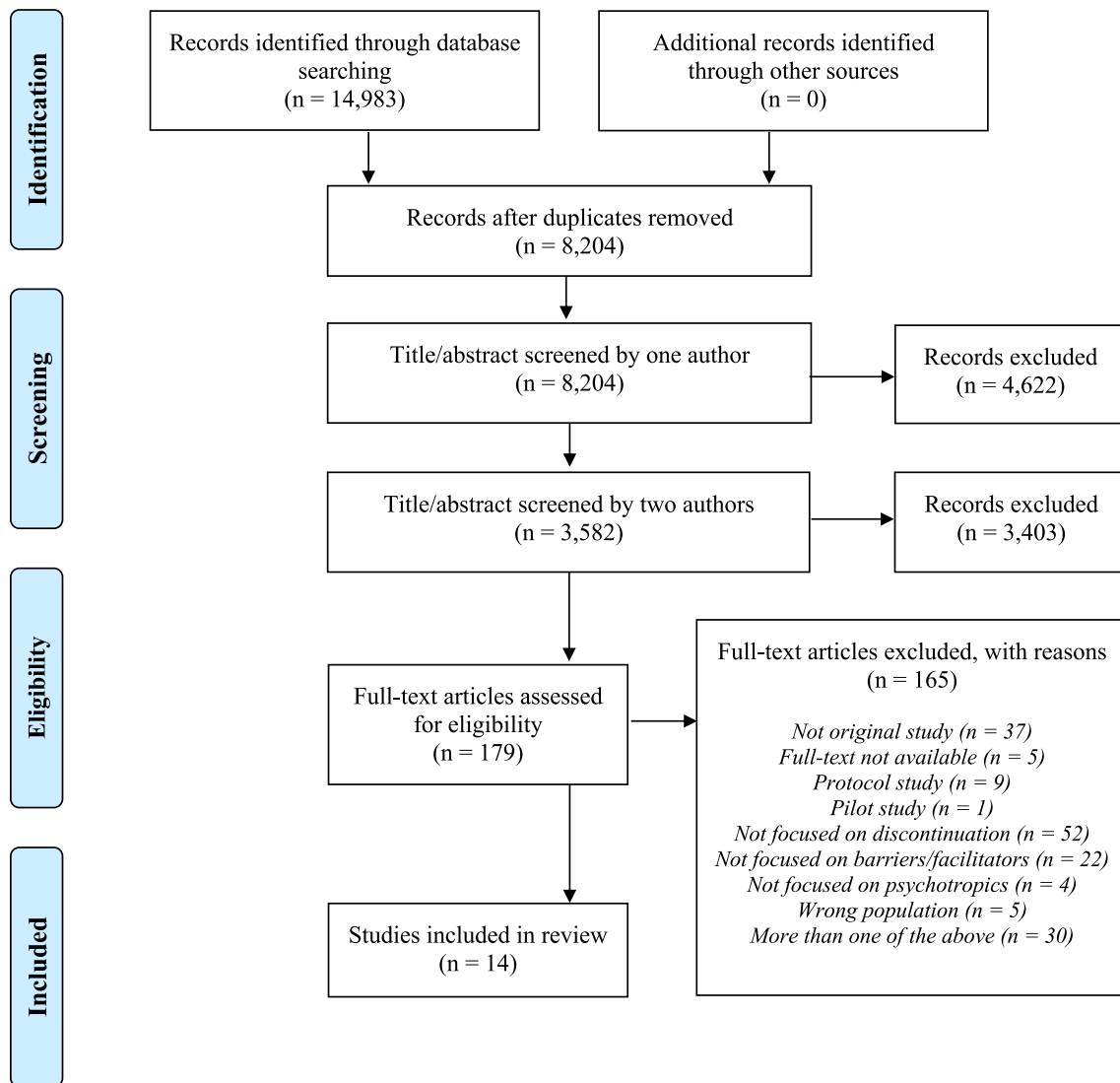


Fig. 1 Flow chart of study selection

Table 1 Study characteristics

First author with reference	Year of publication	Country (ISO 3)	Study objectives	Study description	No. of participants	Description of participants	Methodology and analysis
Abrahamson et al. [41]	2020	USA	To compare the implementation of a psychotropic medication reduction project across two types of residential long-term care settings	Qualitative evaluation of intervention study In-person and telephone interviews	62	31 project leaders (mostly nurses), nursing assistants, activities directors, administrators, and other personnel from nursing homes and assisted living facilities	Comparative case study approach and consolidated framework for implementation research
Almutairi et al. [46]	2018	GBR	To develop an in-depth explanatory model about inappropriate prescribing of antipsychotics in dementia within care homes	Qualitative interviews	28	5 psychiatrists, 2 geriatricians, 5 general practitioners, 5 care home managers, 7 community psychiatric nurses, 2 primary care pharmacists, 1 memory clinic nurse, and 1 social worker from care homes (defined as nursing homes or residential homes)	Constructivist grounded theory, themes explained using the paradigm model
Azermai et al. [36]	2013	BEL	To investigate the willingness of nurses and general practitioners as well as the barriers to undertake antipsychotic discontinuation	Survey Closed-ended questions	41	28 general practitioners and 13 nurses returned questionnaires answering case-specific questions regarding 113 identified nursing home residents taking long-term antipsychotics	Expert meeting (survey development) Statistical analysis
Cousins et al. [37]	2020	AUS	To identify factors influencing the prescribing of psychotropic medication by general practitioners to nursing home residents with dementia	Survey Closed-ended questions	177	General practitioners with nursing home patients under their care	Statistical analysis
Crystal et al. [42]	2020	USA	To assess the impact of state and facility initiatives during a national campaign aimed at encouraging more judicious prescribing of antipsychotics	Qualitative semi-structured interviews	40	30 nursing home staff (primarily Directors of Nursing, activities staff, social services staff, and nursing staff) and 10 prescribing physicians	N/A

