



Nurses', Pharmacists' and Family Physicians' Perceptions of Psychotropic Medication Monitoring in Australian Long-Term Care Facilities: A Qualitative Framework Analysis

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Abstract

Background Current evidence suggests that despite modest benefit in using targeted psychotropic medications in the geriatric population, there is significant iatrogenic morbidity and mortality. Monitoring of the use of psychotropic medications by health care professionals (HCPs) to reduce adverse effects is often suboptimal; however, there have been few theoretically informed studies as to why this is so.

Objective This study aimed to elucidate facilitators and barriers to psychotropic medication monitoring in long-term care facilities (LTCFs) from the viewpoint of nurses, pharmacists and family physicians. Secondly, it intended to identify targets for tailored intervention strategies to improve monitoring practices.

Methods A purposive sample of 31 HCPs working in LTCFs in Sydney, New South Wales, Australia was recruited. Three cohorts consisted of twelve registered nurses, ten pharmacists and nine family physicians. Semi-structured interviews were conducted, assessing perceptions of psychotropic medication monitoring in LTCFs, facilitators, barriers and proposed solutions. Interviews were transcribed verbatim and thematically analyzed through an inductive coding approach. Themes were then mapped to Ferlie and Shortell's 'Four Levels of Change' framework for improving quality in healthcare.

Results Monitoring was revealed as a multi-faceted concept, influenced by factors across individual, group, organization and system levels. Thematic analysis revealed six key themes pertinent to psychotropic monitoring in LTCFs: (1) engagement with monitoring, (2) monitoring capability, (3) opportunity to monitor, (4) roles and responsibilities, (5) communication and collaboration and (6) guidance and regulation. HCPs conceptualized monitoring differently, but consistently felt that monitoring in LTCFs was suboptimal, recognizing a need for guidance and resources to aid collaborative monitoring of psychotropic medications. HCPs internally situated within LTCFs (nurses) viewed psychotropic medication monitoring as a dynamic and ongoing phenomenon, occurring both formally and informally on a day-to-day basis. In contrast, externally situated HCPs (pharmacists and family physicians) typically associated medication monitoring with structured medication reviews and conceptualized monitoring as an intermittent and planned activity.

Conclusions and Implications Psychotropic monitoring is perceived by all HCPs as a shared responsibility; however, the conceptualization of monitoring differs between HCPs. HCPs' beliefs and attitudes require consideration when designing implementation strategies for interventions to ameliorate suboptimal monitoring practices.

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1 Introduction

Psychotropic medications are commonly prescribed to long-term care facility (LTCF) residents, despite international best-practice guidelines warning against their modest effectiveness for neuropsychiatric symptoms and associated adverse effects [1–3]. Concerns regarding the off-label use and safety profile of these medications has resulted in initiatives to improve practices, including the institution of the 1987 Omnibus Budget Reconciliation Act (OBRA) in the United States of America [4], the issuing of public health

Key Points

Nurses conceptualize psychotropic medication monitoring as a continuous and ongoing process, in contrast to family physicians and pharmacists: a consensus definition is required.

Guidance on when and how to collaboratively monitor psychotropic medications in long-term care facilities is recommended.

Multi-level strategies will likely be required to improve psychotropic monitoring practices.

advisories for psychotropic use in persons with dementia [5] and mandated reporting of antipsychotic quality measures in LTCFs [6]. Similarly, in the United Kingdom, the 2009 Banerjee report encouraged judicious psychotropic medication use for people with dementia [7]. More recently in Australia, the Royal Commission into Aged Care Quality and Safety has investigated psychotropic medication use in LTCFs, finding prescriptions are clearly justified in only 10% of cases [8]. Internationally, there is an imperative to optimize psychotropic medication use and to mitigate harm in geriatric populations.

Medication monitoring is the process of evaluating therapeutic necessity, assessing medication-related effects and gauging adherence to therapy [9]. Although monitoring is performed for medication review, it is not exclusively a once-off structured assessment, but rather a continual and dynamic process occurring throughout the medication management cycle [9]. The medication management cycle encompasses activities that are performed by Health Care Professionals (HCPs) to promote quality use of medicines throughout episodes of care. This cycle includes prescribing, issuing, administering, reviewing and deprescribing [10, 11]. In LTCFs, medication monitoring is performed by family physicians [12], registered nurses [13] and accredited pharmacists [14]. Physicians typically make the initial prescribing decision; however, in LTCFs, the physician is often off-site and clinical decision making is heavily influenced by nursing judgments [9, 15]. Although reviews of medication necessity and efficacy are of great value and regular medication review is recognized as best professional practice by HCPs [14, 16–18], it is essential to frequently assess and re-assess the effect of psychotropic medications on target behaviors and quality-of-life measures through medication monitoring [9].

