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Research Article

Exploration of an On-Site Pharmacist Intervention within Australian Residential Aged Care Facilities Using Normalisation Process Theory: A Mixed-Methods Study

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Residents living in residential aged care facilities (RACFs) continue to experience medication-related harm. There is ongoing interest in expanding the role of pharmacists, including on-site pharmacists (OSPs), to help improve medication management in RACFs. The objectives of this mixed-methods study were to explore the extent and ways in which on-site pharmacists (OSPs) were normalised within RACFs as part of a complex intervention seeking to improve medication management. This study consisted of semistructured interviews informed by normalisation process theory (NPT) and a quantitative survey adapted from the normalisation measure development questionnaire (NoMAD) instrument which is underpinned by NPT. Semistructured interviews with prescribers, RACF managers, RACF nursing staff, OSPs, residents, and family members ($n = 47$) indicated that most participants supported OSPs within RACFs that having OSPs in RACFs made sense and was perceived as beneficial and that participants were invested in working with OSPs who often became part of routine practice, i.e., "normalised." Prescribers, RACF managers, and nursing staff (health care team members) completed the adapted survey, and their responses ($n = 16$) strongly complemented the positive qualitative findings. Overall, OSPs were positively appraised by health care team members as well as residents and family members and were generally considered to be normalised within their respective RACFs. This study explored the normalisation of OSPs within RACFs. From the perspective of residents, family members, health care team members, and OSPs, OSPs could become part of routine practice within Australian RACFs. The findings of this study also highlighted the value of using theory to guide the evaluation of a pharmacist intervention in RACFs and the utility of applying NPT in a new setting, Australian RACFs. Importantly, the findings of this study could help inform the future role of OSPs working and the rollout of OSPs within Australian RACFs.

1. Introduction

Medication-related harm remains an ongoing problem for residents living in residential aged care facilities (RACFs) [1, 2]. It is well established that residents living in RACFs are at high risk of medication-related harm arising from high rates of inappropriate medication use [3] which can lead to unplanned hospital admissions and higher health care costs [1, 4]. This problem may be partially attributed to the complex nature of medication management processes within RACFs [5]. Broadly consistent with RACF practice internationally, Australia's Guiding Principles for Medication Management in Residential Aged Care Facilities describes how general practitioners (GPs) coordinate the

health care of residents. Complexity exists as multiple health care professionals (specialist in palliative care, geriatricians, and other specialists), RACF staff (registered nurses), and allied health professionals (pharmacists) are involved in the prescribing, dispensing, administration, and supply of medications to residents living in RACFs [6]. In addition, it is widely accepted that healthcare system, facility, and/or health professional level factors may also impact medication management within RACFs, including but not limited to information communicated at care transitions and irregular resident medication reconciliation and review upon returning to RACFs, e.g., from the hospital or at RACF admission [6].

To address the multifactorial nature of RACF medication management processes, complex health interventions are required. A "complex intervention" is characterised as an intervention with numerous components which interact with each other to contribute to intended outcomes [7]. To ensure positive patient outcomes, it is essential that complex health interventions be evaluated. Quality evaluation of complex interventions can support the dissemination and adoption of evidence-based interventions in the real world [8].

The Pharmacists in Residential Aged Care Facilities (PiRACF) study was a cluster randomised controlled trial which investigated whether OSPs directly employed part-time by RACFs could improve medication management [9]. The OSP intervention was complex given its focus on improving medication management at both the resident and RACF levels, requiring collaboration and communication with multiple stakeholders, thereby also supporting resident-centred care.

In a recent scoping review, we highlighted that the use of theory to frame evaluations of pharmacist interventions in RACFs is sparse [10]. This is despite some evidence that public health interventions underpinned by theory are more likely to demonstrate positive health outcomes [11]. Nested within the PiRACF study, this mixed-methods study used normalisation process theory (NPT) to explore whether and how having OSPs in RACFs became part of routine practice, i.e., "normalised" in Australian RACFs.

NPT was considered suitable for this study *a priori* given that it can provide an understanding of how new practices in health and other settings can become normal practice at both the individual and collective levels [12]. NPT has been employed in implementation, feasibility, and process evaluation studies to evaluate complex interventions across various settings [12–14]. NPT has also been previously utilised in complex intervention studies undertaken in RACFs [15–17]. NPT consists of four constructs (coherence, cognitive participation, collective action, and reflexive monitoring) [18] with further descriptions of each construct described in Table 1. More recently, a 23-item normalisation measure development questionnaire (NoMAD) instrument was developed based upon the four NPT constructs, which has demonstrated good construct validity and face validity [19].

This topic is important because the OSP role is relatively new and gaining an understanding of the workability and integration of OSPs within RACFs could help inform the anticipated rollout of OSPs within Australian RACFs from 2023 [20]. An underlying premise of NPT is that if a complex intervention is fully workable and is integrated entirely into routine practice, this will support the overall success of the intervention [21]. Thus, if OSPs are considered as part of routine practice, this would increase the likelihood of their impact on improving medication management within RACFs. To date, there is sparse literature available on the workability and integration of OSPs within RACFs in Australia and internationally. This study addresses this research gap, and moreover, it has helped to identify future OSP research studies as well as policy and practice implications which could inform OSP rollout within Australian RACFs.

The aims of this study were to understand the extent to which OSPs became part of routine practice, i.e., "normalised" and how OSPs were normalised (or not) within these RACFs from the perspectives of residents, family members, OSPs, and health care team members (specifically prescribers, managers, and nursing staff).

2. Methods

This study employed an embedded mixed-methods study design. A qualitative-dominant approach was taken with a smaller quantitative component to enhance this study's methodology [22, 23]. An important element of reducing medication-related harm relates to collaboration among GPs, RACF nursing staff, and pharmacists [24]. As such, the perspectives of these health care professionals were sought in this study. Consistent with other pharmacist interventions in RACF studies, the manager perspective was also sought [16, 25]. Resident and family member insights were sought, as their end-user perspective is an important evaluation component when assessing care provision [26]. The use of an adapted survey based upon the NoMAD instrument was also consistent with the approach taken by the Care Home Independent Prescribing Pharmacist Study (CHIPPS) study team whose process evaluation study protocol included the use of the NoMAD instrument [27]. Given the objectives of this mixed-methods qualitative dominant study, survey data reliability and construct validity tests were neither planned *a priori* nor undertaken for this study. However, for this study, the adapted survey was piloted by a prescriber and nurse who provided feedback to help establish face validity.