Table 1 (continued)

First author with reference	Year of publication	Country (ISO 3)	Study objectives	Study description	No. of participants	Description of participants	Methodology and analysis
Dhuny et al. [40]	2020	IRL	To explore the knowledge, attitudes, and opinions of general practitioners regarding the prescribing of psychoactive drugs in managing behavioral symptoms of dementia	Survey Closed-ended and open-ended questions	168	General practitioners, 62.5% of whom had a nursing home commitment	Statistical analysis
Ellis et al. [39]	2014	USA	To examine qualitative data to explore implemented strategies, to assess which strategies are evidence based, and to make recommendations to improve upon practices to reduce antipsychotic use	Survey Closed-ended and open-ended questions	276	Nursing home staff members: 109 Directors of Nursing, 95 nursing home administrators, and 65 other titles (counting social workers, managers, nurses, consultants, minimum data set coordinators)	Statistical analysis of closed-ended questions Theme-based content analysis of open-ended questions
Flesner et al. [35]	2019	USA	To share the quality improvement efforts to reduce antipsychotic use in nursing home residents in a federally funded initiative that used full-time advanced practice registered nurses embedded in 16 nursing homes in Missouri	Qualitative evaluation of intervention study One focus group	11	Advanced practice registered nurses from nursing homes enrolled in the initiative	Qualitative analysis, not further specified
Mavrodaris et al. [38]	2013	GBR	To investigate antipsychotic prescribing practices and patient review at the primary care level and in care homes	Survey Closed-ended and open-ended questions	88	60 general practitioners and 28 care home staff	Analysis of closed-ended questions N/A Thematic analysis of open-ended questions
Sawan et al. [44]	2016	AUS	To identify key visible components related to the use of psychotropic medicines in nursing homes	Qualitative semi-structured interviews	40	23 on-site and 17 visiting staff from 8 nursing homes (managers, registered nurses, enrolled nurses, nursing assistants, general practitioners, a specialist medical practitioner, and pharmacists)	Thematic analysis

Table 1 (continued)

