RESEARCH ARTICLE

Long-term care professionals' views on pharmacists: a qualitative study using Role Theory

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Abstract

Background Qualitative research investigating pharmacists' participation in Long-Term Care (LTC) within interdisciplinary teams is scarce.

Aim To characterize how pharmacists' participation in a national network of LTC is perceived by healthcare professionals and other key stakeholders.

Method Individual, in-depth, semi-structured interviews of participants (nurses, physicians, pharmacists, and LTC researchers) enrolled purposely or through snowballing sampling techniques, with the final sample being comprised of fourteen participants. Data analysis followed a deductive coding approach framed by Role Theory and supplemented with an inductive coding for additional themes.

Results Four Role Theory constructs were identified from the primary data—role identity, overqualification, ambiguity, underqualification. Clinical pharmacy services, logistics and educational activities were pointed out as representing the identity of pharmacists' interventions. Despite the clear identification of LTC pharmacists' interventions, pharmacist expertise on medicine optimization seemed to be underused (role overqualification), as a result of lack of time, lower proactivity in healthcare teams' integration, and the absence of a legal framework targeted to LTC pharmacy practice (role ambiguity). Additional clinical training, including in the management of older people's health conditions, nutrition, and palliative care were missing (role underqualification).

Conclusion LTC pharmacists can provide essential services (e.g., clinical pharmacy, logistics, educational interventions), although additional training and a clearer legal framework are missing to better define pharmacists' roles in LTC pharmacy practice.

Keywords Interprofessional relations · Long-term care · Nursing homes · Pharmacists · Qualitative research · Role Theory

Impact statements

- The most relevant pharmacist-driven interventions for LTC quality care delivery were those based on clinical pharmacy competences, along with logistical and staff education skills

- In addition to pharmacists' clinical continuous education and training, greater proactivity toward full integration into the healthcare team is required

- The present legal and professional frameworks establishing pharmacists' roles and responsibilities do not include their roles in LTC, potentially hindering pharmacist broader involvement.

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Introduction

Long-Term Care (LTC) encompasses a range of healthcare, personal care, and other supportive services targeted to patients whose capacity for self-care is limited [1, 2]. Over the past several years, the World Health Organization has urged countries to develop and improve LTC systems and scientific research on LTC networks can positively contribute to this global commitment [3]. Given the often complex social and health status of LTC patients, practice in LTC settings is delivered interdisciplinary. Long-Term Care staff is usually comprised of nurses, physicians, social workers, managers, physiotherapists, aides and other health or social-related professionals [4].

Pharmacists, through their education and training, are prepared to work in a wide range of medicine-related fields, including medication usage and assessment (e.g., clinical pharmacy, regulatory science) in most care settings [5]. Pharmacist participation in LTC has focused on clinical activities related to treatments within a patient-centered approach. According to recent published systematic reviews, pharmacists' most common activities include medicine regimen optimization (through medication review and multidisciplinary collaboration) and educational interventions (i.e., training and support to other staff) leading to positive outcomes, such as the reduction in medication burden, patient falls and LTC costs, to mention a few [6–8].

The Portuguese LTC system—the National Network for Long-Term Integrated Care (NNLTC)—was first created in 2006 and represents the country's response to the growing demand for this level of care. Structurally, the NNLTC consists of Home and Community-Based Services (outpatient settings) and Skilled Nursing Homes (inpatient settings), with the latter organized into 'Convalescence units', 'Medium Term & Rehabilitation units', and 'Long-Term & Maintenance units' [9, 10]. In 2019, out of 373 inpatient units, 176 (47.2%) were assisted by a pharmacist. Pharmacists are not mentioned as a mandatory or recommended professional on the National Network for Long-Term Integrated Care legislation, albeit medicine-related activities (e.g., procurement, medicine reconciliation) are mentioned several times in the NNLTC norms and regulations [11].

