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Influences on Decision-Making Regarding Antipsychotic Prescribing in Nursing Home Residents with Dementia: a Systematic Review and Synthesis of Qualitative Evidence

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Keywords

Antipsychotic; Prescribing Behavior; Dementia; Nursing Home; Qualitative Research; Systematic Review

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Abstract

Background

Antipsychotic prescribing is prevalent in nursing homes for the management of behavioral and psychological symptoms of dementia (BPSD), despite the known risks and limited effectiveness. Many studies have attempted to understand this continuing phenomenon, utilizing qualitative research methods, and have generated varied and sometimes conflicting findings. To date, the totality of this qualitative evidence has not been systematically collated and synthesized.

Aims

To synthesize the findings from individual qualitative studies on decision-making and prescribing behaviors for antipsychotics in nursing home residents with dementia, with a view to informing intervention development and quality improvement in this field.

Methods

A systematic review and synthesis of qualitative evidence was conducted (PROSPERO protocol registration CRD42015029141). Six electronic databases were searched systematically from inception through July 2016 and supplemented by citation, reference and gray literature searching. Studies were included if they utilized qualitative methods for both data collection and analysis, and explored antipsychotic prescribing in nursing homes for the purpose of managing BPSD. The Critical Appraisal Skills Programme (CASP) assessment tool was utilized for quality appraisal. A meta-ethnography was conducted to synthesize included studies. The Confidence in the Evidence from Reviews of Qualitative research (CERQual) approach was used to assess the confidence in individual review findings. All stages were conducted by at least two independent reviewers.

Results

Of 1,534 unique records identified, 18 met the inclusion criteria. Five key concepts emerged as influencing decision-making: Organizational Capacity; Individual Professional Capability;

Communication and Collaboration; Attitudes; Regulations and Guidelines. A 'line of argument' was synthesized and a conceptual model constructed, comparing this decision-making process to a dysfunctional negative feedback loop. Our synthesis indicates that when all stakeholders come together to communicate and collaborate as equal and empowered partners, this can result in a successful reduction in inappropriate antipsychotic prescribing.

Conclusion

Antipsychotic prescribing in nursing home residents with dementia occurs in a complex environment involving the interplay of various stakeholders, the nursing home organization and external influences. In order to improve the quality of antipsychotic prescribing in this cohort, a more holistic approach to BPSD management is required. While we have found the issue of antipsychotic prescribing has been extensively explored using qualitative methods, there remains a need for research focusing on how best to change the prescribing behaviors identified.

Keywords

Antipsychotic; Prescribing Behavior; Dementia; Nursing Home; Qualitative Research; Systematic Review

Introduction

Antipsychotics are commonly prescribed to manage the behavioral and psychological symptoms of dementia (BPSD).[1] These medications have a role to play in BPSD when there is a danger of harm to self or others, when there is a psychosis, or when non-pharmacological approaches have not been effective.[2] However, these agents are often prescribed inappropriately, despite evidence of an increased risk of stroke and mortality, and a lack of effectiveness in these patients.[1,3,4] People with dementia are prescribed significantly more of these agents than the general older population,[5,6] and it is in the nursing home setting where the majority of this prescribing occurs. [7]

A 2014 systematic review found that many interventions are effective in the short-term at reducing the inappropriate prescribing of antipsychotics in nursing homes to people with dementia.[8] The authors highlighted the need for a greater understanding of the contextual drivers of inappropriate prescribing in order to improve the long-term sustainability of the reviewed interventions.

Qualitative research allows for a rich understanding of complex social environments such as nursing homes and can be used to develop and improve interventions in this context.[9] A number of original qualitative studies have been conducted on antipsychotic prescribing in people with dementia but to date these have not been the subject of a systematic review.

The most commonly utilized method for synthesizing qualitative evidence is meta-ethnography.[10] This seven-step method of qualitative evidence synthesis employs an inductive approach moving from specific observations to broader generalizations. It is a systematic interpretive approach that is particularly useful for generating new theories or concepts, which can influence policy and practice.[11] For example, recently published clinical guidelines on multimorbidity[12] have been informed by a high-quality meta-ethnography in this similarly complex field.[13]

The aim of our study was to synthesize the findings from individual qualitative studies in order to develop novel interpretations of the influences on decision-making regarding the prescribing of antipsychotics in nursing home residents with dementia, with a view to informing intervention development and quality improvement in this field.

Methods

We conducted a systematic search of primary qualitative studies exploring antipsychotic prescribing in non-acute, long-term care institutions. We used a 'meta-ethnographic synthesis',[10] as adapted by Atkins *et al*,[14] to guide our methods. The review protocol was registered with the PROSPERO international prospective register of systematic reviews (registration number: CRD42015029141).

Six electronic databases were searched from inception to July 2016; Medline, PubMed, EMBASE, CINAHL, PsycINFO and Academic Search Complete. Database-specific search strategies were developed with assistance from a medical librarian. Search terms included a combination of Medical Subject Heading terms, keywords and a comprehensive list of synonyms of the following: 'dementia' AND 'prescription' AND 'antipsychotic agents' with the aim of being as sensitive as possible. The search was not limited by dates of publication or country of origin. To supplement the database search, we conducted hand-searches of key journals and conference proceedings; citation searches of highly cited key studies; reviews of reference lists of key studies; and contacted authors of relevant conference abstracts and studies. The gray literature search was further supplemented by checking the first 100 hits from Google Scholar and by consulting the websites and key personnel from various international Alzheimer's Societies (supplementary material table S1).

We included any English-language, peer-reviewed primary study, published in full, using recognized qualitative research methods of both data collection and analysis. Mixed-methods studies were only included if they utilized qualitative methods as a component of the study. Only the qualitative components of these studies were extracted for analysis. We only included questionnaire studies if the written comments had been analyzed using qualitative methods.

For the first stage of study selection, one reviewer (KW) conducted preliminary screening of titles to exclude records that were clearly not relevant (e.g. pre-clinical studies). For the second stage, two reviewers (KW and RD) independently screened titles and abstracts, against inclusion criteria, to identify potentially relevant studies. In the third stage, two reviewers (KW and RD) independently reviewed full texts of studies. Consensus on inclusion in stages two and three was reached by discussion between both reviewers, with arbitration by a senior reviewer (ST) if required. The Critical Appraisal Skills Programme (CASP) assessment tool for qualitative research was used to assess the quality of included studies,[15] by two reviewers (KW and JB) independently, and consensus was reached by discussion. Studies were not excluded based on the assessed level of quality.

Methodological limitations of included studies were accounted for in the 'Confidence in Evidence from Reviews of Qualitative research' (CERQual) assessments (discussed below).[16]

Four reviewers (KW, RD, EC and CS) read and re-read the included studies, with a focus on the content and context. As a group, we identified what we believed to be the conceptually-richest 'index paper',[17] and used this as the starting point. Three reviewers (KW, RD and EC) read all 18 included studies starting with the 'index paper' and then chronologically. One reviewer (KW) open coded the study findings of all included studies (results and discussion sections), focusing specifically on first-order interpretations (views of the participants) and second-order interpretations (views of the authors). To ensure credibility and dependability of coding, another reviewer (CS) coded the 'index paper' and two other randomly selected studies,[18,19] and differences in interpretation were discussed and consensus reached.[20] The four reviewers convened several times to discuss independently derived concepts and patterns from the studies. Reflexivity was preserved as one reviewer (KW) conducted memo writing.[20] As a multidisciplinary group, we were cognisant of our professional biases, therefore we ensured that there was a balance between clinical (KW and CS) and non-clinical (EC and RD) reviewers at this stage.