First author with reference	Year of publication	Country (ISO 3)	Study objectives	Study description	No. of participants	Description of participants	Methodology and analysis
Sawan et al. [43]	2017	AUS	To explore the key dimensions of an organizational climate and their subsequent influence on the use of psychotropic medicines	Qualitative semi-structured interviews	40	23 on-site and 17 visiting staff from 8 nursing homes (managers, registered nurses, enrolled nurses, nursing assistants, general practitioners, a specialist medical practitioner, and pharmacists)	Thematic analysis and Schein's theory of organizational culture
Simmons et al. [34]	2017	USA	To use qualitative methods to explore nursing home staff perceptions of antipsychotic use and identify both benefits and barriers to reducing inappropriate use from their perspectives	Qualitative focus groups	29	Staff from 3 nursing homes: 11 licensed practical nurses, 4 registered nurses, 4 social workers, 2 facility administrators, 2 nurse practitioners, 2 directors of nursing, 3 certified nursing assistants, 1 assistant director of nursing, and 1 mental health intern	N/A
Smeets et al. [47]	2014	NLD	To explore factors that elucidate reasons for psychotropic drug prescription for neuropsychiatric symptoms in nursing home residents with dementia	Qualitative semi-structured interviews	29	General practitioners and staff from 12 nursing homes (15 physicians: mostly elderly care physicians, 1 resident in elderly care medicine and 1 medical director, and 14 nurses: 4 registered nurses, 9 certified nurse assistants, and 1 nurse assistant)	Grounded theory
Walsh et al. [45]	2018	IRL	To explore the determinants of appropriate, evidence-based antipsychotic prescribing behaviors for nursing home residents with dementia, with a view to informing future quality improvement efforts and behavioral change interventions	Qualitative semi-structured interviews	27	8 nurses, 5 general practitioners, 5 healthcare assistants, 3 family members, 2 pharmacists, 2 consultant geriatricians, and 2 consultant psychiatrists of old age. All involved in the care of patients with dementia from 4 nursing homes	Framework analysis, themes derived using theoretical domains framework

AUS Australia, BEL Belgium, GBR Great Britain, IRL Ireland, NLD The Netherlands, N/A not applicable

using either closed-ended [37, 38] or a combination of closed-ended and open-ended questions. The surveys were reported dichotomized [39, 40], with multiple choice questions [40, 41], or using Likert scale questions [37–41] and the open-ended questions used either a thematic analysis [39, 41] or a content analysis [40]. Out of all 14 studies, two were process evaluations [36, 42].

The organization and terminology of long-term facilities were found to differ between countries, and are reported in Table 1. We will, henceforth, use the term nursing home for all facilities.

There was variety among the studies' aims. Five studies aimed at directly identifying barriers and facilitators to reducing or deprescribing [35–37, 40, 43], while the remainder focused more broadly on strategies to reduce or implement the more appropriate prescription of psychotropic drugs including deprescribing.

3.3 Quality Assessment

The explicitness and comprehensiveness of the nine interview studies were assessed using the COREQ checklist [32] (see ESM). A substantial heterogeneity in reporting items was found between studies, with a range of 4–29 (out of 32) reported items with both a median and mean of 16. The domain in which transparency (openness about the analytical process) was found to be most lacking was the research team and reflexivity; not a single study stated the occupations of the research team members. Three studies lacked proper clarification of the methodological orientations and theories underlying them. [35, 36, 43]. Three studies did not identify used quotations sufficiently, [36, 42, 43] while one study failed to identify those quotations at all [35].

The five surveys were assessed using the Burns' guide to appraisal of survey reports [33] (see EMS). Overall, the response rates varied from 21 to 45%. Some homogeneity was found with a ranking range of 12–17 and a single study ranking 22 (out of 29) [41]. The items concerning results were the most transparent, while the items concerning development of the survey were the most non-transparent. Furthermore, testing and administration of the surveys were also under-reported; in only two studies was it possible to retrieve the questionnaire [39, 41].

3.4 Synthesis of Results

Across the 14 studies included in the review, we identified five major themes in total, which encompassed the main barriers and facilitators associated with deprescribing in nursing homes. The themes presented below are synthesized based on all qualitative results from the included interview studies and survey studies with open-ended questions.

3.4.1 Operationality and Routines

Routines and systematic procedures for reviewing psychotropic drugs in nursing homes served as a facilitator to discontinuing or reducing inappropriate use [35, 40, 43–46]. Analysis showed that routines can facilitate deprescribing in two different ways. First, routines and systems can facilitate operationality [44, 45]. In a busy work context, routines and reminders may help facilitate a focus on psychotropic drugs and instigate reduction:

“We need to monitor benzodiazepines, and the medication review (RMMR [residential medication management reviews]) helps that happens every 12 months... if something is dropped off our radar, it's picked up at another level” [Nursing home 4, manager] [45]