Pharmacists' work in NNLTC inpatients units has not been mapped or characterized, especially in the context of their interdisciplinary work. No published evidence is known on how pharmacists' actual and potential roles are perceived within the LTC ecosystem by themselves, other healthcare professionals and key stakeholders.

Aim

The aim of our qualitative study was to explore and characterize LTC pharmacists' roles as perceived by LTC healthcare professionals (physicians, nurses, and pharmacists) and other LTC key stakeholders (managers and researchers), as framed by the Role Theory.

Ethics approval

Ethical approval was obtained from the Ethics Committee of Research involving Human Beings of the Faculty of Pharmacy of the University of Lisbon (no. 02/2020), June 6th, 2020.

Method

This study followed a qualitative, exploratory design, using semi-structured interviews for data gathering and Role Theory for data analysis and discussion.

Theoretical framework

Role Theory was used to inform the development of the interview guide, the coding process and analytical synthesis. This theoretical framework was previously used in several pharmacy studies and with similar populations and settings [12, 13]. Role Theory can be defined as *"a triad of concepts: patterned and characteristic social behaviors, parts or identities that are assumed by social participants and scripts or expectations for behavior that are understood by all and adhered to by the performer"* [14] According to the seminal work of Hardy and Conway, roles can be operationalized into seven dimensions: *identity; ambiguity; overqualification; underqualification; underload; overload;* and *conflict* [15]. Definitions are described in Table 1 and followed adaptions from the literature in pharmacy and nursing research, such as the works of Brookes et al., Guirguis et al. and Taylor et al. [16–18].

Semi-structured interviews

Research team was comprised of researchers with wide experience in developing and conducting qualitative research. Given the exploratory nature of this study, individual, in-depth, semi-structured interviews were chosen as the data collection technique. Interviews are frequently used in healthcare and pharmacy research with the objective of exploring a lesser known field and obtaining rich or thick description of that phenomenon (i.e., pharmacists' roles in LTC) [19, 20]. Semi-structured interviews have been defined as *"a planned and flexible interview with the purpose of obtaining descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena"* [21]. Semi-structured interviews

Table 1 Role Theory constructs definitions

Role construct	Definition [16–18]
Role identity	*The individual's interpretation of role expectation, that is, position-specific norms identifying the attitudes, behaviors and cognitions required and anticipated for a role occupant*
Role ambiguity	*Disagreement on role expectation associated with a lack of clarity of those expectations*
Role overqualification	*When the individual's role expectations are less than their education qualifies them to accomplish*
Role underqualification	*When the individual requires more training to successfully perform the given role*
Role underload	*When there are too few role expectations for the role occupant in the time given, resulting in role strains such as frustration or boredom*
Role overload	*When there are too many role expectations for the role occupant to complete in the time given*
Role conflict	*The focal person perceives existing role expectations as being contradictory or mutually exclusive*

were identified as the most appropriate technique in the study context knowing the limitations of other options, such as agreements for overt/covert observations and work time pressures, or the scarcity of documental sources. The semi-structured format allows for keeping the interview plan and objectives whilst also allowing for enough flexibility to uncover additional topics [19–21].

Two members of the research team developed the initial schedule (JRG, MAB), based on *i)* the approach recommended by Kvale [21] and *ii)* on previous knowledge about pharmacists' participation in LTC settings (both from scientific or official literature and observation). The interview schedule was consecutively reviewed by the research team members, after the input from other experienced academics reaching initial validation. The semi-structured interviews schedule was pre-tested involving 3 professional participants with experience in qualitative research and/or expertise in LTC. Adjustments were introduced, including probing questions to increase engagement, the depth and scope of participant's accounts. These interviews were not included in the study data set. The full interview schedule is available in Supplementary material 1.