Collectively, we developed five key concepts to reflect the main findings of all included studies. We developed a matrix of these concepts and assessed how each individual study related to each concept. Two reviewers (KW and SB) independently extracted data regarding contextual information from each included study. Discrepancies were resolved through discussion between both reviewers. QSR International's NVivo version 11 was used to assist with data analysis and synthesis.[21]

In line with the constant comparative method of qualitative analysis,[22] the first- and second-order interpretations were compared and contrasted across primary studies to identify similarities and disagreements. The importance of context to each interpretation was carefully observed. In this way, reciprocal and refutational translations were conducted.[11] All eight reviewers were involved in

this and the following stages to ensure no important meanings were lost upon translating one study into the next.

We collaboratively developed third-order interpretations by synthesizing first- and second-order interpretations, from each study. The synthesis required refining the key concepts and building on the analysis iteratively. This process was repeated until we were satisfied that the third order interpretations added to, but were still representative of, the findings of the total dataset. These interpretations act as testable, novel hypotheses, which are still grounded in the data.[14] We then linked these using a 'line of argument' in order to develop an overarching conceptual model explaining the phenomenon.[13] Noblit and Hare describe this 'line of argument' synthesis as a means of uncovering novel understandings that were hidden in the individual studies (discovering a 'whole' among a set of parts).[10]

We reported our results in line with the 'Enhancing Transparency in Reporting the Synthesis of Qualitative Research' (ENTREQ) statement[23] (supplementary material table S2), and expressed our search strategy results as a 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA) flow diagram[24] (Fig. 1). To present the findings of the review in a manner useful for policy-makers, we used CERQual.[16] This tool allows assessment of the confidence in synthesized qualitative findings. We assessed the extent to which the review findings (i.e. third-order interpretations) were reasonable representations of the phenomenon of interest, by independent application of CERQual, by two reviewers (KW and RD), with discussion until consensus was reached.

Results

Search Results

A total of 1,534 unique records were found after duplicate removal (Fig. 1).[24] After the exclusion of records based on title screening (n=631) and subsequent title and abstract screening (n=800), the remaining 103 full texts were assessed for eligibility. We excluded 85 records at this stage (Fig. 1,

and supplementary material table S3). In our final review, we included 18 studies describing 17 study cohorts.

Characteristics of Included Studies

Table 1 outlines the characteristics of the 18 included studies. The studies were conducted in six different countries: UK (n=7),[19,25-30] US (n=5),[18,31-34] Australia (n=3),[35-37] Canada (n=1),[38] The Netherlands (n=1)[17] and South Africa (n=1).[39] Eleven of the studies employed a purely qualitative methodology,[17-19,25-27,30,35-37,39] while seven utilized mixed-methods.[28,29,31-34,38] A total of 1,609 unique participants were involved: nurses (n=479), other nursing home staff (n=657), family carers (n=239), physicians (n=144), pharmacists (n=49) and old age advocates (n=6). One study did not provide a disciplinary breakdown for its 35 participants.[18] No study included the voice of the person with dementia. Of the 114 included nursing homes that had their 'for-profit' status described, 68 were for-profit, 40 were not-for-profit and 6 were described as "other."

Quality Appraisal

The overall quality of included studies was assessed to be moderate to high for 17 of the 18 studies (Table 2). A common weakness, found in twelve studies, was inadequate researcher reflexivity.[17,18,25,27-33,35,39] The relationship between the researcher and participants had not been effectively addressed in these studies. The overall quality of one study was assessed to be low due to concerns across several CASP domains.[28] Despite these weaknesses, we believed that on the whole, these studies were sufficiently robust to contribute to our meta-ethnography and to the development of our conceptual model.

Translation

We identified five key concepts (in bold and numbered) encompassing eight sub-themes (in bold) that reflected the main influences on this decision-making process. These are reported below

supported by first-order (italicized quotations) and second-order (non-italicized quotations) interpretations (supplementary material Table S4).

The complexity of the decision-making process was evident throughout. Overall, *"the aim of improving care"* for residents was a priority,[25] but there was tension as to how this was best achieved. The options for managing BPSD were generally perceived to be binary – antipsychotic prescribing or non-pharmacological interventions - with the former option considered to be the *"quick-fix."*[19,26,38]

1. Organizational Capacity

Resources and access to services: Understaffing and insufficient time to engage with residents, to conduct thorough assessments of underlying causes, and perform non-pharmacological interventions was mentioned throughout the reviewed studies:[17-19,26,27,29,30,32,33,35-39] *"The greatest impact on good outcomes for behaviour management is time limits. Nurses are always under pressure to hurry."*[35] In some studies there was a suggestion that medication was used to compensate for poor staffing levels:[19,37] *"sometimes [it's] easier to give a tablet."*[19] This understaffing issue was further compounded by a lack of access to specialist services such as psychiatrists, therapists and pharmacists.[25,26,29,32,33]

In some studies, nursing home managers working in the public sector stated that there was very little they could do to solve staff shortages due to the lack of funding.[29,32,37] Financial issues were a parallel concern in private sector nursing homes, and were associated with the use of antipsychotics as a means to deal with constrained expenditure on staff:[17,26,37] *"The desire to make money means that [managers] have to make choices about staffing levels and staffing quality that is good for the money making side but not necessarily good for the patient side… That's where controlling and managing the patient might come in."*[37]

Coping with the severity of behaviors: Many studies reported a struggle to manage residents with severe behavioral problems.[17,26,30,31,38,39] Nurses reported that they were constantly *"putting out*

fires,"[38] causing them to feel "overwhelmed."[37] Prescribers reported that "they had little option but to prescribe" to help relieve these situations.[26] Consequently, staff felt they were *"letting the residents down,"*[30] thus contributing to poor staff morale.[30,31,33,37,39]

Nursing home staff reported conflicting priorities. Dealing with escalating behavioral issues could be perceived as a barrier to completing other nursing tasks:[18,30,35,38] "Medications were viewed as a resource that allowed nurses… to reduce the agitation and complete daily care tasks successfully."[38]

2. Individual Professional Capability

Skills: Possessing the necessary skills was considered critical for effective BPSD management.[17-19,26-35,37-39] Staff and family members realized the importance of good interpersonal skills when dealing with residents,[27,31,39] because approaching residents "in the wrong way" could trigger behavioral symptoms[27] , while good interpersonal skills could have a positive effect.[27]

There was a belief that some staff, particularly newly qualified healthcare assistants, were not adequately trained to deal with behavioral symptoms.[18,26,30,37,39] Prescribers commented that these deficiencies were contributing towards the pressure to prescribe antipsychotics[26] *"to ensure that there is no colorful behavior."*[37]