For this study, data were collected from semistructured interviews and an adapted survey from April 2021 to January 2022. This timeframe meant that participant feedback was sought from at least nine months after the OSP's commencement within their respective RACF. A prescriber and nurse piloted the interview guide and adapted the survey to establish face validity. A family member of a resident living in an RACF also piloted the interview guide. For the purposes of this study, specific interview questions were underpinned by NPT as well as seeking insights for the PiRACF study evaluation. A range of stakeholder perspectives were obtained using a purposive (stratified) sample approach [28]. Health care team members (prescribers, RACF managers, and nursing staff), OSPs, residents, and

Table 1: Definition of each NPT construct.

NPT construct	Definition
Coherence	The first NPT construct of coherence (making sense of the intervention) relates to how participants make sense of the intervention at the individual and team level. Making sense of the intervention includes having an understanding of how the new practice compares to usual practice and the perceived value of the new practice [18]
Cognitive participation	The second NPT construct of cognitive participation (investment in the intervention) relates to the engagement of participants in operationalising the new practice. Investment in the intervention includes key people driving the new practice and perceiving the intervention as being a legitimate part of their new practice, as well as being willing to adopt the new practice [18]
Collective action	The third NPT construct of collective action (enacting the intervention) relates to the work which participants undertake to operationalise a new practice. Enactment of the intervention includes the ease of intervention integration into existing work, the impact on working relationships, confidence of others participating, and adequate management support of the new practice [18]
Reflexive monitoring	The fourth NPT construct of reflexive monitoring (appraising the intervention) relates to the work which participants undertake when assessing a new practice at the individual and team level. Appraisal of the intervention includes awareness of the new practice, perception of the new practice's impact, potential to modify work to incorporate the new practice, and support future improvements [18]

family members were invited to participate in the semi-structured interviews.

Health care team members were invited to complete the adapted survey, informed by the NoMAD instrument to obtain their individual and collective perspectives. It was estimated that the total number of prescribers, RACF managers, and nursing staff in the seven RACFs would be approximately 127 given available RACF staffing data. The estimated survey response size required was 46 noting previous mixed methods studies which have employed the NoMAD instrument with a mean response rate of 36% [29, 30].

2.1. Data Collection. For the health care team member interviews and surveys, RACF managers facilitated e-mail recruitment. E-mail reminders and individual invitations were also sent to prescribers, RACF staff, and OSPs. Hard copy surveys and a locked survey box were distributed to RACFs to facilitate survey completion.

For the resident and family member interviews, OSPs and/or RACF managers contacted those who had interacted with the RACF OSPs. Only participants with the capacity to consent were eligible to be interviewed. Residents and family members were provided a $20 gift card for their involvement.

The lead author (MB) conducted audio-recorded interviews. These interviews were transcribed, checked, and deidentified to ensure participant anonymity and confidentiality [31].

2.2. Data Analysis and Reporting. Ritchie and Spencer's framework analysis approach was used to analyse the qualitative data [32]. This approach consists of the following steps: (1) familiarisation; (2) constructing a thematic framework; (3) indexing; (4) charting; (5) mapping; and interpretation [32]. This approach was chosen in recognition of the anticipated large volume of qualitative data associated with this study [33]. The qualitative data was deductively coded and analysed based on the NPT constructs. Regular ongoing discussions with coauthors informed the development of an initial coding framework, along with the analysis and interpretation of the data [34]. NVivo was utilised to aid in data management and maintain a clear audit trail [35].

All quantitative data (inclusive of hard copy survey results entered by the study team) were downloaded from Qualtrics and cleaned in Microsoft Excel. Consistent with Lewis et al. mixed-methods study which employed the NoMAD instrument, survey responses for this study were described and summarised at the group level [30].

The qualitative data in this study was reported according to the Consolidated Criteria for Reporting Qualitative Research Checklist [36]. The mixed-methods data were integrated at the interpretation stage [37], with qualitative findings reported followed by quantitative and integrated data findings, consistent with the dominant qualitative approach of this study. This mixed-methods study was also reported according to Hadi et al.'s recommendations to improve mixed-methods research reporting for pharmacy practice researchers [38].

The Human Research Ethics Committees at the University of Canberra (HREC-2007), ACT Health (2019/ETH13453), and Calvary Public Hospital Bruce (30–2019) approved this study. Written consent from participants was obtained prior to interviews and survey commencement.

3. Results

Forty-seven interviews were undertaken with general practitioners ($n = 7$), nurse practitioners ($n = 2$), RACF managers ($n = 7$), RACF registered nurses ($n = 9$), RACF enrolled nurses ($n = 1$), OSPs ($n = 7$ interviews with 6 OSPs (one OSP worked across two RACFs)), residents ($n = 10$),

and family members ($n = 4$) from seven RACFs participating in the PiRACF study. The interview length ranged from 14 minutes to 163 minutes. The median duration of interviews for health care team members, residents, and family members was 38 minutes. The OSP interview median duration was 148 minutes. Semi-structured interview participant characteristics are described in Table 2.

Sixteen completed surveys ($n = 16$) were returned between April 2021 and January 2022 from 10 RACF nursing staff, 3 RACF managers, and 3 prescribers, with a survey response rate of 13%. A contributing factor to the low survey response may have been the ACT COVID-19 lockdown which commenced in August 2021 and resulted in an increased workload for health care professionals, including RACF staff [39]. The adapted survey findings are displayed in Table 3. The qualitative, quantitative, and integrated findings for this study have been reported according to the NPT constructs.

3.1. Coherence. Overall, most participants interviewed considered that having the OSP at their respective RACF was different from usual practice and was beneficial, particularly with regards to the provision of more timely medication-related information for residents and family members.

The qualitative findings suggested that most participants across the seven RACFs agreed that OSPs working within their respective RACFs differed from usual practice. Some residents and family members across the RACFs considered that the OSP was more available compared to RACF staff and visiting GPs (usual practice). As described by one resident, who valued knowing what medications they were being prescribed, their GP "*combined one particular tablet with another particular tablet. [The GP] didn't tell me what the name of it was. . . But [the OSP] found out [as I asked the OSP, otherwise] I would've wait[ed] "til my next appointment which is in June [three months later] with that particular doctor. . . [to ask] "What have you done? What is it?""* [R3.1]. This quote illustrates that having the OSP at that RACF resulted in the resident knowing what medications they were taking in a more timely manner as compared to usual practice.