Sampling

The interview enrolment was done using purposive sampling followed by snowballing sampling techniques, and written informed consent was obtained from all participants. Purposive sampling (P1, P2, P6, P7, P10-P14) was pursued to achieve a set of participants that most frequently interact with pharmacists in LTC (i.e., nurses, physicians, and managers), as well as to include both the perspectives of pharmacists with LTC and/or hospital experience and LTC researchers. Snowball sampling was used to recruit future participants with the desired features since no public directory of LTC professionals was available and following the suggestion of participants 1 and 11. In both sampling approaches, participants' recruitment followed a criterion of proportionality based on the professions' distribution on the

NNLTC and years of experience, when possible. Participants were contacted via e-mail from a national NNLTC representative, they had no previous contact with any of the research team members and were enrolled from the 3 main regions of mainland Portugal. Enrollment was performed until data saturation was achieved (i.e., the moment the codes/themes became redundant and started to stabilize) [22]. Sample characteristics are summarized in Table 2.

Data collection and analysis

All interviews were conducted face-to-face remotely and led by one researcher, assisted by a second researcher for note taking. Interviews were video and audio recorded (i.e., two recording devices), the audio transcribed verbatim, and double checked by the second researcher. All data were stored on a password-protected device and carefully managed by two researchers, assuring data confidentiality. Coding and identification of relevant themes were assisted by NVIVO QSR v11 [23], undertaken independently by three researchers (JRG, MAB, JFL) through means of a deductive identification of the Role Theory constructs. The remaining primary data were coded inductively through an open approach and following a thematic analysis [24]. After independent coding, disagreements were resolved by consulting the other team members, embedded in group reflexivity [25].

Reporting and quality appraisal. The quality of study development and analysis of results were appraised following the *Consolidated Criteria for Reporting Qualitative Research* (COREQ-32) [26].

Results

All participants invited to participate accepted to collaborate. Fourteen interviews were conducted between January-April 2021. All interviews were conducted via video conference due to COVID-19 restrictions, using Zoom Meetings software [27]. The average duration of

Table 2 Participants' characteristics

Participant ID	Gender (M—male F—female)	Age			Occupation	Contact with LTC pharmacist work
		30–40	41–50	51–60		
1	M			x	LTC researcher and expert; Nurse	Yes (in research context)
2	F			x	Nurse	No
3	F		x		Nurse	Yes
4	M	x			Nurse	Yes (worked with and without pharmacist in LTC team)
5	F		x		LTC researcher and expert; Physiotherapist	Yes (in research context)
6	F	x			Physician	Yes (worked with and without pharmacist in LTC team)
7	F		x		Physician	Yes (worked with and without pharmacist in LTC team)
8	M			x	LTC researcher and expert; Nurse	No
9	F			x	Hospital pharmacist; Regional Health Authority	Yes
10	F	x			LTC pharmacist	Not applicable
11	F	x			LTC pharmacist	Not applicable
12	F		x		Hospital pharmacist; Portuguese Pharmaceutical Society	Not applicable
13	M		x		LTC manager; National Association of LTC	Yes
14	F		x		LTC manager	Yes

Table 3 Mapping of deductive themes

Role Theory constructs	Sub-themes
Identity	Clinical pharmacy
	Staff education
	Logistics
	Quality and patient safety
	Scientific research
Ambiguity	Absence of a legal framework
Overqualification	Underuse of medicine expertise
Underqualification	Clinical training

semi-structured interviews was 40 min, ranging from 30 to 60 min. Four role constructs were deductively identified—role identity; role ambiguity; role overqualification; role underqualification (see Table 3). Additionally, 3 themes – 'Perspectives about Long-Term Care & the National Network of Long-Term Care', 'Type of participation' and 'Competences'—were inductively identified. Data saturation was already achieved when reaching the eleventh interview, although three more interviews were conducted after this moment. The additional data collected from the last three participants was redundant in that no further coding categories were identified hence the researchers were confident that saturation had been achieved.

Figure 1 conceptually summarizes the relationships between themes, sub-themes, and minor themes.

Role Theory-driven themes

Role identity

Participants positively accepted pharmacists' integration in LTC healthcare teams and settings:

"From what I know about National Network of Long-Term Care and given the complexity of patients; the pharmacist is essential! […] It doesn't even make sense to be otherwise" (P13).