In some studies, staff appeared unable to effectively apply a range of individualized non-pharmacological interventions to the residents.[18,35,38] Participants noted that familiarity with the resident, training, sharing of experiences and practice improved their confidence in applying non-pharmacological approaches.[18,30,32,34,35,37-39]

Knowledge: In several studies, both prescribers and staff were perceived to lack adequate knowledge on the risks and benefits of antipsychotics,[17,19,28,32,34,35] and to lack awareness regarding the nature and range of alternative approaches.[18,26,29,32,34,35,38] In one study, prescribers believed nurses and family members expressed "unfounded high expectations" of the effectiveness of antipsychotics,[17] while in other studies, staff felt that it was the prescribers who did not have enough

knowledge.[19,29,32] The authors of one study concluded "that poor staff knowledge of appropriate use of antipsychotics may underlie the high rate of administration, despite the reported limitations to its use."[35]

There was a strong desire by participants for more hands-on, interdisciplinary training and education,[18,29,30,32-35,37-39] that can "help staff relinquish the need for control in favor of understanding."[18]

Knowing the resident and understanding their individual behaviors was critical to performing person-centered care.[17-19,25,27,30,31,35-39] However this took a lot of time, staff consistency and close involvement with the family, which was not always possible.[17-19,27,30,31,36,38,39]

3. Communication and Collaboration

Communication within healthcare teams and with the family: Effective communication was viewed as an essential component to successful BPSD management.[17-19,25-33,36-38] Good communication between all those involved in the care of residents, with close involvement of the family, promoted a sense of trust and mutual respect.[17,25-27,30-33,36-38] Listening to concerns and valuing everybody's opinion was critical,[17,19,25,28-30,36,37] and participants felt that *"by jointly looking at the problems and by learning from each other… we gained more clarity, much more peace, and also had a significant decrease in prescribed medication."*[17]

Working together, with a shared goal, was perceived to be essential.[17,19,25,27,29,30,32,33,36-38] Interdisciplinary medication reviews were good examples of different stakeholders working together to reduce inappropriate antipsychotic use.[17,25,32,36]

In contrast, poor communication and collaboration led to sub-standard dementia care.[18,19,25,28-32,35-37] Staff saw themselves as a *"cog in a wheel"*: if they all worked together everything ran smoothly, but if one person was not pulling their weight, the whole system fell apart.[30] One study discussed issues

regarding primary care physicians not attending medication review meetings and the subsequent barrier this presented to reducing inappropriate antipsychotic prescribing.[36]

Clarity of Roles and Responsibilities: There was a sense of uncertainty regarding roles and responsibilities in relation to antipsychotic prescribing, particularly between different care settings.[25,26,28-30,32,35,37] Primary care physicians felt that the responsibility for antipsychotic prescriptions belonged to the hospital physician who initiated them, *"as the psychiatrist started it they will not stop prescribing it."*[29] In some studies, this caused "confusion,"[29] which promoted the belief that it was the job of nursing home staff *"to clean up the situation."*[33]

A perception of being a victim of professional hierarchy was raised in several studies.[19,25,29,36,37,39] In these studies, staff felt unable to question the prescriber in relation to the appropriateness of a prescription,[19,36,37] due to the existence of "professional norms that were very traditional and hierarchical in nature."[37] However in other studies, it was the prescriber who did not feel empowered to say no to a request from nurses,[17,25,26,29,37] because *"they [nurses] want it and it's very difficult to refuse."*[25]

4. Attitudes towards people with dementia and the management of BPSD

Personal Attitudes: Attitudes towards antipsychotics were on a spectrum,[17-19,25,27-31,33,35,38-40] ranging from being viewed as *"really beneficial"*[19] to *"chemical cosh."*[28] Participants in some studies were concerned by their usage and believed the side-effect profile to be unacceptable.[17,18,26-28,30,33,35-39] Other participants had a more *"pro medicine"* attitude,[38] and it appeared that they might have used antipsychotics for convenience.[18,19,30,38]

Participants in several studies believed that antipsychotics were required for the greater good.[18,37,38] Primary care physicians in one study considered the potentially serious side effects "a worthwhile trade-off" if they improved residents' quality of life,[29] and in another study perceived them as a *"necessary evil,"* to help staff deal with their high workload.[37]

Participants generally held positive views towards people with dementia[27,30,37-39] and "expressed great empathy with residents."[39] However participants in some studies voiced dismissive attitudes towards people with dementia,[19,30,31,37,39] and expressed a desire to manage the resident rather than assess the underlying cause.[17-19,26,28,30,37] In one study, a staff member stated that they found residents' behaviors *"annoying."*[19]

Fear of behavior recurrence was expressed in several studies,[17,25,28,30,31,39] hence "there can even be resistance from nurses and family to withdraw [antipsychotics], especially when considerable effort was put into stabilizing the [behaviors]."[17]

Organizational and Societal Attitudes: The pressure to prescribe from nursing homes was a key finding in a number of studies. [17,19,25,26,29,36-38] One primary care physician admitted that this pressure to prescribe forced them to withdraw their medical services to a particular nursing home as they felt it was at odds with evidence-based practice.[37]

Managers were seen to play a key role in communicating messages about best practice.[27,30,36,37,39] Managers that emphasized the value of non-pharmacological approaches created a culture where alternative approaches were exhausted before antipsychotics were used. One pharmacist observed that: *"If the attitude's right at the top, then it filters through. If you have management that don't really do the right thing or don't really care, then that filters through as well."*[37] In most studies management culture was highlighted as a driver of the quality of healthcare provided.[18,19,27,30-32,34-39]

5. Regulations and Guidelines: Regulations and guidelines produced mixed reactions.[17,18,26,29,32,33,36] Regulations were perceived as the "driving force" for improving standards in nursing homes,[18] but prescribers expressed "ambivalence" towards the influence of guidelines.[17]

Regulations were only mentioned in studies conducted in the US[18,32-34] and Australia.[36] According to one US study author: "regulatory oversight has altered the landscape."[18] In Australia, although the

conduct of pharmacist-led medication reviews were mandatory for residential settings, there was great variability between nursing homes in how the resultant recommendations were utilized.[36]

Guidelines were perceived to be less influential with regards to changing antipsychotic prescribing.[17,26,29] In one study, prescribers felt that guidelines were unhelpful as they often contradicted their own clinical experience and caused *"more problems."*[26] Prescribers from another study argued that some guidelines could be interpreted to allow for greater levels of prescribing.[17] "What was more influential was past experience of a drug, although guidelines… were taken into account."[26]

The Impact of Context on Findings

The professional background of the research team tended to influence the focus of inquiry of included studies. In general, researchers from a nursing or social science background tended to focus on the person with dementia, in an attempt to understand these behavioral issues:[18,27,28,30,31,38,39] *"they're frustrated because they can't explain how they're feeling."*[27] Whereas researchers from a medical or pharmacy background tended to focus on more structural (e.g. resources) or organizational (e.g. interprofessional relationships) issues:[17,25,26,29,32-34,36,37] *"homes are dealing with a greater level of illness and disturbance than they were designed for."*[26] However there were some contradictions and not every study followed this pattern.[19,35] Furthermore, the majority of included studies explored both perspectives to varying degrees.[17-19,27-30,33,35-39]

Time has also impacted on the findings. The earliest of these studies, published in 2003, discussed antipsychotics as an option for BPSD management, without necessarily attributing positive or negative connotations to this practice.[31] However studies published since (2007-2016), have generally advocated a more cautious approach.[17-19,25-28,30,32-39] This is possibly due to the publication of a meta-analysis in 2005 providing evidence of the risks associated with antipsychotic prescribing in people with dementia.[3]

Synthesis

Synthesizing these first- and second-order interpretations resulted in 20 distinct third-order interpretations. Consequently, each key concept was linked to multiple third-order interpretations; Organizational Capacity (n=5), Individual Professional Capability (n=4), Communication and Collaboration (n=3), Attitudes (n=6) and Regulations and Guidelines (n=2). These third order interpretations, and the CERQual confidence levels associated with them are shown in Table 3 and supplementary material Table S5. There were eight third-order interpretations in which we have high confidence. Therefore, we believe it is highly likely that these third-order interpretations are reasonable representations of the phenomenon of interest.