Routines could also facilitate deprescribing by providing a common understanding between health professionals. Reports of pharmacists' recommendations could provide nursing home staff and general practitioners with a tool for change; the act of providing nursing home staff with results from reports of prescribing data could also support further monitoring with the goal of reduction [40, 43–46]. Among some nursing home staff, routine reduction had even become part of a common mentality [35]:

“That is the routine ... If we're just not sure why they're taking it, reduction is going to start [immediately]” [35]

3.4.2 Lack of Resources and Qualifications

A lack of various resources to enable discontinuation was reported as an important barrier [35, 36, 39, 40, 42–48]. It was frequently reported that staff lacked the time needed to enable the use of non-pharmacological treatments [35, 39, 43, 44, 46], and that the education of relatives was required to ensure their support in the deprescribing process [35, 43]:

“Staff often reported feeling frustrated as the care that should be provided is not being given due to insufficient staff hours, insufficient staff, lack of specialized training; because they only had minimal basic training and because they found it difficult to deal with increased care needs” [Nursing home 8, registered nurse] [44]

A lack of time for the general practitioner to perform a thorough drug review was also mentioned [47]. Another factor reported was appropriate facility environments deemed necessary to address the perceived worsening of

BPSD following discontinuation [35, 46]. However, in one article, staff reported a lower workload following deprescribing because of less sedation [36].

Furthermore, both general practitioners and nursing home staff reported that they lacked the different types of qualifications necessary to enable deprescribing [36, 39, 42, 43, 46, 48]. General practitioners expressed a lack of expertise concerning medications in the area of dementia care, and a lack of possible alternatives when faced with nursing home staff's demands [46]. This made them reluctant to change the medication that other physicians had initiated on their own [39, 47, 48]. Nursing home staff felt a need for more training to ensure quality care for patients with dementia [42, 43, 46, 48].

General practitioners also reported that nursing home staff lacked qualifications in handling patients with behavioral difficulties due to dementia, and they highlighted staff's lack of knowledge concerning the side effects of antipsychotics [46, 48].

“If you can tell someone what the potential complications [of antipsychotics] are, they may be a little bit less likely to ask for them” [general practitioner 1] [46]

The same concerns were reported by some nursing home staff, who saw a lack of education among general practitioners concerning appropriate dementia care [40, 42].

3.4.3 Patient-Related Outcomes

Another major theme was the influence of health professionals' and relatives' perceptions of the patient-related outcomes associated with deprescribing. The relatives' views were not explored first hand, but were reported by general practitioners and nursing home staff. On the one hand, there was concern about worsening symptoms, which came up when general practitioners, nursing home staff, and relatives were resistant to deprescribing [35, 36, 42, 43, 46, 48].

“Because you simply are afraid that the same behaviour will come back. And at that moment, you are actually glad someone is doing well. And then you think like, gosh, should you take the risk to stop and see the problems return?” (physician 12) [48]

General practitioners, nursing home staff, and relatives saw it as best practice that the patient remain taking the drug, owing to a perceived risk of a negative impact on quality of life [35, 42, 43, 46, 47].

On the other hand, positive effects of discontinuing antipsychotics were reported by nursing home staff and relatives [35, 36]. The concerns of the relatives could in some cases be a facilitator for deprescribing [45, 46]:

“There are some families that say, ‘you think it might be too much? Every time I come and visit, he’s just sleeping or is just not into it’. We say to them ‘if you are really concerned, then we will get the doctor to review it again’ [Nursing Home 1, nursing assistant]” [45]

It was found that staff expressed their opinion that minimization of an antipsychotic was preferable for the patient, and that they saw this minimization as their goal [35, 46]. Related to this was the belief general practitioners had in the efficacy of drugs, and their tolerance to the risk of side effects. This varied between general practitioners but did often act as a barrier to deprescribing [46, 47].

“But I have to say bearing in mind I’ve been using these drugs in this frail elderly age group, I don’t recall any of my patients being on an antipsychotic actually dying from stroke disease. So it’s in the books.” (general practitioner-26) [47]

3.4.4 Policies

The external willingness to, and focus on, deprescribing worked as a facilitator [35, 46, 48]. Such focus could take the form of national regulations [35, 46, 48] and rating systems for nursing homes being (partly) based on the prescription of inappropriate psychotropic drugs [35, 48], but also the negative view held by public opinion of antipsychotics in general [48]:

“I think HIQA [Health Information and Quality Authority] is brilliant ... Because I really think they force people to look at their practice, and to challenge their own practice and to change” (HCA1 [healthcare assistant]) [46]

According to nursing home staff, a rating system helped focus their energies on deprescribing because they wished to increase the quality rating of their nursing homes [35, 48]. Some also expressed concern, however, that this external pressure sometimes in reality resulted in worse care in nursing homes [43, 46, 48].