Reasons supporting pharmacists' intervention in LTC were anchored in medication:

"Where there are medicines, a pharmacist should be present" (P11).

Additionally, five main fields of interventions emerged within Role Identity—Clinical pharmacy; Staff education and information; Logistics skills; Quality and patient safety; Scientific research.
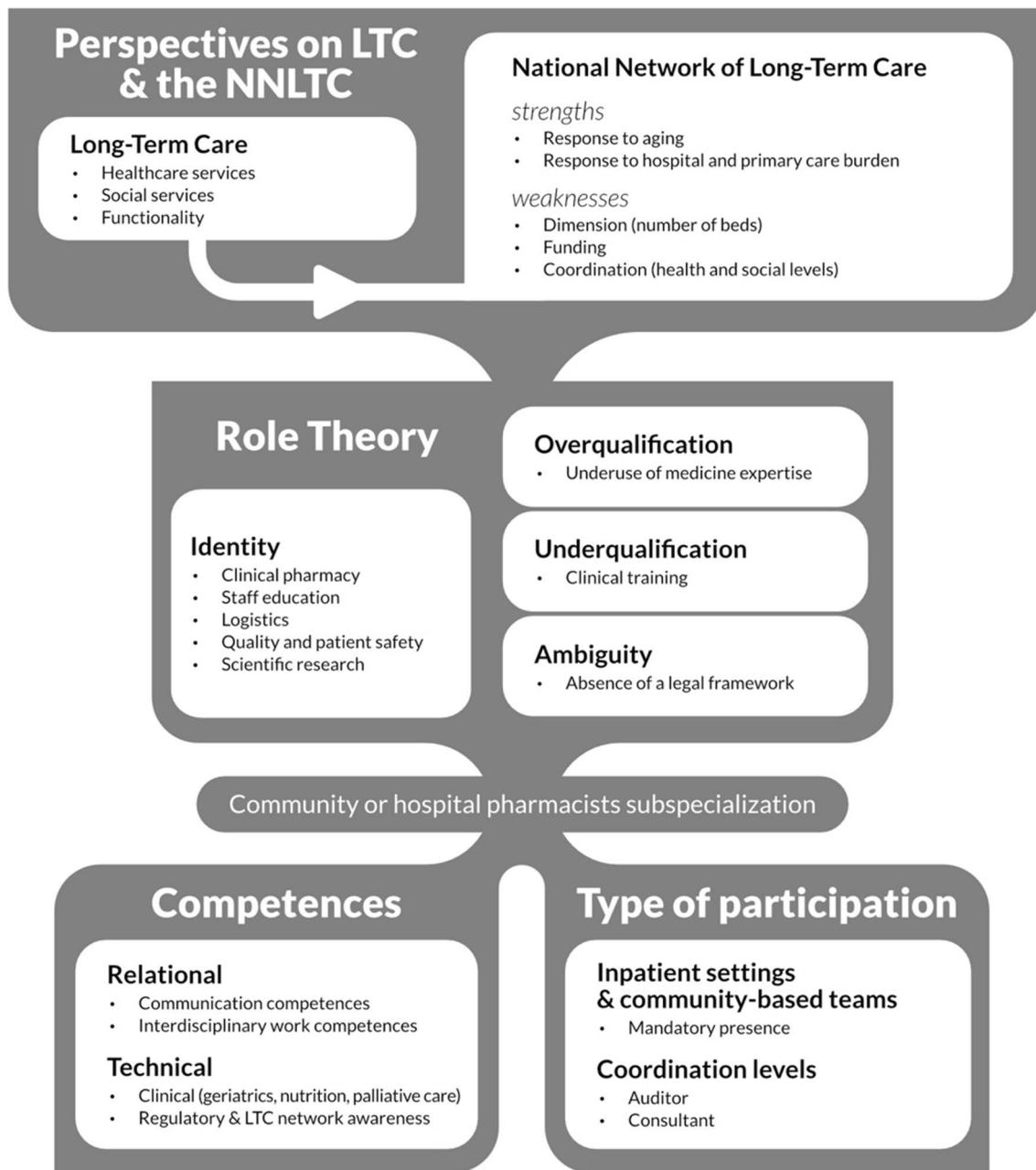
Fig. 1 Conceptual map of the relationships between themes, sub-themes, and minor themes

Clinical pharmacy "Clinical pharmacy issues are the most relevant aspects of pharmacist's role" (P8).