There are multiple international guidelines for the use of psychotropic medications for ‘behavioral and psychological symptoms of dementia’ (BPSD) such as those by the

World Health Organization (WHO) [19] and the International Psychogeriatric Association (IPA) [20]. These guidelines recommend regular monitoring at monthly (WHO) [19] to three-monthly (IPA) [20] intervals to assess ongoing treatment goals, dosing regimens, adherence, benefit of treatment, side effects and functioning in daily behavior. The extent to which medication monitoring occurs and its outcomes are not well established. Current literature suggests that psychotropic monitoring is suboptimal, often overlooked in the rush of clinical practice, and its absence is associated with adverse patient outcomes [9, 21]. So far there have been few theoretically informed studies that offer an insight into the underlying reasons as to why the current practice of HCPs is suboptimal. Additionally, there has been little research into how such insights might inform systemic change management to improve monitoring practices in LTCFs.

The research described in the current paper aimed to elucidate facilitators and barriers to psychotropic medication monitoring from the viewpoint of nurses, pharmacists and family physicians. In identifying factors that influence HCPs’ knowledge, skills and behaviors, we aimed to map these findings to an established multi-level conceptual framework for improving quality in health care systems—Ferlie and Shortell’s ‘Four Levels of Change’ [22]. This framework identifies the individual, group, organization and larger system level within the health service setting where change occurs and suggests an explicit need to consider multi-level approaches to change [22]. Through charting our findings to the framework matrix, we aimed to identify areas for tailored interventions to improve psychotropic medication monitoring in LTCFs.

2 Methods

Methods are reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist [23]. Operational definitions are provided in Appendix 1 (see electronic supplementary material [ESM]).

2.1 Participants and Recruitment

A purposive sample of registered nurses, pharmacists and family physicians who met the inclusion criteria of experience in the management, review and/or administration of psychotropic medications to residents of LTCFs in Sydney, New South Wales, Australia was recruited. Twelve nurses, ten pharmacists and nine family physicians ($n = 31$) participated. Table 1 presents participant characteristics. Nurses were recruited via identifying LTCFs in Northern Sydney and contacting the facility via telephone. Accredited pharmacists were identified through the Australian Association

of Consultant Pharmacy database and were invited to participate via email. Accredited pharmacists were sampled as they are the primary provider of pharmaceutical care services to the aged care sector in Australia. Family physicians were recruited through the distribution of electronic flyers. Further recruitment occurred via passive snowballing [24].

2.2 Procedure

Test interviews ($n = 3$) were conducted to evaluate the face and content validity of the semi-structured interview guide (Appendix 2, see ESM). Prompts were developed to ensure the guide addressed the primary aims of the study. Two final year Bachelor/Pharmacy Honors students, AL and GTN, underwent training in qualitative research methods and conducted interviews from September 2016 to July 2019. GTN conducted interviews with seven physicians in 2016. AL subsequently conducted interviews with nurses and pharmacists between 2017 and 2018 and conducted an additional two interviews at the end of the research period to confirm that data saturation was achieved. Face-to-face or telephone interviews of 30–60 minutes' duration were conducted at the participant's workplace or at the University of Sydney. Open-ended questions regarding psychotropic medication monitoring conceptualization, practice and perceived barriers and enablers were asked. The semi-structured nature of the interview allowed participants freedom of expression whilst allowing direct comparison of participants' responses [25]. Interviews were audio-recorded and transcribed verbatim. Transcripts were de-identified to maintain confidentiality after member checking was performed. Recruitment and analysis occurred in parallel until no new themes were elicited in three consecutive interviews and thematic saturation was deemed to have been achieved.