In addition, one manager described a reduction in management complaints at their RACF, namely, that "*it's really gone from you know six or seven [complaints] in a month to zero*" [M6.1], which the RACF manager considered was a *"a big reflection"* [M6.1] of having the OSP at their RACF. This RACF manager indicated that by "*having OSP here on-site. . . we can give the [requested medication] information straightaway to the family instead of them stewing for a week while we're trying to gather the information*" [M6.1]. This was then contrasted with usual practice wherein a registered nurse sometimes *"spent hours trying to find that [medication] information"* [M6.1] and instances where family members were not satisfied with the medication information provided *"because it's not quite what they're after"* [M6.1], resulting in *"quite a lot of complaints about medication, why they are put on this, "I'm not getting the correct information," that type of thing"* [M6.1].

Another powerful example of how having OSPs in RACFs differed from usual practice was during family member admission into an RACF. One family member described this as a time "*full of misgivings. . . You always think you'd done the wrong thing. You think of how others are judging you*" [FM3.1]. This family member considered that this time was *"such a crucial time for a pharmacist to be here when someone, a loved one, has just been placed into care and changes are being made to medication"* [FM3.1]. Usual practice, without the OSP, would have meant that this family member would not have had access to a pharmacist on-site to talk to about "*the medication side of things*" [FM3.1].

Most health care team members at both the individual and team level described the OSP's role as beneficial. According to one manager, it was beneficial that their OSP was *"able to take a long-term interest in residents and follow up medication-related matters for them over many weeks and months"* [M5.1]. This continuity and its value were also mentioned by two OSPs, culminating in some OSPs being able to have a deeper understanding of the resident and sometimes being able to *"build a really good history and a relationship with them"* [OSP 1] through ongoing interactions. Prescribers were also generally positive in their appraisal of the OSP's benefits. However, three prescribers did not consider that the OSP was substantially beneficial within the context of their respective RACFs. One of these prescribers noted that the OSP may have been underutilised by the RACF; a second acknowledged that the OSP could have added value for less experienced prescribers; and the other prescriber indicated their full support of OSPs in the RACF but that they did not have a working relationship with that particular OSP as they only communicated with each other electronically on medication-related matters. In addition, relevant quotes which further support the NPT construct findings reported in this study are provided in Table 4.

3.1.1. Quantitative Finding. Most health care team member survey respondents positively reported on the adapted survey questions which related to the NPT coherence construct. In particular, all survey respondents (100%, $n = 16$) considered that they saw the potential beneficial impact of the OSPs at their RACF. The quantitative findings indicated that having the OSP made sense to health care team member survey respondents. The qualitative findings tended to suggest that most participants perceived that having the OSP in their respective RACF was beneficial. The positive quantitative findings strongly complement these findings from the health care team member perspective.

3.2. Cognitive Participation. Overall, participants interviewed were positively invested in having the OSP at their respective RACF with managers often being key people helping to drive normalisation of OSPs within RACFs. Health care team members across the seven RACFs also tended to perceive that working with OSPs was now part of their usual role.

Table 2: Semistructured interview participant details.

Participant groups	Number of participants	Age (years) range and mean ± SD	Gender
Resident (R)	10	≤85 (5, 50%) >85 (5, 50%) 83.5 ± 7.17	F (7, 70%) M (3, 30%)
Family member (FM)	4	≤70 (2, 50%) >70 (2, 50%) 89.5 ± 6.81	F (3, 75%) M (1, 25%)
On-site pharmacist (OSP)	6	≤40 (4, 67%) >40 (2, 33%)[†] 37.7 ± 5.99	F (5, 83%) M (1, 17%)[†]
RACF manager (M)	7	≤50 (2, 25%) >50 (6, 75%)[‡] 51.6 ± 9.11	F (6, 75%) M (2, 25%)[‡]
Nursing staff (RN or EN)	10	≤40 (5, 50%) >40 (5, 50%) 43.1 ± 17.61	F (10, 100%)
Prescriber (GP or NP)	9	≤40 (1, 12.5%) >40 (7, 87.5%)[§] 51.6 ± 10.66	F (4, 50%) M (4, 50%)[§]

[†]7 interviews were conducted with 6 OSPs; one OSP worked across two RACFs and was therefore interviewed twice. [‡]Includes characteristics of RACF manager who in lieu of an interview provided written feedback. [§]Does not include characteristics of GP who was interviewed but elected not to disclose their characteristics.

OSPs interviewed indicated that their managers were often key people to help drive having the OSP to become a part of routine practice. One OSP indicated that "*The general manager introduced me and said, "This is our on-site pharmacist. We're so happy and lucky to have her here. We wanna make the most of having [the OSP] here, and please involve [the OSP] in stuff,""* [OSP 1]. This OSP considered that their manager was key to helping drive RACF staff to realise and accept that the OSP was to be "*integrated into their systems*" [OSP 1]. The OSP themselves also often needed to drive normalisation of their role by identifying and volunteering their involvement in additional activities and saying, "*Look, I can actually help you with that*." [OSP6].

Across the seven RACFs, most health care team members interviewed considered that working with the OSP was a legitimate part of their role and were invested in working with the OSP. However, they were more likely to work collaboratively with the OSP after the OSP established a trusted relationship with them. As described by one OSP, establishing these relationships was *"the foundation for anything else"* [OSP 6] they did within the RACF. This then helped increase the likelihood of prescribers listening to them and being *"far more likely to act"* [OSP 6] when medication recommendations were made. This is mirrored by a prescriber who indicated an openness to medication recommendations made by the OSP, *"Obviously if [OSP 1] made recommendations, it would be very sensible for me to listen to them and generally and act on them"* [GP1.2]. In addition, relevant quotes which further support the NPT construct findings reported in this study are provided in Table 4.

3.2.1. Quantitative Findings. Health care team member survey respondents positively reported on the adapted survey questions which focussed on the NPT cognitive participation construct. All survey respondents (100%, $n = 16$) considered that they were open to working collaboratively with their OSP and would continue to support their OSP. These quantitative findings suggested that there were high levels of investment amongst survey respondents. The qualitative findings which indicated that there was good investment in having OSPs in their respective RACFs are reinforced by the positive health care team member survey findings.