Participants identified benefiting from pharmacists' clinical interventions which addressed polypharmacy, therapeutic reconciliation and clinical decision making:

"[…] pharmacists [have a role] on everything that has to do with therapeutic reconciliation and with this 'fight' against polypharmacy; this is an extremely important aspect" (P1).

Staff education and information Providing education and information to the healthcare team was perceived as a valuable activity delivered by pharmacists. For instance, pharmacists were taken as the best positioned professionals to improve dose form modification interventions and to raise awareness regarding the appropriate use of medicines (e.g., use of psychotropic, prevention and management of side effects).

"[Pharmacist] could be a manager or trainer, right? [...] I think pharmacists have a very important role in training the other team members" (P2).

Logistics skills (procurement, storing, distribution) Logistic and administrative activities related to medicines and medical devices were considered an essential aspect of pharmacists' interventions in LTC facilities:

"From a managerial point of view, to manage stocks, to buy as cheaply as possible, 'economy of scale', [pharmacist's intervention is] extremely important" (P13).

Quality of storing and distribution of medicines and medical devices was also highlighted as an activity benefiting from pharmacist intervention or supervision:

"If the medicine is well stored, if I am respecting the hygroscopic characteristics of the medicine, if it is within the expiry date [...] it does not necessarily have to be done by the pharmacist, it must be controlled by the pharmacist and the pharmacist defines the process" (P12).

Quality and patient safety Patients' safety could be improved through clinical pharmacy activities, by contributing to the establishment of the most appropriate regimen and medicine use (e.g., dose form modification):

"We don't have all professionals in permanence 24 hours a day and we also have very young teams, so there is a need for teamwork and above all discussion about what can be safer to the patient" (P4).

Particularly, participants identified pharmacists as improving safety by enhancing prescribing appropriateness by reducing prescribing errors:

"There is a 'second pair of eyes' to notice inconsistencies [...] sometimes the prescription systems are not user friendly, and I prescribe the same medicine twice, or I misprescribe, and they manage to solve these details, and this turns out to be quite comforting, because I know that someone else will double check" (P6).

Scientific research Scarcity of scientific publication based on real-world data from LTC practice were highlighted by participants, particularly due to the fact of LTC patients often present with polypharmacy and complex regimen plans. In that context, pharmacist competences and contributions to scientific research in the context of LTC was considered valuable:

"I think the most important competence [of pharmacist] for Long-Term Care is that of the clinic, always accompanied by [scientific] research" (P7).

Role ambiguity

Despite the clear identification of pharmacists' scope of interventions at *Role Identity*, participants reported ambiguity on pharmacists' participation and presence (i.e., not all LTC facilities had pharmacists belonging to their staff, and there was a paucity of specific and adjusted LTC pharmacy practice guidelines and norms):

"We follow a lot of functions stated in the hospital pharmacy manual and the Pharmaceutical Society consider us hospital pharmacists, but we are not exactly hospital pharmacists, we are in an 'edge'" (P11).

This lack of clarity regarding pharmacists' roles at the NNLTC was mainly attributed to the absence of pharmacist's roles in the legal framework specifically regulating the NNLTC:

"Institutions should reinforce [pharmacists' presence] because it is not mandatory and, in fact, it is very poorly framed, even from a legal point of view" (P4).

Role overqualification

From participants' perspectives, pharmacists were underused in some fields of care, their activities should go beyond logistics affairs and towards the use of drug-related skills in a more patient-oriented intervention:

"[Pharmacist] is usually just called for that [logistics]... pharmacist's intervention cannot stop there; Pharmacists should have a more clinical intervention within the competences of the pharmacist within the team" (P5).