2.3 Analyses

To meet the research aims, a two-phase pragmatic approach was adopted. Phase one involved thematic analysis of

primary data using an inductive approach. Transcripts were coded and analyzed using QSR International NVivo-11 software [26]. A coding index was developed by AL and CR through independently coding transcripts and comparing consistency in themes observed. Coding discrepancies were discussed and resolved, with CS acting as moderator. The coding index was iteratively refined throughout the analysis to ensure that the derived themes adequately represented the data. A secondary phase was then undertaken whereby the inductively derived themes were mapped to predefined strata in Ferlie and Shortell's 'Four Levels of Change' framework [22]. This model recognizes the need for action at the individual, group, organizational and system level to improve health care practices and provides an extension to the traditional three-level strata model consisting of the Micro, Meso and Macro levels [27]. The pre-existing constructs from Ferlie and Shortell's model were revised and expanded upon through applying the inductively derived themes to the existing framework. The proximity and overlapping of coding informed connections between themes and subthemes.

3 Results

Thematic analysis identified six major themes pertaining to participants' experiences of psychotropic medication monitoring. The perspectives presented by nurse participants were heterogeneous in nature, portraying a range of lived experiences, whereas pharmacist and physician participant responses mostly aligned. Representative participant quotes are presented to illustrate the identified themes. Themes and subthemes are then presented within Ferlie and Shortell's strata to contextualize findings within the multilevel health-care system context.

3.1 Phase 1: Theme Generation

3.1.1 Engagement with Monitoring

Engagement with psychotropic medication monitoring varied amongst participants; however, there were significant commonalities within professions. A passive approach to monitoring due to decision inertia [28] was identified. Nurse and pharmacist participants observed that psychotropic medications were customarily re-ordered by physicians without adequate re-assessment. Residents who entered LTCFs on psychotropic medications would likely remain on established regimens. Participants attributed this to the idea that modifying therapies in older adults could be distressing for the resident or for LTCF staff due to potential relapses in behaviors or medication withdrawal symptoms. Pharmacist and physician participants highlighted perceived unrealistic expectations of nurses and family members regarding the

Table 1 Participant characteristics ($N = 31$)

	Nurses ($n = 12$)	Pharmacists ($n = 10$)	Physicians ($n = 9$)
Gender			
Female	9	8	3
Male	3	2	6
Years practicing in profession (mean \pm SD)	25 \pm 13	24 \pm 7	26 \pm 14
Years practicing in LTCFs (mean \pm SD)	15 \pm 6	14 \pm 13	16 \pm 11

SD standard deviation, LTCFs long-term care facilities

efficacy of psychotropic medications for BPSD, leading to continuation of use. Pharmacists saw themselves as potential disruptors of the identified decision inertia [28].

“I think when people are initiated on medicines they are looked into and decided appropriately, but when people have been on them for a long time, they would just keep getting re-ordered” (Nurse 1, Female)

The perceived need for monitoring psychotropic medications was reactive to a resident’s health status. ‘Stable’ residents were less likely to be monitored, whereas enhanced monitoring occurred when new psychotropic medications were commenced or concerns were raised by family members.

“If a resident is stable, that could be a barrier to monitoring, because it’s like ‘alright well we won’t touch anything’...so I think until something goes wrong like a fall or the patient is really dopey during the day and a family member gets distressed, yeah nothing will happen” (Pharmacist 6, Male)

“When changing the dose, I will monitor the patient more often and the way I do that is rebook myself to see them in a couple of weeks” (Physician 4, Male)

Nurse participants voiced a lack of self-efficacy, without empowerment to question medication rationale. Pharmacist participants felt comfortable informing physicians of potential areas for improvement; however, they felt frustrated that recommendations may not be actioned. Pharmacist participants suggested that physicians require greater confidence in deprescribing practices such as tapering benzodiazepines and may require more specific clinical guidance in this domain.

“If I really wasn’t sure I would call the Doctor, I really don’t want someone to die on my shift. But I think a lot of people will just give out what is on the drug chart without questioning it” (Nurse 1, Female)

“Say with the benzodiazepines, the doctors are fully aware that there’s not really the evidence to support their use. But they don’t take them off them still and I think they must be afraid to, or just don’t know how.” (Pharmacist 5, Male)

Pharmacist and physician participants commented on differences in organization culture across the LTCFs that they serviced and proposed that corporate philosophies that focused on quality use of medications allowed for regular audits and greater opportunities for intervention. It was proposed that some LTCFs valued psychotropic medication minimization more than others and this was reflected in the training and actions of their staff.