By linking all 20 third-order interpretations together we developed a 'line of argument', which is outlined below and expressed as a conceptual model in Figure 2. This conceptual model describes the process of a dysfunctional negative feedback loop where any 'challenging behavior' in a person with dementia promotes either antipsychotic prescribing or a non-pharmacological intervention, or sometimes both, all with the goal of suppressing the 'challenging behavior' and restoring calm. The 'challenging behavior' may push decision-making towards an exclusively pharmacological solution, especially if staff feel overwhelmed. Once the 'challenging behavior' is suppressed, the need for an intervention is reduced. However, the fear that these behaviors may return at any time, or confusion surrounding roles and responsibilities facilitates maintenance of antipsychotic prescribing, breaking the feedback loop.

The five key concepts, and eight sub-themes described above, act as the overarching influences on this decision-making process as a whole. The conceptual model illustrates that some or all of these influences may come into play when a 'challenging behavior' arises (Fig. 2). These influences interact with each other, often in an unpredictable and complex manner, and ultimately determine the response behaviors from staff.

Our synthesis indicates that different stakeholders struggle to see things from other stakeholders' perspective and do not acknowledge the pressure the others are under. However, when all stakeholders come together to communicate and collaborate as equal and empowered partners the inappropriate use of antipsychotics can be reduced.

Discussion

This study is the first to our knowledge, to systematically review and synthesize the qualitative evidence surrounding antipsychotic prescribing in nursing home residents with dementia. Additionally, we believe that this study is the first to apply CERQual to a meta-ethnography. Our findings highlight the complexity of this topic and the various influences on decision-making. We have conceptualized these influences in a 'line of argument' that moves beyond the findings of the individual studies, as a dysfunctional negative feedback loop, which we believe will be useful for clinicians, researchers and policy-makers.

Comparison with previous research

A systematic review exploring the quantitative relationship between facility characteristics and antipsychotic usage concluded that in general, as nursing staff levels decrease, antipsychotic usage increases.[41] The authors also reported a positive association between for-profit nursing homes and antipsychotic usage.[41] However these associations are not always clear-cut.[42-45] The focus on qualitative evidence in our review helped us to tease out these more complicated elements. Our findings reinforce that nursing homes are struggling with understaffing and poor access to important services. Consequently, staff can become overwhelmed by behaviors in these resource-poor environments. Nursing home managers, particularly in the for-profit sector, may be tempted to use antipsychotics as a more economical solution to the problem. However it is important to acknowledge that the use of antipsychotics as a cost-saving measure appeared in not-for-profit nursing homes also.

Knowledge of the risks and benefits of prescribing antipsychotics in dementia has been found to be quite variable, and often sub-optimal.[46-48] Some authors have commented that these deficits in knowledge may be contributing to a concerning belief that antipsychotics are highly effective for BPSD.[46,47]. Furthermore, staff have often been found to be inadequately trained in person-centered care.[46,47,49] Our findings suggest that inadequate skills and knowledge are enabling inappropriate antipsychotic prescribing. Even in highly capable individuals, we found a tension between doing the 'right thing' and doing what's practical, given resource limitations and their duty of care to other residents.

Previous research has found that communication breakdown is an impediment to the delivery of person-centered care,[50] and is also a barrier to deprescribing.[51] Professional hierarchies in the nursing home setting have previously been reported as a barrier to evidence-based practice.[50,52,53] Furthermore, primary care physicians have expressed frustration at the lack of communication from hospital consultants with regards to the management of antipsychotics,[54] as well as the pressure to prescribe from nursing homes.[47] Our findings add to this knowledge by identifying a lack of empowerment at all levels of the healthcare team and among family members as a barrier to informed antipsychotic prescribing decision-making.

The concept of 'treatment culture' in nursing homes has been discussed in the literature in an attempt to explain why certain nursing homes continue to have high levels of antipsychotic prescribing independent of residents' clinical characteristics.[55-57] Treatment culture can be defined as the "beliefs, values, and normative practices associated with medication prescribing and administration."[56] Nursing homes with a traditional culture (i.e. rigid routines) have been associated with higher levels of antipsychotic prescribing than those with a resident-centered culture (i.e. person-centeredness).[56] Our research confirms this notion of treatment culture and the impact of conformity on prescribing decisions. Our findings add to existing evidence by highlighting the

important role of the manager, who can diffuse a philosophy of person-centered dementia care throughout the organization.[58]

Our findings indicate that an underlying fear of behavior recurrence may be one factor driving the desire for control. Negative connotations of dementia have been described in the literature, comparing the effect BPSD has on people to becoming "dehumanised."[59] Based on the findings of our review, we believe that a lack of understanding of the nature and progression of dementia can lead to the inappropriate maintenance of antipsychotics.

Implications

The conceptualization of decision-making as a dysfunctional negative feedback loop with the ultimate aim of controlling residents, challenges us in the way we perceive dementia. We need to re-frame the way we view so-called 'challenging behaviors'. These behaviors may not necessarily be challenging to the person with dementia – only to us. There have been discussions surrounding the nuances of terminology in this area, with a term such as 'responsive behaviors' being preferable.[60] There needs to be an appreciation that these behaviors are generally due to some unmet need,[61] and often do not respond to antipsychotics.[62,63] Therefore it is imperative that interdisciplinary training and education is delivered to all involved in the care of residents with dementia, including family members.

Furthermore, communication structures and interdisciplinary practices need to be optimized in order to improve the flow of vital information. It is important that peripheral members of this interdisciplinary team are not excluded from decision-making as they can often hold the key to successful behavioral management. There is also evidence to support the inclusion of pharmacists in these teams.[8] Shared decision-making, a collaborative process that allows people with dementia, family members, and their healthcare team to make healthcare decisions together, should be encouraged.[64] Shared decision-making takes into account the best clinical evidence available, as well as values and preferences of the person with dementia and the family.[65]

Our CERQual assessments identify areas that policy-makers can potentially target. For instance, policy-makers need to carefully re-examine resource allocation issues, as we have high confidence that nursing homes are utilizing antipsychotics to substitute for inadequate resources and poor access to specialist services. Given that the use of antipsychotics in this population is not evidence-based, it is concerning that these agents are being used to cut costs. Therefore in light of the strength of our evidence, we argue that increasing the staff to resident ratio, or increasing access to services, may possibly result in a reduction in inappropriate antipsychotic prescribing.