3.3. Collective Action. Most health care team members interviewed had varying perspectives on the OSP's impact on their respective workloads, but the majority considered that it was easy for them to work with OSPs. Furthermore, the qualitative findings suggested that OSPs were more likely to enhance as opposed to disrupt existing relationships.

Most managers and nursing staff considered that having the OSP undertake medication management activities reduced their workload. As described by a nurse, the *"workload for us will be crazy now that OSP 1 is leaving"* [RN1.1]. There were, however, divergent views of the OSPs impact on prescriber workload ranging from a noticeable reduction in workload and "*shorten*[ing] *our time spent on-site*" [GP1.1] through to contributing to a slight increase "*because OSP 6 will be scrutinising a lot of the medication, a lot more than I would*" [GP 6.1]. These varying views were not unexpected given the OSP's focus on medication management,

Table 3: Survey results displayed using format adapted from Lewis et al. [30].

Survey questions	*N*	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Coherence						
I can see how having the on-site pharmacist at this facility differs from not having an on-site pharmacist	16	0	0	0	1	15
My colleagues (e.g., RACF staff, visiting general practitioners) and I have a shared understanding of the on-site pharmacist's purpose at this facility	16	0	0	0	3	13
I understand how the on-site pharmacist's role affects my work	16	0	0	0	2	14
I can see the potential beneficial impact of having the on-site pharmacist at this facility	16	0	0	0	0	16
Cognitive Participation						
There are key people who drive working alongside the on-site pharmacist at this facility and get others involved	16	0	0	0	3	13
I believe that working with the on-site pharmacist is a legitimate part of my role	16	0	0	0	2	14
I am open to working collaboratively with the on-site pharmacist at this facility	16	0	0	0	0	16
I will continue to support the on-site pharmacist working at this facility	16	0	0	0	0	16
Collective Action						
I can easily integrate working with the on-site pharmacist into my work	16	0	0	0	1	15
The on-site pharmacist disrupts existing relationships (item score reversed)	16	8	6	1	0	1
I have confidence in my colleagues' ability to work with the on-site pharmacist	16	0	0	0	4	12
Facility management adequately supports the on-site pharmacist	16	0	0	0	1	15
Reflexive Monitoring						
I am aware of reports about the work undertaken by the on-site pharmacist	16	0	0	1	2	13
My colleagues and I believe that having the on-site pharmacist working at this facility is worthwhile	16	0	0	0	4	12
Residents believe that having the on-site pharmacist working at this facility is worthwhile	16	0	0	2	5	9
I value the on-site pharmacist's impact at this facility	16	0	0	0	0	16
I can modify how I work with the on-site pharmacist to improve resident care which relates to medications	16	0	0	0	0	16
Feedback about the activities undertaken by the on-site pharmacist can be used to improve resident medication care in the future	16	0	0	0	0	16

Note: *N* = total number of responses to each survey question.