“I think it’s got to do with head office and nursing home management and whether they promote quality use of medicines and if they promote an environment that auditing is actually used and is useful.” (Physician 7, Female)

“I have been to a lot of professional development stuff about de-escalation of behaviors and aggression minimization so I have a lot of skills where I cannot use medications and still deescalate” (Nurse 5, Female)

3.1.2 Monitoring Capability

Nurse and pharmacist participants raised concerns regarding perceived inadequacies in nurses’ knowledge of psychotropic medications. Nurse participants requested further education regarding the pharmacology of psychotropic medications. Nurse, pharmacist and physician participants commented that personal care workers had inadequate knowledge to monitor effectively. Nurse participants suggested that it would be beneficial for personal care staff to upskill on aspects of care such as the use of de-escalating behavior techniques for BPSD. Nurses who attended training on diversional therapies commented on the benefit to themselves and residents.

“A lot of it comes down to individuals knowing what to look for. Like I am sure there are way more things I am supposed to monitor but I actually just don’t know.” (Nurse 3, Female)

“If you have certificate 4 staff, (personal care assistants) they are not skilled to do that kind of thing, to be honest I don’t think a lot of the nurses are either.” (Pharmacist 2, Female)

Pharmacist participants felt confident in their skills and observed improvements in psychotropic medication monitoring after delivering targeted educational sessions to nurses and physicians. Pharmacist participants suggested that physicians require further education to minimize inappropriate use of psychotropic medications. Physician participants mirrored this sentiment, identifying a need for academic detailing or greater involvement of geriatricians and psycho-geriatricians in the care of residents with dementia, but commented on a lack of funding as a barrier to this occurring.

“We often will do education that will focus on particular areas and at one of the facilities, I also gave them a lot of information on the antipsychotics and the guidelines, and antipsychotic use actually went down and the sedative use went down too” (Pharmacist 1, Female)

3.1.3 Opportunity to Monitor

This theme comprised both direct opportunities for HCPs to monitor as well as the creation of opportunities to enable monitoring. All cohorts of participants identified that nurses had the greatest opportunity to observe changes in a resident's health status. A trend toward fewer registered nurses employed in LTCFs was thought to have a negative impact on monitoring. Inadequate staffing levels and staff casualization were identified as barriers. It was proposed that permanent team members would aid monitoring due to enhanced knowledge about residents' needs.

"There's certainly a trend towards use of non-registered nurses so that workforce certainly impacts negatively on nurses' ability to monitor." (Pharmacist 11, Female)

"I think one of the important things would be having more permanent staff who know the patients well and know if there are changes to their health or behavior" (Nurse 2, Male)

Heavy workloads, time constraints and administrative burdens were identified as factors that limited monitoring opportunities. A common perception of nurse participants was that there was insufficient time to look up medication side effects or attempt de-escalation strategies. Pharmacist participants highlighted that the corporatization of Residential Medication Management Review (RMMR) services contributed to increased workload pressures and an expectation to complete a higher number of medication reviews per LTCF visit, resulting in a decrease in quality.

"Ideally, I would like it if I didn't have to medicate anyone, instead I want to have enough time to just sit with people and keep them calm." (Nurse 2, Male)

"There is a lot of corporatization these days which I don't think is a good thing, like the bosses of the organizations are saying every time you go there I want you to do 20–25 reviews and you just can't do it properly." (Pharmacist 2, Female)

"I mean its deteriorated dramatically in the last decade and a half...now the most important thing is paperwork" (Physician 9, Male)

All participants saw funding as an instrument to improve monitoring. Direct funding for resources and monitoring events such as RMMRs and indirect funding to optimize staffing levels were discussed. Increased government funding to employ additional nurses was a commonly held preference. Although most pharmacists supported provisions for regular pharmacist intervention, they saw a lack of remuneration as an obstacle. Physician participants expressed that inadequate remuneration for informal consultations deterred regular monitoring.

"You need to have appropriate funding for RMMRs (Residential Medication Management Reviews) and QUM (Quality Use of Medicines) services...now I don't think it should be willy-nilly but I do believe it should be less stringent criteria" (Pharmacist 7, Female)

"You need to solve that funding issue. Whether it be by paying someone to be there or pay to be contacted. You pay the facility, not the doctors." (Physician 3, Male)

3.2 Roles and Responsibilities

Medication monitoring was viewed as a shared responsibility among HCPs. Nurse participants felt that issues pertaining to medications were primarily the responsibility of the physician and pharmacist. Nurse participants recognized a need for assessing medication safety when administering psychotropic medications; however, perceived responsibility was mitigated when dose administration aids (blister packs) were used. In this instance, nurses believed that medications would already have been checked by the dispensing pharmacist. Participating pharmacists advocated for dispensing pharmacists to be afforded greater responsibility for monitoring through their role as the supplier.