We now have a greater understanding of this complex prescribing behavior. However it is still unclear how it can be sustainably changed.[8] Behavior change interventions need to be guided by the best available evidence and appropriate theory.[66] Important contextual issues unique to each healthcare system need to be explored before pilot studies can be conducted.[67] More primary qualitative research is needed, focusing on aspects that are currently under-researched e.g. influence of national regulations. It is also crucial that the voice of the person with dementia is ethically and meaningfully included, either as participants of research,[68] or as co-researchers in the intervention design process.[69] Additionally, our conceptual model identified specific influencing factors, such as confusion surrounding roles and responsibilities, and fear of behavior recurrence. These identified factors may be suitable for future targeted interventions.

We believe that the interdisciplinary and interdependent nature of this decision-making process is such that it is unlikely that targeting a single stakeholder group will result in any sustainable change in prescribing behaviors. Therefore, we argue that a holistic, person-centered approach to behavior change is required, involving both the prescribers and requesters of antipsychotics.

Strengths and Limitations

The main strength of our study is its robustness. Measures were put in place to ensure the high quality of the analysis including maintaining reflexivity, utilizing independent multiple analysts and transparency through careful adherence to the PROSPERO protocol. The study was conducted by an

experienced multidisciplinary team. Consequently, we believe that our included studies were analyzed to a high standard and the resultant conceptual model provides the reader with a rich, in-depth and valid new interpretation of a complex phenomenon.

Another strength was the great number and diversity of healthcare professionals and family members represented in the included studies. The multiple perspectives allows for a more holistic view of the factors influencing this complex phenomenon.

A limitation of our study, which is true of all systematic reviews of qualitative evidence, is the difficulty retrieving qualitative research from databases. Unlike randomized controlled trials, qualitative research has historically been inconsistently indexed in databases, preventing comprehensive and reproducible searches.[70] Therefore it is possible that we may have missed a potentially relevant study. However, as our team conducted a systematic and thorough search, we are reasonably confident that we have captured all relevant studies.

Conclusions

Antipsychotic prescribing in nursing home residents with dementia occurs in a complex environment involving the interplay of various stakeholders (with differing levels of skills and knowledge, who often have conflicting views on the role of antipsychotics and who may not be equally empowered), the nursing home organization (with its own treatment culture and level of resources) and external influences (such as guidelines, regulations and societal influences). In order to improve the quality of antipsychotic prescribing in this cohort, a paradigm shift is required towards a more holistic approach to BPSD management. While we have found the issue of antipsychotic prescribing has been extensively explored using qualitative methods, there remains a need for research focusing on how best to change the prescribing behaviors identified.

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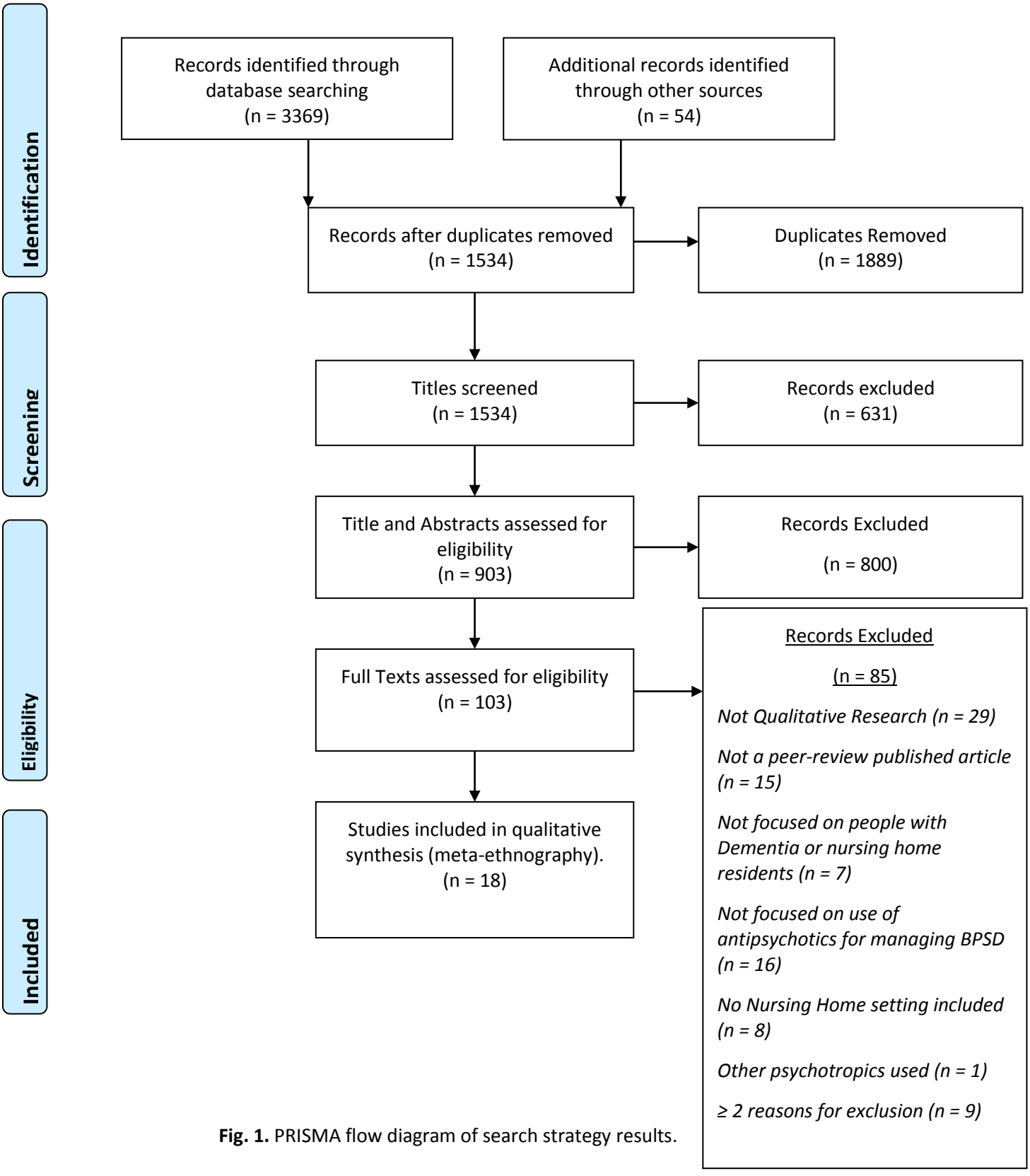

Fig. 1. PRISMA flow diagram of search strategy results.