Role underqualification

Participants indicated a gap at the undergraduate level of pharmacy education in two areas: clinical training, and awareness about the Long-Term Care network:

"Pharmacists have a lot of laboratory training, but no clinical training. And as you do not have clinical training, you are not prepared for care" (P1);

"Training should be adjusted at universities. So far as I am aware, this topic [LTC] is not discussed during university courses" (P14).

Table 4 Mapping of inductive themes, sub- and minor themes

Main themes	Sub-themes/constructs	Minor themes
Perspectives on LTC & the NNLTC	Long-term care	Social services and healthcare
		Functionality
	National network of long-term care	*Strengths*
		Response to aging
		Response to hospital and primary care burden
		Weaknesses
		Dimension (number of beds)
		Funding
		Coordination (health and social levels)
Competences	Relational	Communication competences
		Interdisciplinary work competences
	Technical	Clinical (geriatrics, nutrition, palliative care)
		Regulatory & LTC network awareness
Type of participation	Inpatient settings & community-based teams	Mandatory presence
	Coordination levels	Auditor
		Consultant

Other emerging themes

The three main themes which were identified through an inductive coding approach are described next (Table 4).

Perspectives about long-term care & the national network of long-term care

Initially, participants were asked to give their perspectives about Long-Term Care in general and about National Network of Long-Term Care. Participants perceived LTC as a level of care resulting from the combination of social services and healthcare towards frail and dependent patients of any age, but specially targeted to the elderly:

> "Long-Term Care is the combination of health and social services provided outside the primary and hospital levels" (P9)

> "Although not targeted to a specific age range, with demographic changes, the elderly population is the one that needs the most [Long-Term Care]" (P11).

Regarding the NNLTC, participants identified the usefulness and positive impact of the NNLTC addressing aging and easing the burden over other levels of the health system, especially hospital settings. On the other hand, funding, dimension (i.e., availability of beds) and coordination between health and social care were identified as needing improvement.

Competences

Pharmacy practice at the NNLTC should be supported under two main domains of competences, namely technical and interpersonal interactions competences:

> "[...] most important of all is the know-how and communication between the pharmacist and the team" (P13).

Regarding technical competences, pharmacists and other healthcare professionals should hold expertise in the management of age-related conditions, nutrition, and palliative care:

> "For a pharmacist working in LTC, competences on geriatrics, pain management, nutrition will be the most needed because LTC is targeted to treat people often with these conditions" (P12).

Moreover, communication competences were highlighted by participants as of utmost importance for LTC pharmacy practice:

> "When I joined the facility, people always looked at me 'oh, it's the one who will purchase the medicines'. But if we are willing to say 'look, this can be done this

way' they end up calling us and asking us questions" (P11).

Aligned with the previous quotation, pharmacists' participation in interdisciplinary teams seemed to be hindered by a lack of initiative from pharmacists to integrate within teams:

"I think both [pharmacists and other healthcare professionals] have responsibilities on this absence of pharmacists' participation. But I would say that it mainly comes from pharmacists: if you don't step forward and show yourselves available to participate, don't expect others to look for you" (P5).

When asked, participants were not favorable to a LTC pharmacist specialization. Hospital and community pharmacists were pointed as being best positioned to work in LTC settings, given their nuclear competences and experiences:

"[LTC pharmacist] can be a community or hospital pharmacy specialist, but with more adjusted skills" (P12).

Types of participation

The National Network of Long-Term Care is divided into two settings of care: home and community-based services and skilled nursing homes. Other levels of organization include a hierarchy based on national, regional, hospital and community structures. Pharmacists' participation was accepted and identified as valuable at all levels of the NNLTC, through variable types of participation. In levels closer to the patient, participants unanimously felt pharmacist participation as critical:

"It is essential [pharmacist presence] at inpatient units; in the community-based teams it would be fantastic if there were pharmacists too" (P7).