The policies in place at individual nursing homes have a substantial influence on their staff in general. If the manager expressed a goal of deprescribing and encouraged the nursing home staff to do so, this was found to facilitate deprescribing. The opposite was also true [35, 36, 42, 44].

3.4.5 Collaboration

Collaboration, communication, and the acknowledgement of the valuable contributions made by the different professionals deeply influenced the deprescribing process [39, 43–46, 48]. The different health professionals were each found to

be capable of contributing to or hindering deprescription when they collaborated [39, 43–46, 48]. General practitioners regarded resistance from nursing home staff as a barrier to discontinuation, this was described as something that put pressure on them to use antipsychotics in treatment plans [39]. At the same time, however, nursing home staff found general practitioners reluctant to reduce psychotropic drugs [39]. Some nursing home staff reported how they were not included in the decision making concerning medication changes for patients, owing to there being a strict hierarchy in place [44, 46]. Some general practitioners, in turn, reported a lack of trust towards the nursing home staff, which hindered the deprescribing process [44, 46]. Pharmacists' recommendations were also not always considered by general practitioners because they were annoyed at 'being told how to do their job' [44–46]. If, however, the different health professionals' competences were acknowledged properly and if everyone felt listened to, this served as a facilitator [43–46, 48]. If the in-depth knowledge nursing home staff have about their patients was properly recognized and general practitioners agreed to listen to what they had to say, it could help them to initiate medication reviews and discontinue psychotropic drugs [44–46, 48].

“One of the residents she was on risperidone, she stopped eating, stopped talking, walking, she was just in a mess, and so I spoke to the doctor, and actually I asked him to stop the medication ... because (general practitioner from Nursing Home 3) I'm quite close to the doctor. He listens to me” [Nursing Home 3, nursing assistant] [44]

More constructive communication with relatives could also facilitate deprescribing because they could contribute their specific knowledge of the patient's medical history that might otherwise be overlooked [45, 48].

3.4.6 Additional Findings from Surveys with Closed-Ended Questions

Results from the closed-ended questions in the five surveys supported our findings from a thematic analysis of the qualitative results [37–41]. One survey found that among health professionals, it was pharmacists that most frequently requested that general practitioners reduce the prescription of psychotropic drugs to patients, even though their requests were not always fulfilled [38].

One survey also found that general practitioners described increased staffing levels as being the most important facilitator of deprescribing [41]. In another survey, however, nursing home staff rated inadequate staffing as the least important barrier to the reduction of antipsychotics [40]. General practitioners stated their reluctance to act alone when changing drug prescription levels [39], and their belief

that better access to specialists would facilitate reduction [39, 41]. Nursing home staff rated a lack of time as the most important barrier to the reduction of antipsychotics [40]. General practitioners also reported that increased funding to their practices for providing care to older persons would facilitate the reduction of psychotropic drug prescriptions [41]. Nursing home staff and general practitioners reported a shared concern about patients' symptoms and behavior getting worse, and worry that deprescription would negatively affect the patient's quality of life [37, 38]. Indeed, one survey found that many general practitioners tolerated the side effects of antipsychotics, despite knowing the guidelines, because they believed those drugs improved their patient's mental well-being and quality of life [39]. A survey examining the views of both general practitioners and nursing home staff found that both reported resistance from the other as a barrier to the discontinuation of antipsychotics [39].

4 Discussion

Across 14 studies included in this systematic review, a number of barriers and facilitators that were important to nursing home general practitioners and staff when they attempted to deprescribe psychotropic drugs to residents with BPSD were identified. These fall under five major themes: operationality and routines; lack of various resources and qualifications; the perception of patient-related outcomes; policies; and collaboration, communication, and acknowledgment of the health professionals and relatives.

Even though five major themes were identified, we recognize that there is some convergence. We have found that some barriers and facilitators are closely correlated, and may be part of two or more themes.