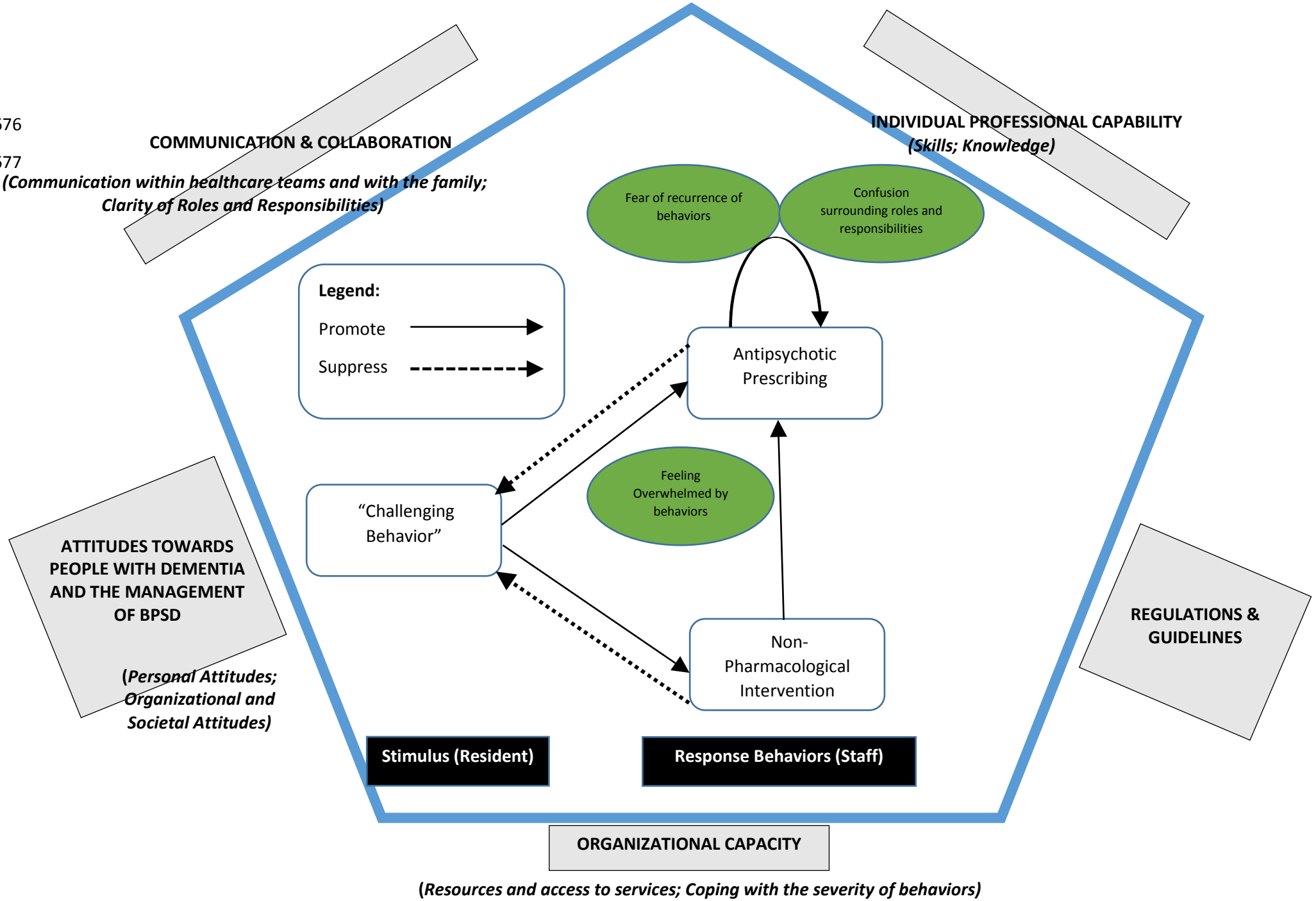

Fig.2. Conceptual Model of Influences on Decision-Making Regarding Antipsychotic Prescribing in Nursing Home Residents with Dementia. Key concepts are in shown in **CAPITALS**; sub-themes are in ***(italics)*** beneath the relevant key concept; and specific factors influencing response behaviors are in green circles. All influences can impact upon the decision-making process at the core of this diagram. BPSD, Behavioral and Psychological Symptoms of Dementia

Table 1. Characteristics of Included Studies

First Author	Year of Publication	Country	Study Objectives	Methods	Data Collection	Qualitative Data Analysis	Participant characteristics (n)	Setting (n)
Foley [31]	2003	US	To explore staff perceptions of successful management of severe behavioral problems in dementia SCUs	M	Structured interviews with some open ended questions	Content analysis	Nursing staff (19), Activities co-ordinator or Social Worker* (4), unit co-ordinators [Nurses or Social Workers]* (9), Unknown Staff Role (4). **Total participants (36)**	**Nursing Home SCUs (36)**
Patterson [25]	2007	UK	To assess the suitability of an American model of pharmaceutical care for nursing home residents for application in nursing homes in the UK	Q	Focus groups and semi-structured interviews	Framework	Clinical Pharmacists (6), Resident Advocates (6), Prescribing Support Pharmacists (14), GPs (8), Nursing Home Managers (10). **Total participants (44)**	**Participants worked in in-patient, GP, nursing home and charity organisations settings (unknown numbers) §**
Wood-Mitchell [26]	2008	UK	To examine the process by which consultant old age psychiatrists prescribe for BPSD and explore the factors that influence their decision	Q	Semi-structured interviews	Grounded theory	Consultant Old Age Psychiatrists (8). **Total participants (8)**	**Psychiatrists worked in in-patient and community-care settings (unknown numbers) §**
Kolanowski [18]	2010	US	To explore nursing, recreational therapy and medical staff perceptions of barriers to the implementation of non-pharmacological interventions for BPSD	Q	Focus groups	Content and thematic	Registered Nurses, Licensed Practical Nurses, Certified Nursing Assistants, Recreational Therapists, Activity Personnel and Medical Directors. **Total participants (35)**†	**Nursing Homes (6)**
Molinari [33]	2011	US	To explore the justification of psychoactive medication prescription for new nursing home residents	M	Chart review with follow up focus groups	Content and thematic	Licensed Practical Nurses (8), Certified Nursing Assistants (20), Registered Nurses (13), Medical Directors (1), Social Workers (2). **Total participants (44)**	**Nursing Homes (7)**
Duxbury [27]	2013	UK	To explore the views of nurses, and relatives regarding the causes of, and most effective ways of responding to aggressive behaviour from people with dementia in residential care settings	Q	Semi-structured interviews with staff. Focus Groups with relatives	Thematic	Dementia Care Unit Manager (4), Registered Nurses (2), Care Assistants (2), Relatives (8). **Total participants (16)**	**Nursing Homes (4)**
Harding [28]	2013	UK	To explore carers experiences of the use of antipsychotic medications in people with dementia	M	Surveys with open ended questions (online and paper), focus groups and in-depth interviews	Inductive and deductive coding. Thematic	Carers and former carers of people with dementia(190). **Total participants (190)**	**Mixture of own home, nursing home and residential home (unknown numbers) §**
Janzen [38]	2013	Canada	To investigate the perceptions of LTC staff regarding the current use of NPI for reducing agitation in seniors with dementia and to identify facilitators and barriers that guide NPI implementation	M	Focus groups, semi-structured interviews and a survey with some open ended questions	Hermeneutic phenomenology	Registered Nurses (8), Registered Practical Nurses (13), Personal Support Workers (8), Recreation Specialist or Coordinators (6), Directors of Care (3), Unit Coordinators (2), Recreation Assistant (1), Resident Assessment Instrument Coordinator (1), Dietary Specialist (1), Art Therapist (1). **Total participants (44)**	**LTC facilities (5)**
Mavrodaris [29]	2013	UK	To investigate antipsychotic prescribing practices and patient review in primary care settings	M	Survey with some open ended questions.	Thematic	GPs (60), care home staff (28). **Total participants (88)**	**GP surgeries (60) and care homes (28) §**
Ervin [35]	2014	Australia	To explore residential aged care staff perceptions of the limitations to five commonly used methods of managing BPSD; pharmacological therapy and	Q	Survey with open ended questions.	Interpretive Description	Division 1 Registered Nurse (33), Division 2 Medication Endorsed Registered Nurse (29), Division 2 Registered Nurse (34), Personal Care Assistant (14), Students or Activities Coordinator (17), Not specified (3). **Total**	**Residential aged care facilities (6)**