Table 4: Additional, relevant quotes from semistructured interview participants.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Coherence	
Value added compared to usual practice	*"When I first came in here, they put me on a lot of medication that I didn't need. And they left – well, when I say I didn't need, sort of things like for constipation and this, that, and the other, but nobody ever came back until I saw OSP 6 and [they] actually went through it with me. And a lot of that medication was taken off, which was great'* [R6.1]
	"So in that situation [due to my husband's issue swallowing medicines], I have found it's been good to have OSP 3 to be able to bounce things off" [F3.2]
	"[the OSP1]'s one of those people that you can [ask questions of] without feeling as though [OSP1]'s gonna think, "Oh gosh."[OSP1]'s not one of those, and I think that's important because it might just be a silly question but to you, if it's bugging you, you know?" [R1.3]
Reduction in medication complaints	*"And, again, I think families feel more comfortable if they know that if they've got a concern or a worry, that there is someone [the OSP] there that they can have a conversation with as well around medications"* [NP3.1]
OSP interactions with residents	*"But with OSP1, [OSP1] sees them like almost every week, [OSP1] knows them, so [OSP1's] recommendation is a bit more thought out. . . That only comes from someone who knows the patient"* [GP1.1]
	"OSP3 knows the patients better as well. So [OSP3]'s on-site, so [OSP]'s aware of the patient's comorbid condition and also their background as well" [GP3.1]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Prescriber perception of benefit (or not) of OSPs	*"[OSP1]'d look and see well this patient is on frusemide and potassium and their levels haven't been checked for months, so it's probably sensible to do something and [OSP1] made suggestions like that all the time which is sensible enough"* [GP1.2] *"[OSP3]'s on-site and it's much easier getting together to see the patient and talking through and good communication, less misunderstandings and it's more effective"* [GP3.1] "*So those things where there's someone there working and understanding the difficulty we're seeing in that environment, and I think seeing what might be going on, because I know OSP 3 has picked up on things [OSP3]'s observed that no one's aware of*" *[NP3.1]* *"Like the thing is it [the OSP at the RACF] didn't make much difference to my work. . . I felt like [OSP 2] tried [their] best. Like I'm not a part of RACF 2 and I just think the role could be [more] developed there though that's all*" [GP2.1] *"It was particularly valuable in the team and made my job easier [having the OSP at RACF 4], though it wasn't necessarily educational [for me]"* [GP4.1] *"So the interaction has mostly been – well, in fact, I think all of it has been asynchronous through some form of electronic communication. . . without the dialogue, without the relationship in it, yeah, it felt bureaucratic. . . There wasn't the opportunity to have dialogic conversations around patients, and so that relational aspect was missing. . .Now, that same mode of communication [electronic communication], had there been relational working, shared purpose, trust, would actually have been very effective"* [GP5.1]
Cognitive participation	
Key people driving OSP to become part of routine practice	*" We've always tried to make [OSP1] feel one of us because [OSP1] is one of us. [OSP1]'s one of our staff at the moment. And so, everyone's just treated [OSP1] like [OSP1] was one of us"* [M1.1] *"So basically, I had to inject myself and say, "Look, I can take that workload from you. I can do that for you. I can help with that," and really push a little bit at the beginning to say, "Look, I am actually here to help you and make your life easier.""* [OSP 1] *"I've been on outings with the residents when they were short-staff to help – for example, we took four residents to the RAAF. . . So I went along to that. I also helped when I drove the bus to get three residents to the doctor's surgery for their vaccinations. . . So I try and do whatever is needed when it's needed, and answer any questions"* [OSP6]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Importance of establishing relationships	*"I think the implementation of it [the OSP intervention] is really important and the focus on the relational stuff is really important"* [GP5.1] *"I think it goes with any new person that comes into a new position, they have to build the relationships and establish themselves a little bit. I was expecting that and it wasn't any harder or more difficult than I expected"* [OSP1] *"First couple of months – trying to build up a relationship and rapport with doctor or different staff like carer or even kitchen staff, just everyone"* [OSP4]
Legitimately interacting and working with OSPs	*"I'm actually surprised that it hasn't happened before. I mean, <laughs> we're new in aged care facilities anyway, because my father's only been there for a relatively short period of time, but I guess I'm surprised that there wasn't an on-site pharmacist before."* [FM5.1] *"there's certainly quite a few examples where just having that follow up from OSP 6 has been very helpful, particularly because as a GP, sometimes you're under the time pressure and then I was not able to liaise with all the other practises and look everything up"* [GP6.1] *"I think people in aged care are usually on quite a lot of medication, so it was good that [OSP5] contacted us and spoke to me about it and asked what I'd like to do"* [FM5.1] *"[There was talk] about trying to encourage staff to get their flu shots, and I said, "Well, I can run a clinic here on-site. I can do it all," and they were like, "Well how do you get the stock," and I said, "I can order it for you. I can do all of that and all you have to do is tell the staff to show up," so that went quite well, and then because it went quite well, then they kinda volunteered me to do the residents [flu vaccinations]"* [OSP6]
Invested in working and interacting with OSPs	*"But with [OSP3] having access to our doctor – the doctor puts something on the document and then OSP 3 will follow it up because [OSP3] sees the corrections on there. So, [OSP3]'s very active in what [OSP3]'s doing in there"* [R3.1] *"[OSP1] is [working with the doctors and nurses]. [OSP1]'s with the resident[s]. Sometimes I have to go up there three times[so that I can speak with OSP1]"* [R1.1] *"It's a very good thing because – I mean, we've got nurses in here all the time, but [OSP6]'s – well, [OSP6]'s more in tune with the medications and so on, so – yeah, it is a good thing. You can ask [OSP6] anything you like about the medicine that you're on. . . It made me feel very safe when [OSP6] came in and sat down with* [OSP6] *paperwork and asked me questions, that [OSP6] was interested in me enough to do that"* [R6.1]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Collective action	
OSP impact on staff workload	"*If we didn't have the pharmacist on-site all the duties that [OSP3] does would be part of registered nurses on-duty job and probably a little bit of mine and the care coordinator's as well*" [M3.1] "*And it's taken quite a load of the nursing staff because OSP 4 has taken on some of the auditing which has been fantastic, I think, because she knows exactly what she's looking for*" [M4.1]
Prescriber perception of OSP impact on their workload	"*If I ask the RN, I never really got – it was difficult to get an answer of whether they've been given this medication or not, but with the pharmacist, I get a very quick response*" [NP3.1] "*It would have taken longer [to conduct medication rounds], I would have made the same decisions, but it's nice to have [OSP4 go on the rounds]*" [GP4.1] "*There was maybe a little bit more workload because OSP 6 will be scrutinising a lot of the medication, a lot more than I would, so the changes that has to be made*" [GP6.1] "*So [OSP1] goes through for the medication and brings up things that we are probably overlooking and we usually look at those*" [GP1.2] "*Probably a slight increase in the workload. So just go back to what I've said earlier around – it just felt like another message*" [GP5.1]
Easy to integrate working and interacting with OSP into RACF routine practice	"*I then say to OSP 3 when I go, "This is what's happened today. I've told them they have to be giving it, they need a little bit of support.". . . [OSP3]'s then the consistent person there who can then reinforce what we're saying*" [NP3.1] "*Yes, [OSP1]'s get onto it. See I have with this asthmatic puffer in the morning and the night myself, but the thing is I've got to make sure I don't run out. The girls over here, if you asked them to do something, you know you've got to ask them two or three times to get it. I realise they're busy, but, really, I think, "Here we go again. How long will this gonna take?" whereas with OSP 1, [OSP1] comes to me later and said, "Look, I got such and such." So that's what I like about OSP 1.*" [R1.4] "*Happy to talk to [OSP1] anytime, but [OSP1] won't be here anymore so haven't given it much thought as haven't come to rely or depend on [OSP1 as there's] not much reason for us to get together*' [R1.5] "*It was good to talk to [OSP3] because, you know, the RNs, busy people again, but they are part of the workforce here and they've got allegiance, of course, to the organisation they belong to, and that's totally understandable. It was just nice to feel that I could talk to someone about these things, the medication side of things*" [FM3.1]
OSPs did not disrupt existing relationships	"*Everyone is looking at me like,"OSP 3, can you make friends with all the doctors because we need all the charts signed," and it's a big process <laughs> and that happens every four months actually*" [OSP3] "*[OSP4] will often suggest something or question something that we wouldn't have otherwise. The GPs have said they're very happy to have [OSP4] on the rounds*" [RN4.1]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Reflexive monitoring	
Ongoing specific medication management support	*'but OSP 6 went through the dispensing record prior to hospital admission and one of the things that she discovered was while the patient was on Prolia which is for osteoporosis, and this patient haven't had it for months, as in certainly more than six months. . . So as a result, I was able to restart treatment for osteoporosis and then go from there"* [GP6.1] *"So I went to see a patient at one of the facilities when the [OSP] was there . . . And we sat together and went through the med chart one by one and talked about how to do that deprescribing in a safe way and I found that was a really positive interaction"* [NP 2] "*We were lucky enough that OSP 6 was also able to do immunisation around the flu this year. . . So we basically had all of our staff done within a month of the flu shot coming out, and that's never, never happened here before"* [M6.1] *"So whenever I'm watching telly, I have to have a hanky there because I get – not a lot and you wouldn't call it drooling but it's extra saliva, and so I get that and I ask OSP 1 to check my medication – well [OSP1] said [they] would, and it's not my medication"* [R1.1] *"[OSP5] did e-mail us about a week ago too, saying that [they'd] looked at my father's medications and [OSP5] picked up the fact that he'd been on a particular medication which does have some side effects and he has been on it for some time and [OSP5] just pointed out that this particular medication has some side effects and were we aware of that, and what –did we want [OSP5] to speak to his GP about it or so on'* [FM5.1]
Acceptance of OSPs	*"with somebody on the site to follow up on the patient and advise on what to do on time or in a timely manner, I think that is a very good reason for us to have an on-site pharmacist"* [GP1.1] *"The staff obviously think a lot of [OSP3]. . . I think [OSP3] is very much part of the organisational team"* [NP3.1] *"So, yeah, going from someone who's worked in aged care for 15 years and not having that complemntary there, of having a pharmacist to go to [on-site], I can say the difference is you can actually see the difference with medication management has improved immensely"* [M6.1] *"[OSP1] knows most of the staff, and how can I explain? [OSP1] just fits in here extremely well. . . I just wish to God [OSP1] wasn't leaving. . . Is there any way we can steal [OSP]?""* [R1.2]" *I think when people get to know you then they trust you more. . . [and] you become part of that family. . . I think so yeah [that OSP has become part of the team]"* [R1.3] *"It's added an extra dimension. . . being able to talk to someone who can listen, check things out, etcetera, and a personality you feel that you got, not only me, that you've got a comrade on-site"* [R4.1]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Lack of funding for OSPs	*"if they could see their way clear to fund a pharmacist, I think it'd be a good outcome for every aged care, to be honest with you, because it lets you know there's someone there looking over things on a regular basis that's in the facility and not having to be called to come in"* [M1.1] *"It's purely funding. There is no money in anybody's budget set aside. We've just re-budgeted again and there's nothing in there for a pharmacist sadly"* [M4.1] *"we're going to be very, very sad that OSP 6 is leaving us if we don't get more funding. . . I definitely would go to bat for that one [having OSP 6 if funding was available]." M6.1*
Potential "broker" role	*"I just let them know that if they're [other residents are] really bothered [about their medication], and some of them are, I tell them where they can go, where the office is, who to ask for [the OSP], and I know they get their time, and I'm sure later on they're a lot happier"* [R3.1] *"And I know I went to [OSP3] and I said, "Look, something's got to be done about this. I want them stopped. I want this new memantine stopped." And [OSP3] explained that, you know, both of them are sleep-inducing and my husband probably doesn't need that. So that gave me confidence then to say to my doctor, "I really want that stopped. What do you think about that?"'* [FM3.1] *"I would probably say look, [OSP3]'s a good first contact person for anything if you think that any medication is not being given properly or they need extra medication. . . my first port of call really is OSP 3"* [FM3.2] *"All we can do is try and manage it as best as we can and I guess having OSP 5 there is also useful in that respect because[OSP5]'s probably able to make changes or talk to the doctor a little bit more easily than we can, at the moment, the doctor and the nurses who are on staff at the time"* [FM5.1] *"Oh, I just feel that if I was unsure of anything, I certainly – I think I would ask to see OSP 6 rather than the nurse, to tell you the truth. . . the nurses are very good, but they don't have that capacity to do what OSP 6 – [OSP6] knows about the medication"* [R1.6]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
Perceived impact of OSPs by residents and family members	*"Simply the fact that now that we got a pharmacist onboard, we got someone to turn to if we have a problem. . . we had nobody before. We had nothing. If you wanted to find out about what you're taking, you had to wait for your doctor and he would not always explain it to you in a language that you understood"* [R3.1] *"[OSPs] Know their [resident] needs, makes them feel a lot more comfortable – things are just there. . . I don't know, it feels like a safer situation"* [R1.5] *"It was good because [OSP1] did talk. [OSP1] did explain things. . . [OSP1] explained things, so that you realised that you're not being a pain in the bum, that you're actually – you've asked and there's a reason why you've asked. So, yeah, [OSP1]'d made me think that I'm a little bit more – I suppose I deserve it. Yes, I suppose, deserving, because I've never felt, I deserved that"* [R1.3] *"I just felt that [OSP3] was another person who was on my side, and that [OSP3] would go into bat for me, which [OSP3] did"* [FM3.2] *"But it's nice to say, "Well, we've got a pharmacist on staff," and people say, "Really?" But they think [the OSP]'s dispensing things and [the OSP]'s not. [The OSP]'s looking after our interests."* [R3.1] *"It feels comforting. It was comforting. You go away thinking, "Ah, right. Okay, if I'm ever worrying about, you know, again, I know a good port of call.""* [FM3.1] *"it gives you a bit of a sense of comfort that there's someone else available that you can interact with if necessary"* [FM5.1] *"[OSP3] is somebody that you can go to regarding the type of medications, the role of the different medications that your mum might be taking. If you've got any questions regarding medications or if you feel that something is needed to be added, make an appointment and talk to OSP 3 first and just get some understanding and then you can take it further if you need to, or OSP 3 can take it further"* [FM3.1]