"So you kind of feel stuck...and you think, well I won't give it, do you have the power not to give it? Like where does the responsibility lie?" (Nurse 1, Female)

"I think it is also their (Nurses) job because as I said I'm not there every day and they are so they are better equipped to monitor for adverse events than I am." (Pharmacist 8, Male)

"I see it as our responsibility – we are the ones writing the prescriptions, so we are the ones responsible for monitoring the effects and toxicity" (Physician 9, Male)

3.3 Communication and Collaboration

Communication at both intra- and inter-professional levels was considered beneficial. The primary barrier to communication was the lack of co-location of physicians and pharmacists to the LTCF. Regular formalized communication channels were perceived as a mechanism to overcome this, as well as more frequent LTCF visits by pharmacists and physicians. Monitoring was identified as a shared responsibility amongst HCPs and there was an emphasis that working collaboratively would improve both monitoring frequency and quality.

"But they (doctors) don't even interact with the patients. Maybe they will talk to us nurses and ask a few questions but then they will just go sit down at the desk and do all their paperwork." (Nurse 5, Female)

“You have to be on site in the facilities, the nurses have to know you...why would a nurse listen to someone who they don’t know, throwing around their recommendations? It’s all about relationships and credibility.” (Pharmacist 2, Female)

Communication through media and publications were thought to influence the prescribing of psychotropic medications. It was highlighted that media attention often resulted in family members vocalizing concerns regarding psychotropic medication use for their relatives.

“I know it’s bad, but as soon as something goes on the media everyone listens. There was a report on risperidone in aged care...everyone had heard about it and said ‘Oh my God! I don’t want MY grandmother on that drug!’” (Pharmacist 6, Male)

3.4 Guidance and Regulation

Pharmacists believed that they were familiar with and utilized best-practice guidelines but felt that physicians regularly prescribed off-label psychotropic medications. Nurses requested clearer guidance on what constitutes chemical restraint, requesting clarification on the difference between treating acute agitation and controlling behavior. All HCPs spoke of the benefit of standardized protocols in LTCFs for monitoring processes and requested the implementation of novel protocols.

“Prescribing information for Risperdal says no more than three months and that’s made no difference. It’s the only drug approved but they still use olanzapine, they still use Seroquel... I don’t think the guidelines are enforced.” (Pharmacist 2, Female)

“With psychotropic drugs I think there needs to be more written guidelines available for staff, so they know what to look for” (Nurse 1, Female)

Pharmacist participants advocated for regulation to enforce current guidelines. Additional regulatory approval systems for physicians to prescribe psychotropic medications for residents with BPSD was identified as a mechanism to reduce inappropriate prescribing. Some family physicians suggested enforcing specialist physician review after 3 months of psychotropic treatment, however, there was skepticism regarding legislation resulting in practice change. LTCF accreditation was identified as a facilitator for monitoring by encouraging audit activity and ensuring accountability. However, nurse participants felt facilities were not provided with sufficient accreditation feedback on areas for improvement.

“I support specialist review after three months but that doesn’t mean that behaviors [in prescribing] will change.” (Physician 2, Male)

“Having regular accreditation helps nursing homes monitor the drugs more because they feel more accountable for it.” (Nurse 1, Female)

Participants identified many established beneficial monitoring aids that provided guidance and support for medication monitoring, however, it was thought that some contributed to an administrative burden. Despite improving time efficiency, nurses were concerned that the use of blister packs inhibited their ability to monitor as they were unaware of the medications they were administering.

“The medications would come from the pharmacy already pre-packaged in these little bags, like you couldn’t even tell which pill was which and there are no expiry dates, and I often would think, something could be wrong in this pack but I’m giving it anyway” (Nurse 5, Female)

3.5 Phase 2: Model Development

Figure 1 illustrates the mapping of inductively derived themes and subthemes to Ferlie and Shortell’s framework [22]. This model demonstrates that thematic findings are not stand-alone constructs, rather they are interconnected. Further, the identified themes are not exclusive to one stratum. Sub-themes were distinctly categorized into different strata, but representative themes spanned multiple strata. Interconnections as identified by participants are represented by arrows, illustrating the perceived interrelation of factors influencing psychotropic medication monitoring. Several themes are directly linked through participants’ responses such as the influence of organizational culture on individuals’ engagement with psychotropic monitoring. Other themes span strata through antecedents such as creating opportunities to monitor via system-level funding and remuneration, thereby influencing capability at an organizational level through education and training, which in turn influences individuals’ knowledge and skills. Arrows connecting themes and subthemes are either uni-directional or bi-directional depending on the links identified by participants. It is possible that additional arrows could be drawn between themes; however, only connections identified by participants in this study have been used.