			behavioural, emotional, cognitive and stimulation therapies				**participants (130)**	
Smeets [17]	2014	The Netherlands	To explore factors that elucidate reasons for psychotropic drug prescription for neuropsychiatric symptoms in nursing home residents with dementia	Q	Semi-structured interviews	Grounded theory	Elderly Care Physician (13), Resident in Elderly Care Medicine (1), Medical Doctor (1), Registered Nurses (4), Certified Nurse Assistants (9), Nurse Assistant (1). **Total participants (29)**	**Nursing Homes (12)**
Bonner [34]	2015	US	To describe the rationales that providers and family members cite for the use of Antipsychotic medications in people with dementia living in nursing homes	M	Medical Record Abstraction and Open ended interviews	Directed content analysis	Directors of Nursing (26), Registered Nurses and Licensed Practical Nurses (91), Certified Nursing Assistants (244), Physicians and Advanced Practitioner Prescribers (27), Pharmacists (23), Psychiatrists (14), Family Members (41). **Total participants (466)**	**Nursing Homes (26)**
Ellis [32]	2015	US	To explore strategies that have been implemented, to assess which strategies are evidence-based, and to make recommendations to improve upon practice to reduce antipsychotic medication use	M	Survey with both descriptive and open-ended questions.	Theme-based content analysis	Director of Nursing (109), Nursing Home Administrator (95), Social Worker (7), Other Nursing Home Staff (65). **Total Participants (276)**	**Nursing Homes (unknown number, approximately 227)**
Lawrence [30]	2015	UK	To contribute to an optimised training programme for care staff that supports the implementation of evidence-based psychosocial interventions in long-term care	Q	Focus groups	Thematic with constant comparison method	Care Assistants (53), Senior Care Assistants (30), Activity Therapists (13), Registered Nurses (6), Deputy Managers (5), Managers (2), Other Staff (10). **Total participants (119)**	**Care Homes (16)**
Sawan [36]	2016	Australia	To explore how visible artifacts in nursing homes influence the prescribing and use of psychotropic medicines, and how these artifacts were operationalized across nursing homes	Q	Semi-structured interviews	Thematic	Managers (8), Registered Nurses (8), Nursing Assistants (5), GPs (8), Pharmacists (6), Enrolled nurses (2), Specialist medical practitioner (1), Nurse Practitioner (1), Clinical Nurse Consultant (1). **Total participants (40) ‡**	**Nursing Homes (8)**
Sawan [37]	2016	Australia	To explore the key dimensions of organizational climate and their subsequent influence on the use of psychotropic medicines	Q	Semi-Structured Interviews	Thematic	Managers (8), Registered Nurses (8), Nursing Assistants (5), GPs (8), Pharmacists (6), Enrolled nurses (2), Specialist medical practitioner (1), Nurse Practitioner (1), Clinical Nurse Consultant (1). **Total participants (40) ‡**	**Nursing Homes (8)**
Shaw [19]	2016	UK	To explore and understand treatment culture in prescribing of psychoactive medications for older people with dementia in nursing homes	Q	Semi-structured interviews	Thematic and framework	Managers (5), Nurses (7), Care Assistants (13), GPs (2). **Total participants (27)**	**Nursing homes (6)**
Van Wyk [39]	2016	South Africa	To gain an understanding of what care home staff perceive to be distressed behaviour, their coping strategies and how they learned to work with residents with behavioral symptoms of dementia.	Q	Semi-structured interviews	Thematic and framework	Care Assistants (17). **Total participants (17)**	**Care Homes (4)**

Q, Qualitative Methods; M, Mixed Methods; BPSD, Behavioral and Psychological Symptoms of Dementia; NPI, Non-pharmacological interventions; LTC, Long-term care; SCU, Specialist Care Unit; GP, General Practitioner (also known as Primary Care Physicians).

* Study did not obtain specific degree affiliation, thus unable to distinguish between social workers and nursing staff. † Unknown breakdown of participants. § Research participants may not have been based in a Nursing Home Setting, but focus of study is on people with dementia in the Nursing Home Setting. ‡ The same study cohort in both studies.

Table 2. Quality Appraisal of Included Studies

First Author (Year of Publication)	Clear Statement	Qualitative Appropriate	Research Design	Sampling	Data Collection	Reflexivity	Ethics	Data Analysis	Discussion of Findings	Value	Overall Assessment of methodological quality
Foley (2003) [31]	√	√	√	?	?	x	?	?	√	√	Moderate
Patterson (2007) [25]	√	√	√	√	√	x	√	√	√	√	Moderate-to-High
Wood-Mitchell (2008) [26]	√	√	√	?	√	√	?	?	√	√	Moderate-to-High
Kolanowski (2010) [18]	√	√	√	?	?	x	√	√	√	√	Moderate-to-High
Molinari (2011) [33]	√	√	√	x	?	x	?	√	√	√	Moderate
Duxbury (2013) [27]	√	√	√	√	?	x	√	√	√	√	Moderate-to-High
Harding (2013) [28]	√	√	√	√	x	x	?	x	x	x	Low
Janzen (2013) [38]	√	√	√	√	√	√	√	√	√	√	High
Mavrodaris (2013) [29]	√	√	√	√	?	x	?	?	√	√	Moderate
Ervin (2014) [35]	√	√	√	√	?	x	√	√	√	√	Moderate
Smeets (2014) [17]	√	√	√	?	√	x	√	√	√	√	Moderate-to-High
Bonner (2015) [34]	√	√	√	√	√	√	√	x	√	√	Moderate
Ellis (2015) [32]	√	√	√	x	√	x	?	√	√	√	Moderate
Lawrence (2015) [30]	√	√	√	√	√	x	√	√	√	√	Moderate-to-High
Sawan (2016) [36]	√	√	√	√	√	√	√	√	√	√	High
Sawan (2016) [37]	√	√	√	√	√	√	√	√	√	√	High
Shaw (2016) [19]	√	√	√	?	√	√	√	√	√	√	High
Van Wyk (2016) [39]	√	√	√	?	?	x	?	?	√	√	Moderate

682 **√**, Yes or Methodologically Sound; **x**, No or Not Methodologically Sound; **?**, Can't tell whether Methodologically sound or not.