Table 4: Continued.

NPT construct	Additional, relevant quotes which further support the NPT construct findings
OSP impact on resident and family member empowerment	*"OSP 6 actually, whenever [OSP6] does a medication review, [OSP6] goes and sits with the resident and [OSP6] talks to the resident and why you are on this medication, this medication, this medication. And [OSP6]'ll actually talk through what recommendations [OSP6]'s going to send for the doctor. So it's about really putting the resident first and also including them in all of those decisions around their medications, and I guess empowering them again"* [M6.1] *"So, I personally would like to be involved, if I have capacity to be, I would – or someone that has the capacity on my behalf, I would like them to be involved because it affects me, and medication is something that we take – potentially they're taking multiple medications daily. If they're informed, they know what they're taking, why are they taking it, how it can benefit them, they would – I assume would feel empowered and then it would encourage them to want the best of their health care. "Oh, I should take this because it's for my heart and it will provide this benefit.""* [OSP7] *"[With OSP3 being available] You feel more in control. If you have a problem, you want to feel "Oh, yeah. I can do this. This is within my grasp here.""* [FM3.1] *"then [OSP1] has explained, and then when [OSP1] goes, that's when I start to think. And I think, "Well, maybe I should ask [OSP1] or I should ask that." So the idea is growing. It's like putting a seed in your brain. It's growing that, you know, the more I ask and the more I talk, the more I'll understand it"* [R1.3] *"Empowering the residents to make some of their decisions has been helpful as well, I think. For example, one resident, really wanted to self-medicate his inhaler and so I advocated for him, and I checked his technique and I said, "Well, I think he can," and so because of my input, he's now able to self-medicate that and he's a lot happier"* [OSP6]

including more medication reviews and audits of high-risk medications compared to usual practice.