In line with other studies, the findings from this review support the conclusion that appropriate psychotropic prescribing in the nursing home setting is a complex process that involves multiple decision makers [29, 49, 50]. The analysis in this review has investigated the importance of routines and systematic procedures, as well as the potential role of pharmacists' recommendations. Prior research has shown that a focused psychotropic medication review can be effective in reducing the levels at which these drugs are prescribed, and that the pharmacist is effective in this process [27, 51, 52]. In our review, general practitioners were found to be reluctant to accept the pharmacist's recommendations, even though they did buy-in to the implementation, and the pharmacists felt that their suggestions were overlooked [44–46]. This could be taken into consideration when designing future studies involving pharmacists in the deprescription process. Other systematic reviews evaluating pharmacist-supported medical reviews have yielded no firm conclusions on whether potentially inappropriate medication

would be reduced [53–55] and this review provides some of the many explanations for the modest results, highlighting the importance of mutual acknowledgment of, and collaboration between, the different professionals. We identified a perceived need among both general practitioners and nursing home staff for more educational opportunities, from which to gain the qualifications needed to ensure that residents with dementia exhibiting behavioral challenges received the best care. Results from the studies included in our review also show that both general practitioners and nursing home staff believe strongly in the effectiveness of antipsychotics in the management of BPSD, despite the evidence of the risks for adverse events [35, 39, 41, 46, 47, 56].

This review has identified concern about patients' relapsing, and the increase in workload that entails, as barriers to deprescribing. A Cochrane review, however, has found that the cessation of antipsychotics does not necessarily result in a worsening of symptoms [57]. Two studies included in this review even showed that nursing home staff experienced patients becoming more self-sufficient following discontinuation [35, 36]. Although evidence for the positive effects on clinical and patient-related outcomes following deprescribing is limited, the fact that discontinuation does not necessarily translate into negative outcomes should promote reduction efforts. The lack of evidence could be explained by the limited follow-up, and by heterogeneous outcome measures [27].

In accordance with our findings, other reviews have shown that additional resources such as more nursing home staff and more time with the patients were seen as a necessary condition for the use of non-pharmacological alternatives to psychotropic drugs [29, 58, 59]. This implied that the organization of the nursing homes was critical to implementing the required cultural change, as well as the attitude of the management staff towards non-pharmacological alternatives. In contrast to this, one study reported that nursing home staff rated inadequate staffing levels as the least important barrier to discontinuation of antipsychotics [40]. The participants in that study were primarily nursing home directors and administrators, however, which might explain a difference in perception of barriers.

The theory of sensemaking by Karl Weick involves developing and testing an understanding of a changing world, and refining or abandoning this understanding depending on its perceived credibility [60]. In the nursing home setting, healthcare professionals and relatives will not pursue deprescribing if their belief in the positive effects of the drug, understatement of its side effects, and perceived increased workload continue to exist, which this review and others confirm [49]. However, if side effects are recognized and one sees that deprescribing does not result in a worsening of symptoms in patients, the discontinuation of inappropriate psychotropic drugs will *make sense*. In other words,

deprescribing can be understood as being meaningful, and therefore will be pursued by health professionals. Staff then describe how reduction can become a professional goal [35, 46].

4.1 Strengths and Limitations

4.1.1 Strengths and Limitations Related to the Methodology of the Review

A major strength of this review is the rigorous methodology that was used during the search. The systematic and thorough approach, developed with the aid of an information specialist, was used to develop the search string and was used in five major databases. All reference lists from the studies included in this review were examined to ensure no relevant articles were missing. Another strength is that after the first screening and removal of duplicates, two authors independently screened, assessed, and coded the articles to ensure nothing was missing. In case of discrepancy, a third author resolved this. Furthermore, a quality assessment was made on both qualitative and survey studies using COREQ and Burns.

In this review, we have reported both qualitative and quantitative data in a qualitative manner, instead of using a mixed-method approach. This may be viewed as a limitation; we identified the research question as being qualitative, however, even though some have reported it in a quantitative matter. In order that these views not be excluded from the review, we have included these data and reported them in a qualitative manner; the same approach has been used in prior systematic reviews [50]. We believe, therefore, that this inclusion is a strength in our study.

A limitation is that only limited qualitative research in this area has been published.