4 Discussion

Six distinct yet interconnected themes with subthemes were identified from thematic analysis of HCPs’ perspectives of psychotropic monitoring in LTCFs. Nurse, pharmacist and

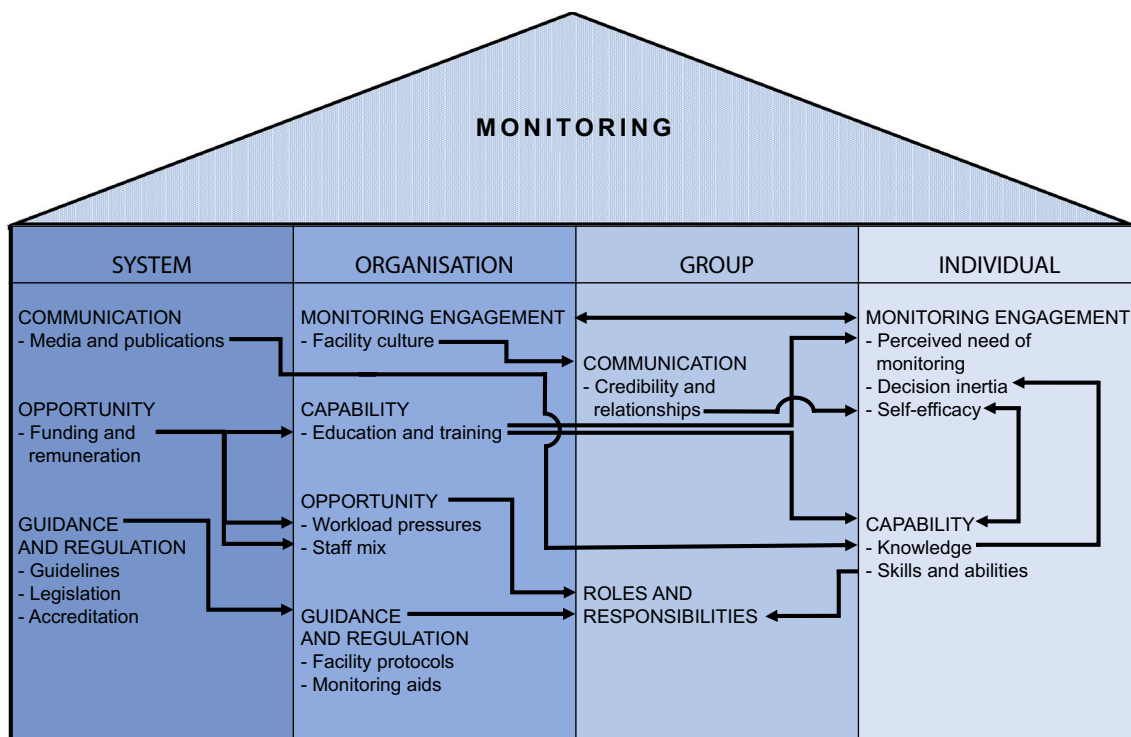


Fig. 1 Psychotropic monitoring inside the long-term care facility—a model derived from Ferlie and Shortell’s [22] framework for change

family physician participants conceptualized monitoring differently, yet all participants perceived psychotropic medication monitoring in LTCFs as suboptimal and recognized a need for improvements in practice. Findings, mapped to Ferlie and Shortell’s framework [22], developed a model that contextualizes factors perceived to influence HCPs’ monitoring of psychotropic medications within strata of the wider health care system. The identified interconnections in this model suggest that quality improvement initiatives that target one aspect of the model will likely have associated effects. The directionality of the interconnections also suggests that strategies which modify the features to the left of the model (system- and organization-level factors) have the greatest propensity to have downstream influences. This model may allow for the development of targeted strategies to improve psychotropic monitoring practices in LTCFs.