Most health care team members seemed to find it easy to integrate the new way of working with the OSP into routine practice. Nursing staff consistently found it *"quite easy to adapt"* [RN4.1] to having OSPs at their respective RACFs. Likewise, a manager described how *"we just worked together and I can't see any of it being difficult"* [M1.1] reflective of the ease of OSP normalisation at that RACF. Some GPs also considered that it was easy to integrate working with the OSP, as illustrated by this quote, *"I think it just happened. I don't think we tried to engineer it"* [GP1.2] when describing how they worked with an OSP. As we might expect, the time it took for health care team members to integrate working with OSPs varied across RACFs. However, overall, at the time of the interview, most health care team members seemed to consider that the OSP at their respective RACF had become part of their team. Residents and family members tended to find it easy to interact with OSPs once they became aware of their presence.

Participants interviewed did not appear to perceive that OSPs disrupted any existing relationships. Instead, examples were provided wherein the OSP was seen as facilitating communication amongst health care team members. One nurse indicated that *"when OSP 5 is there. . . we ask [the OSP] to, you know, "Can you please help us talk to the GP?". . . having [the OSP] there, it's very easy to interact with [the GP] because you've got that extra support"* [RN5.1]. That is, the OSP sometimes helped nursing staff have improved interactions with prescribers within RACFs. In addition, relevant quotes which further support the NPT construct findings reported in this study are provided in Table 4.

3.3.1. Quantitative Findings. Health care team member survey respondents positively reported on the adapted survey questions relating to the NPT collective action construct. Most survey respondents (94%, $n = 15$) strongly agreed that it was easy to integrate working with the OSP into their existing work and that OSPs were adequately supported by management. Importantly, a high proportion of survey respondents either strongly disagreed (50%, $n = 8$) or disagreed (38%, $n = 6$) that the OSPs disrupted existing relationships. As with the previous NPT constructs, the qualitative findings appear to be complemented by the positive quantitative findings.

3.4. Reflexive Monitoring. Overall, the qualitative findings indicated that most participants considered that OSPs were worthwhile and valued across the seven RACFs. Furthermore, residents, family members, nursing staff, and managers were able to describe examples where the OSP was able to provide specific medication management support. The ongoing worth and value of OSPs was actively demonstrated by two RACFs continuing to self-fund their OSPs once the PiRACF study concluded.

Most residents and family members considered that OSPs were accepted with *"everybody know[ing] who [the OSP] is. [The OSP]'s not on the outside looking in"* [R3.1]. Residents and family members who had regular interactions with OSPs were the most supportive of OSPs. Health care team members interviewed were also broadly accepting of OSPs in RACFs, as articulated by one manager, who stated that they felt that the OSP was *"invaluable"* [M4.1]. While five managers mentioned lack of funding as a barrier to having OSPs continue beyond the trial, two RACFs elected to continue self-funding the part-time OSPs within their respective RACFs.

One potentially invaluable role of OSPs is related to how some family members considered that the OSPs provided a "broker" role within the RACF. One family member described how the OSP *"had an in to the role of the RN, the role of the doctors, [the OSP] had access to these people"* [FM3.1]. This family member perceived that as the OSP *"knew about them. [The OSP] knew their roles, what the full nature of their roles"* which meant that "*I just felt that [the OSP] was able to often tell me, "Look, check [with] so and so""* [FM3.1]. For this family member, it seemed that the OSP made it easier for them to navigate and connect with relevant health care team members to facilitate the provision of quality care to their family member.

When reflecting on this complex intervention, residents and family members described examples where the OSP's impact was valued. For instance, one family member described the importance of speaking with the OSP which helped to increase their medication knowledge thereby making them more empowered to have *"proper discussions with doctors and my husband's specialists"* [FM 3.1]. That is, discussions with an OSP helped this family member feel *"more confident to have those [medication management decision making] discussions [with doctors and specialists] and know what sorts of questions I need to ask and know what I should be aiming for"* [FM 3.1]. This sentiment is echoed by a manager who considered that "*we've gone from residents who have just left everything in our hands to them actually questioning the doctors, "Why do I need this?""* [M6.1]. That is, some OSPs were able to help empower residents at times, thereby helping to give *"them back control [over] their own medications"* [M6.1]. However, to be expected, this perspective was not universal with a family member at a different RACF describing conversations with the OSP about potential medication changes for their family member as *"it's all pretty much gobbledygook to me. They explain the different drugs and that, I but I don't know what they are"* [FM1.1]. Instead, this family member relied upon "*the fact that mum is happy and she had no incidents and everything is going well"* [FM1.1] when it came to accepting suggested medication changes.

When reflecting upon where the OSP's impact was valued, a nurse described that the OSP "*helped us with the psychotropic register a lot. So I feel like if [the OSP] wasn't there, it would have taken us a lot of time and a lot of manpower to do that, but having [the OSP] there, it really helped us getting things on track"* [RN 5.1]. That is, the OSP undertook activities which could be used to support medication management in the future. In addition, relevant quotes which further support the NPT construct findings reported in this study are provided in Table 4.

3.4.1. Quantitative Findings. Health care team member survey respondents positively reported on the adapted survey questions relating to the NPT reflexive monitoring construct. All survey respondents (100%, $n = 16$) strongly agreed that they valued the OSP's impact, and most survey respondents (75%, $n = 12$) strongly agreed that they and their colleagues believed that working with the OSP was worthwhile. These quantitative findings illustrate that health care team member survey respondents positively appraised having OSPs at their respective RACFs. These quantitative findings reaffirm the qualitative findings which suggested that residents, family members, and health care team members positively perceived OSPs within RACFs.

4. Discussion

This mixed-methods study explored the extent of OSP normalisation and how OSPs were normalised within the context of the PiRACF study. The qualitative findings indicated that overall OSPs within RACFs made sense, with generally good levels of investment and support for OSP normalisation across the RACFs. Overall, having OSPs within RACFs was positively perceived by health care team members, residents, and family members. These positive findings were complemented by the positive quantitative study findings which were reflective of health care team member survey responses. The survey responses should be interpreted with caution given that the response rate was 13% (compared to this study's mean response target of 36%). This study's findings demonstrated that OSPs can be normalised within Australian RACFs and illustrated some important insights which could help inform the future role of OSPs working within Australian RACFs.