The quality of reporting between the interview group and focus group studies included in this review varies greatly, and thus limits the interpretive power of the meta-synthesis. The most under-reported area in the nine studies, however, was related to information regarding the research team; the two remaining domains (study design, and analysis and findings) were more comprehensively described. When assessing the studies included in this review, we evaluated the transparency of all components of an item, only assigning a point if all components were included. Some might, therefore, assess the quality as being slightly higher in some of the studies than we have. The Burns' assessment tool has, to our knowledge, not been used in a systematic review to assess surveys until now. There is no standard reporting guideline for surveys, however, and those that are available do not take all aspects into account [61].

Another limitation is related to the fact that deprescribing is part of a continuum of a prescribing culture. This means

that while we excluded studies whose aims were solely initiation or continuation, we acknowledge the possibility that these studies could share some points of interest with studies exploring the facilitators and barriers of deprescribing. Although there is a fine balance between initiating, continuing, and discontinuing psychotropic medicines, we believe that the barriers and facilitators of deprescribing are different from the reasons associated with initiation and continuation. Our focus remains, therefore, on deprescribing.

4.1.2 Limitations Related to the Included Studies

A limitation to this review is that there is limited qualitative research that has been conducted in this field to date, and thus the evidence available is limited. Because of this limitation, it is likely that in addition to the barriers and facilitators addressed in this review, some unperceived factors also exist, which are not covered in this review. Five of the studies included in this review used a quantitative method to explore a qualitative question, which limits the extent to which participants can express their views; some important information may not have been properly explored. Furthermore, the response rates of the five survey studies were very low, and the generalizability of the survey findings may be questionable. Another limitation is the variety of countries from which the articles originate, and the significant differences in terms of staff and organizational structure found internationally within nursing homes. We assume that some barriers and facilitators would be similar across different organizational settings. However, heterogeneity needs to be considered also in qualitative reviews [62], if the variations in settings, e.g., employment structures vary too much, it would be difficult to identify reliable patterns in relation to what inhibit and promote organizational changes, such as deprescribing. A large proportion of the articles studied originate in the USA ($n = 5$), where the healthcare and nursing home systems operate very differently from those in Europe and Australia. Caution is advised, therefore, when comparing studies. In this study, we did not, however, find any significant differences between countries.

Because of the limited research mentioned above, we had to include articles in which not all the relevant participants' (general practitioners and nursing home staff) views were considered. In some settings [61], for example, it is not only the general practitioner that functions as the primary physician. It was also the case that studies were conducted in nursing homes containing both patients with and without dementia. In one study [61], 37.5% of the participating general practitioners did not actually have a nursing home commitment.

As previously mentioned, the overall quality of the studies included in this review varied. Only four out of nine fulfilled more than half of the assessment criteria in

COREQ [44–47]. Only one out of five fulfilled more than two thirds of Burns [41].

4.2 Implications and Future Research

Findings from this review suggest that more education of both general practitioners and nursing home staff in the area of dementia care is needed, in terms of the effects and adverse events connected to BPSD treatment medications. This is owing to a general belief in the effectiveness of psychotropic drugs for managing BPSD within both groups, and insufficient knowledge of their side effects and adverse events. A possible solution for nursing home staff, with regard to receiving feedback from patients, could be to document the frequency and severity of behaviors using a standardized assessment tool before and after discontinuation. This would give them an actual measure of if/how the patients' behaviour changes. This would also help the communication process between different professionals; it has been shown to facilitate the discontinuation process both in our own review and in others [29, 59].

Future research concerning the discontinuation of psychotropic drugs should focus on general practitioners and nursing home staff; it needs to address their concerns and professional requirements, while also challenging their views prior to any implementation. Research concerning the patients' and relatives' perspectives is extremely sparse; as their inputs are so valuable to both general practitioners and nursing home staff, it would be an important area to investigate in more depth.

5 Conclusions

To successfully deprescribe psychotropic drugs in elderly nursing home residents, a number of barriers must be overcome. First, there must be a clear extrinsic incentive to deprescribe. Second, targeted collaboration, communication, routines, and systematic procedures are preconditions for a successful deprescribing process. Third, a lack of resources and qualifications, concern about symptom relapse, and staff tolerance of the side effects and adverse events associated with the drugs need to be overcome. If all these factors are taken into account, future attempts at deprescription are more likely to succeed.

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Authors' contributions All authors agreed upon the idea for the article. PH and AM performed the literature search and drafted the work under the supervision of GO. All authors critically revised the work and read and approved the final manuscript. All authors agree to be accountable for the analysis presented in the article.

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