Despite all groups identifying key aspects of the medication management cycle such as assessments of necessity, safety and effectiveness as paramount to the process, there were discrepant opinions with respect to the scope and frequency of monitoring in LTCFs. Nurses viewed monitoring as a regular, ongoing process, occurring both formally and informally on a day-to-day basis. Pharmacist and family physician participants typically associated monitoring with structured medication reviews and described monitoring as predominately a planned activity. Nurse participants depicted monitoring as a routine aspect of daily care

or, alternatively, a spontaneous activity prompted by the deterioration of a resident’s health. Despite differences in conceptualization, participants recognized that monitoring required a multidisciplinary approach and agreed that nurses, pharmacists, family physicians and family members were the four primary stakeholders in psychotropic medication monitoring.

A concept elicited in all HCPs’ responses was the identification of psychotropic medication monitoring as a shared interprofessional responsibility. Within the medication management cycle [10], physicians were perceived to be responsible for monitoring during prescribing and reviewing, nurses when administering, and community pharmacists when supplying medications. The accredited pharmacist did not have a specified point of intervention within the traditional management cycle [10] and was considered an independent reviewer. In the context of Fig. 1, roles and responsibilities were influenced by factors at the individual level such as skill and abilities, as well as system and organizational factors such as staff mix, guidance and regulation. Although collaboration between HCPs was identified as a facilitator to monitoring, it was elicited that the concept of shared responsibility in the LTCF resulted in no profession taking sole ownership of the monitoring process. This has the potential to result in suboptimal monitoring as stakeholders believe the task will be conducted by another HCP. Collaborative practice, whereby nurses, pharmacists and

family physicians work together to monitor medicines, may be achieved through improved transparency, communication and inter-professional relationships. This may be supported by the co-location of pharmacists and family physicians to the LTCF. The benefit of interdisciplinary interventions on reducing psychotropic medication use and improving patient outcomes has been demonstrated in Australian LTCFs in both the HALT [29] and RedUSE [30] studies. In accordance with Fig. 1, organizational-level factors such as LTCF protocols and system-level provisions such as funding and remuneration will impact on the feasibility of the proposed initiative and may require modification to facilitate successful outcomes.

A tension was revealed between the concepts of capability and opportunity. Pharmacist and physician participants felt that nurses had the greatest opportunity to regularly monitor psychotropic medications due to frequent resident interaction. Although nurses acknowledged this advantage, all cohorts of participants felt that organization-level barriers such as workload pressures and inadequate staffing levels impacted negatively on this opportunity. Resource-related barriers have been described extensively in the literature as factors that inhibit nurses' abilities to provide patient care [31], giving impetus to the need for increased funding directed at improving resourcing. Despite having the greatest opportunity, it was not believed that nurses had the greatest capability to monitor. Concerns of lacking psychotropic medication knowledge and abilities to implement non-drug strategies were raised and many nurses lacked self-efficacy in raising concerns with physicians. These findings mirror existing literature on barriers to medication management in LTCFs from the perspective of nurses [32]. Figure 1 reveals that system-level funding not only directly influences opportunity, but also capability through allowing education and training opportunities for LTCF staff. In contrast to nurses, pharmacists felt confident in monitoring capabilities, but felt they did not have adequate opportunities for monitoring. This was largely due to system-level provisions and remuneration models that restrict pharmacists on the frequency of RMMRs. Previously, pharmacists were only able to conduct reviews on a biennial basis, however, in response to the Interim Report of the Royal Commission into Aged Care Safety and Quality, there is now funding for up to two remunerated follow-up services within 9 months of the initial patient interview [33]. It is positive to see additional allocation of funds to LTCF staff, which may aid in monitoring events; however, the findings of this study suggest that nurses, the HCPs with the greatest opportunity to monitor, should be an additional focus of future funding initiatives.

Engagement with psychotropic monitoring varied among HCPs; however, most were identified to be reactive in their monitoring approach. Many participants spoke of the inertia of the medication management cycle and a reluctance

to modify residents' regimens. Although RMMRs were often reactive upon physician request, pharmacists encouraged proactivity and viewed themselves as a disruption to decision inertia [28]. Pharmacist participants felt that their recommendations for psychotropic medication deprescribing were in accordance with clinical guidelines, yet felt that other HCPs required additional training and access to targeted clinical guidance to improve proactive psychotropic monitoring. Although clinical guidance may direct and improve HCP practice, a recent systematic review found greater evidence of impact for mandatory strategies when compared with non-mandatory strategies on drug-utilization patterns in LTCFs [34]. As such, system-level strategies to improve psychotropic monitoring may result in more substantial change if they are implemented in the form of regulation or accreditation standards, rather than non-mandatory guidelines or protocols. Previous literature has identified organizational culture as an important influence on psychotropic use and participants in this study commented on the differences in culture across the LTCFs they serviced [35, 36]. Mandatory strategies targeting psychotropic medication monitoring may be able to promote consistent approaches and outcomes across LTCFs with varying work environments and cultures.