683 **Table 3.** CERQual Summary of Qualitative Findings

Review finding/Third-Order Interpretations	Relevant papers	CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
Organizational Capacity			
1. Chronic under-staffing is a fundamental issue in Nursing Homes, leading to insufficient time and ability by Nursing Home staff to perform person-centered care.	(26, 18, 38, 29, 35, 17, 32, 30, 37, 19, 39)	**High confidence**	Minor concerns regarding methodological limitations and adequacy
2. The involvement of specialist services can influence antipsychotic prescribing, but there can sometimes be difficulty accessing these services.	(26, 18, 33, 29, 35, 17, 34, 32, 36, 37)	**High confidence**	Minor concerns regarding methodological limitations, coherence and adequacy.
3. To circumvent the problems of inadequate resources and/or poor access to specialist services, antipsychotics are 'employed' as cheap, fast and effective staff members.	(26, 18, 33, 38, 29, 35, 17, 32, 30, 19, 37)	**High confidence**	Minor concerns regarding methodological limitations and adequacy.
4. As behaviors escalate, a 'tipping-point' is reached, after which an urgency to resolve the situation arises. This is particularly true when Nursing Home staff feel "overwhelmed" by these behaviors. In these situations antipsychotics are perceived by Nursing Home staff to offer a "more guaranteed result".	(31, 26, 18, 38, 17, 30, 37)	**Moderate confidence**	Minor concerns regarding methodological limitations. Moderate concerns regarding adequacy
5. The perceived acuteness of situations forces Nursing Home staff to focus their attention on the "aggressive" residents, while the "passive" ones are left behind. Antipsychotics can sometimes be viewed as a way of equalizing attention given to both "passive" and "aggressive" residents.	(18, 38, 35, 17, 30, 37, 39)	**Low confidence**	Minor concerns regarding methodological limitations. Moderate concerns regarding coherence and adequacy
Individual Professional Capability			
6. Both prescribers and Nursing Home staff are often perceived to be poorly equipped to deal with BPSD in terms of deficiencies in dementia-specific skills and/or a lack of knowledge on the risk/benefits of antipsychotics, and the range and nature of non-pharmacological interventions. These deficiencies enable inappropriate antipsychotic prescribing.	(31, 26, 18, 33, 28, 38, 29, 35, 17, 34, 32, 19, 37, 39)	**Moderate confidence**	Minor concerns regarding methodological limitations and relevance. Moderate concerns regarding coherence
7. More training and education to help prescribers and nursing home staff to improve skills and knowledge with regards to BPSD management is desired.	(18, 33, 38, 35, 17, 34, 32, 30, 37, 39)	**High confidence**	Minor concerns regarding methodological limitations
8. Even in individuals with sufficient skills and knowledge regarding BPSD management, a tension can	(26, 18, 38, 17, 32,	**Moderate**	Minor concerns regarding

exist between 'doing the right thing' and doing what's practical, especially if the resources or suitable alternatives are not perceived to be there to support adequate implementation.	30, 19, 36, 37)	**confidence**	methodological limitations and coherence. Moderate concerns regarding adequacy.
9. Knowing the resident and understanding their behaviors contributes towards successful BPSD management.	(31, 26, 18, 27, 38, 17, 30, 19, 37, 39)	**High confidence**	Minor concerns regarding methodological limitations and adequacy.
Communication and Collaboration			
10. Effective communication and collaboration (involving sharing information and listening to others) between all members of the healthcare team are key enablers to reducing inappropriate prescribing of antipsychotics. The involvement of family members can also be important in this process.	(31, 25, 26, 18, 33, 27, 28, 38, 29, 17, 34, 32, 30, 19, 36, 37)	**High confidence**	Minor concerns regarding methodological limitations, coherence and relevance
11. A lack of empowerment at all levels of the healthcare team and among family members is a barrier to informed decision-making regarding antipsychotic prescribing.	(31, 25, 26, 27, 28, 29, 17, 32, 30, 19, 36, 37, 39)	**High confidence**	Minor concerns regarding methodological limitations, coherence and relevance.
12. Fragmentation between different levels of care creates confusion surrounding roles and responsibilities, which can lead to inappropriate maintenance of antipsychotics.	(25, 26, 18, 33, 28, 29, 32, 36)	**Moderate confidence**	Minor concerns regarding adequacy. Moderate concerns regarding methodological limitations
Attitudes towards people with dementia and the management of BPSD			
13. Although there is a preference to use non-pharmacological interventions in the first instance due to the unpleasant side effects of antipsychotics, it is acknowledged that antipsychotics are a "necessary evil" and are often unavoidable.	(31, 26, 18, 33, 27, 28, 38, 35, 29, 17, 32, 30, 19, 36, 37, 39)	**Moderate confidence**	Minor concerns regarding methodological limitations and relevance. Moderate concerns regarding coherence.
14. Negative attitudes by individuals towards people with dementia can result in inappropriate antipsychotic prescribing. Conversely, empathy towards people with dementia can be protective.	(31, 18, 27, 28, 38, 35, 17, 30, 19, 36, 37, 39)	**Moderate confidence**	Minor concerns regarding coherence, relevance and adequacy. Moderate concerns regarding methodological limitations
15. Fear of the recurrence of behaviors motivates maintenance of antipsychotic prescribing.	(31, 25, 28, 17, 30, 37, 39)	**Low confidence**	Minor concerns regarding relevance. Moderate concerns regarding methodological limitations and adequacy
16. Organizational and societal attitudes towards people with dementia and the management of BPSD, exerts pressure on prescribers to make prescribing decisions.	(25, 26, 18, 27, 28, 38, 29, 17, 30, 19,	**High confidence**	Minor concerns regarding methodological limitations and

	36, 37)		coherence.
17. The attitude of the nursing home manager towards people with dementia and the management of BPSD dictates the treatment culture of that nursing home, and this has a strong influence on antipsychotic prescribing.	(27, 38, 32, 30, 19, 36, 37, 39)	**Moderate confidence**	Minor concerns regarding methodological limitations. Moderate concerns regarding adequacy
18. Tensions can arise due to incompatible beliefs towards antipsychotics between prescribers and nursing homes; in these cases a battle of wills develops where there is often pressure on prescribers to "do something" in order to restore control – doing nothing is not tolerated. However, sometimes there is pressure on prescribers to discontinue antipsychotics, to which there can be resistance from prescribers.	(25, 26, 29, 17, 32, 30, 19, 36, 37)	**Moderate confidence**	Minor concerns regarding methodological limitations. Moderate concerns regarding adequacy
Regulations and Guidelines			
19. Regulations are perceived to be the driving force for antipsychotic reductions in nursing home residents with dementia, but adherence to them can be challenging.	(18, 33, 34, 32, 36)	**Very low confidence**	Moderate concerns regarding methodological limitations. Substantial concerns regarding adequacy
20. Guidelines exert little influence on antipsychotic prescribing, but may act indirectly to increase knowledge regarding the risk/benefits of antipsychotics.	(26, 29, 17)	**Very low confidence**	Moderate concerns regarding methodological limitations. Substantial concerns regarding adequacy

684 BPSD, Behavioral and Psychological Symptoms of Dementia; CERQual, Confidence in the Evidence from Reviews of Qualitative Research.

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