The positive appraisal of OSPs by health care team members, residents, and family members was informed by the perception that OSPs were able to assist in reducing nursing, manager, and some prescriber workloads, that OSPs were easy to integrate into existing work, and that OSPs added value and were (or could be) beneficial within RACFs. By contrast, a qualitative study using NPT conducted within a German RACF identified that barriers to implementing their complex intervention, which sought to reduce antipsychotic prescribing, related to staff experiencing higher workloads due to their intervention along with uncertainty about that intervention's feasibility and impact [15]. It is possible that those barriers were not identified in this study due to a range of varying intervention and contextual factors, in particular, having OSPs within RACFs in the PiRACF study context.

Consistent with a mixed methods study conducted within an Australian operating room department which utilised the NoMAD instrument [29], health care team member survey respondents in this study were also positive with regards to the value, ease of integration, and support of the intervention, i.e., having OSPs at their respective RACFs. Similar to a qualitative study conducted in Australian primary health care which was underpinned by NPT [40], this study also identified funding as a perceived barrier to intervention continuation. It is anticipated that this barrier will be addressed, to some extent, through anticipated Australian Government funding to expand the role of pharmacists, inclusive of OSPs, in RACFs from January 2023. It is suggested that future OSP studies could consider survey data reliability and validity testing and include further in-depth data analysis of survey data results. Future research on the sustainability of OSP normalisation within RACFs in other geographical and socio-economic settings may also be beneficial.

Some previous NPT studies have tended to focus on the perspective of health care professionals with limited exploration of resident and family perspectives in studies which have employed NPT [13]. Informed by the literature [13, 27], this study incorporated insights from multiple stakeholders, including residents and family members, to understand OSP normalisation from a system-wide as opposed to a professionally-focussed perspective. A contribution of this study is that the qualitative findings yielded important insights from the perspectives of residents and family members, particularly with respect to OSPs potentially providing a "broker" role and empowering residents and family members in relation to medication management decision-making.

A novel finding of this study was that some family members perceived that the OSP could assist them in connecting and communicating more effectively with health care team members. As such, it appeared that some OSPs were able to act as a "broker" to support increased communication and connection so that these family members were supported to navigate care for their loved one within their respective RACFs [41]. While the potential role of pharmacists in a "knowledge broker" role as part of the Evidence-Based Medication Knowledge Brokers in Residential Aged CarE (EMBRACE) study currently underway includes facilitating collaboration between all stakeholders in medication management [42], the findings of this study shed light on the potential role of OSPs to explicitly support residents and family members in a new and novel way. Ongoing exploration of this potential "broker" role provided by OSPs within Australian RACFs is strongly encouraged.

Previous studies conducted in Northern Ireland and Malaysia have identified that residents living in RACFs are seldom empowered with respect to medication management [43, 44]. Residents who are not empowered may be described as passively accepting care provided by health care team members and not questioning any aspects of the care provided [44]. A necessary prerequisite for empowered residents and family members would likely include good levels of health literacy. Health literacy can be defined as individuals having the necessary skills, knowledge and motivation to access, and understand and apply health information when making decisions about their (or their family member's) care [45]. In addition, discussions among health care professionals, residents, and family members about medications, particularly during transitions of care, e.g., admission to an RACF, are an important mechanism to support residents and family members in having the necessary information to make informed medication management decisions [46].

The qualitative findings of this study suggested that some OSPs were able to increase the medication knowledge of and empower some residents and family members with regards to medication management decision-making by being on-site and discussing medication-related matters with them. While not all residents and family members may wish to increase their medication knowledge and discuss specific medication-related matters, these opportunities should nevertheless be available. The findings of this study have real-world implications with more empowered residents and family members more likely to be actively involved in decision-making discussions, asking questions, and initiating conversations (such as deprescribing conversations) [47] in relation to medication management. Further exploration of how OSPs within Australian RACFs can support resident and family member health literacy, as well as empower residents and family members to participate in medication management decision-making discussions, particularly during transitions of care, should be considered.

This study provided unique insights into the extent of OSP normalisation and how OSPs were normalised from the perspectives of residents, family members, health care team members, and OSPs in RACFs. This study builds upon the previous literature which has employed NPT to explore complex interventions within RACFs [15, 16]. It also demonstrated the viability of evaluating a pharmacist intervention within Australian RACFs through the lens of NPT. Critically, this study helped to address a potential gap identified in the evaluated pharmacist intervention in the RACF literature wherein there is sparse utilisation of theory to help guide evaluation.

The limitations of this study relate to its limited generalisability, low survey response rate, as well as the possibility that health care team member interview participants may not have been survey respondents and vice versa. In addition, the perspectives of care staff and allied health professionals were not obtained in this study. A final limitation was that this study was designed and conducted prior to the publication of a recently developed coding NPT qualitative coding manual which includes guidance on how to map NPT findings to the realist evaluation context-mechanism-outcome configuration [18]. Future OSP research could benefit from the use of this qualitative coding manual. Key strengths of this study were its use of mixed-methods design and incorporation of multiple stakeholder perspectives, including those of residents and family members.

5. Conclusions

This study provided insights into the extent of OSP normalisation and how OSPs were normalised within Australian RACFs from the perspectives of prescribers, RACF managers, RACF nursing staff, OSPs, residents, and family members. This study demonstrated that OSPs were generally positively appraised and could be normalised (i.e., become part of routine practice) in real-world RACFs. This study has policy and practice implications for the rollout of the relatively new OSP role within Australian RACFs, particularly in relation to the potential role of OSPs to provide a potential "broker" role and increase resident and family member knowledge and empowerment with regards to medication management decision-making. Furthermore, this study has identified future OSP research directions, particularly in relation to the sustainability of OSP normalisation and illustrated the value of using theory to guide the evaluation of a pharmacist intervention in RACFs.

Data Availability

The quantitative data used to support the findings of this study are available from the corresponding author upon request. The qualitative data are not available as it is possible that this data could be re-identified.

Disclosure

The funder was given an opportunity to provide feedback but does not have ultimate authority over the study design, data collection and management, analysis, interpretation of data, and decision to submit the paper for publication.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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