Participants' infrequent reference to the LTCF resident is of note. The consumer is found at the center of the medication management cycle [10], yet consumer-related factors were not considered in most participants' responses. This could be attributed to the fact that participants largely focused on residents with BPSD who may be cognitively or communicatively impaired and may be unable to communicate their concerns to HCPs [37]. It is possible that family members were identified as a key stakeholder for this reason. This hypothesis requires further investigation; however, it may suggest an opportunity for greater involvement of consumers in their health care, including the use of advanced directives for dementia patients.

4.1 Implications for Practice and Future Research

Through understanding the beliefs, attitudes and behaviors of HCPs in the context of a healthcare system model, the findings of this study may aid in identifying and focusing efforts for change and may be useful for protocol builders of complex interventions. The findings of this study suggest there are practice implications at the system, organization, group and individual levels. Due to the interrelated nature of the findings, it is likely that strategies that target one aspect may create change throughout the system. Variability in beliefs, attitudes and organizational factors suggests that initiatives should target higher framework strata; however, this variance also suggests that regardless of intervention design, implementation strategies are essential to ensure consistency

in uptake and outcomes. Consistency in conceptualization of monitoring by HCPs prior to intervention is essential. At a system level, the findings from this study suggest a need for explicit guidance for the monitoring of psychotropic medication in LTCFs. This could be at multiple levels including HCP-specific guidance for individual professions, nursing home policy and procedures, as well as information for healthcare teams. The development of practice guidelines may facilitate a shared conceptualization of psychotropic medication monitoring and provide directives on the frequency and features of monitoring. As the end users of future guidelines or policies, the perspectives of nurses, pharmacists and family physicians are essential to ensure acceptability and utility. A recognition of psychotropic medication monitoring as a collaborative responsibility amongst the multidisciplinary HCP team is required. There needs to be a specific focus on capacity building for nursing staff to empower them to perform psychotropic monitoring such as educational initiatives and a consideration of the provision of adequate resources to facilitate this. Further, addressing the disconnect of pharmacists and physicians from the LTCF may improve monitoring and patient outcomes, as has been demonstrated in trials to embed pharmacists in LTCFs both in Australia [38] and the United Kingdom [39].

4.2 Limitations

The small sample size ($n = 31$) in this study may be a limitation. The demographics of participants reflected a range of experience within the industry; however, the sampling technique may have introduced self-selection bias through capturing participants who had an interest in psychotropic medication monitoring. Furthermore, we did not interview community pharmacists or personal care staff who may offer differing perceptions. Participants were from one State in Australia, suggesting that the applicability of these findings to other settings may be limited. We attempted to minimize reflexivity in analysis through independent review of data by co-authors from medical and nursing disciplines, as both interviewers were from the pharmacy discipline. We further attempted to minimize the impact of two independent interviewers by both students utilizing the same interview guide and possessing similar demographics, education and training in qualitative research methods. Interviews were conducted over a 3-year period, which was a further limitation as we could not account for changes in practice that may have occurred during this time. The length of data collection was largely due to difficulties in recruitment of family physicians. We elected to conduct additional physician interviews at the end of the research period and compare these to the initial interviews to confirm that data saturation

had been achieved. The multiple time sampling resulted in no new themes, thereby strengthening the trustworthiness of the obtained results. It is possible that perspectives of nurses and pharmacists may have changed over the study time period due to the influence of factors such as the Royal Commission into Aged Care Quality and Safety and subsequent changes in legislation. As such, this study may provide a sound baseline for a comparison evaluation in implementation of interventions following the Royal Commission.

5 Conclusions

Nurse, pharmacist and family physician participants identified considerable deficiencies in psychotropic medication monitoring and a need for strategies to ameliorate suboptimal use. Despite HCPs considering themselves as enablers to improve monitoring with support from colleagues, LTCFs and system-level interventions, there is significant variance in how HCPs conceptualize psychotropic monitoring. It is likely, in accordance with Ferlie and Shortell's framework [22], that strategies for change will require a multi-level approach. The findings from this study may inform the development of effective and appropriate strategies and policy initiatives to improve medication management in LTCFs.

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Declarations

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