For upper levels of coordination, pharmacist participation was considered useful as 'consultant' or 'auditor' (e.g., assisting guidelines development or participating in quality control of the medication circuit and medicines usage):

"To develop [...] guidelines for the use of medication and medical devices. I think it's important to have pharmacist participation" (P3).

Participants felt the quality of the transition-of-care would benefit from pharmacist intervention:

"Pharmacists can play an important role in the management of the medication [...] because there is difficulty to make a discharge correctly: computer systems are different; the patient is admitted at hospital emergency room with a therapeutical plan, comes to primary care, and medication is changed again and when

they arrive at the long-term care facilities it is usually the family member who brings medication" (P9).

Discussion

Statement of key findings

To the best of our knowledge, this is the first study investigating pharmacists' participation in Long-Term Care using Role Theory, with four role constructs being identified: *role identity; role ambiguity; role overqualification; role underqualification*. Medicines usage is the anchor supporting pharmacist participation in LTC, reinforcing the perception of pharmacists as medicines' experts. Clinical activities (e.g., case conference, medication review) and staff education interventions are commonly delivered by pharmacists as identified in recent systematic reviews [6–8]. According to our participants, the latter, along with 'logistics', 'research' and 'quality and patient safety', comprise the core identity of pharmacist roles in LTC or role identity. Nevertheless, lack of mention of pharmacists in LTC network specific regulation (compared to general laws framing pharmacists' participation in inpatient units), was the main driver in identifying role ambiguity. Regarding qualification, mixed results emerged with the identification of both *role underqualification* and *role overqualification*. Clinical training was highlighted as needing improvement particularly during undergraduate pharmacy education (i.e., role underqualification). On the other hand, participants recognized that pharmacists hold deep knowledge on medicines usage that should be more frequently employed, and not only limited to administrative and logistics activities (i.e., role overqualification). Three themes were inductively identified from data – '*Perspectives about LTC & the NNLTC*'; '*Type of participation*' and '*Competences*'. Long-Term Care is viewed as an integrated care between social services and health fields. Aging was considered the main reason for LTC development because aged people are more prone to lose functionality, while clinical and therapeutic conditions are often more complex, especially pharmacotherapy regimens. The NNLTC was perceived by participants as crucial in addressing this demographic shift and complexity; albeit NNLTC functioning could be enhanced through increased funding and number of facilities and beds, as well as through a better coordination between social and healthcare institutions. Concerning to the type of pharmacists' participation across the structure of the NNLTC, two main types could be identified: a mandatory, on-site presence of pharmacists at LTC facilities and community-based teams; and a participation as consultant and/or auditor at coordination levels of the NNLTC. Along with interpersonal skills (e.g., teamwork,

problem-solving), training in the management of older people's health conditions, nutrition and palliative represent the core of competences necessary for professionals working in LTC contexts. Overall, pharmacists were perceived as valuable resources within LTC healthcare teams.

Strengths and weaknesses

Methodologically, the use of semi-structured interviews and the Role Theory seemed to be appropriate since Role Theory constructs were identified from the data set. The use of this validated theoretical framework aligned to an inductive identification of additional themes; the diversity of the sample (e.g., both professionals working in the field and LTC researchers) and the data analysis process (i.e., number and experience of researchers; continuous process of reflexivity) have contributed to strength our findings. Nonetheless, some methodological limitations are worthy to mention: snowballing enrollment allows for less control of participants' features, adding to participants' differences in prior acknowledgement of researchers and project and, thus, the chance of a Hawthorne effect [28]; nevertheless, this effect was minimized through compliance with recruitment criteria and no previous contact with research team members; the research team was comprised only by pharmacists, also prone to bias assumptions and analytical interpretations; member checking was not performed, which would have strengthened study's credibility [29]. Despite the achievement of data saturation in this mixed population, there is merit in differentiating the findings across the professions by increasing participant numbers.

Interpretation

The combination of role ambiguity i.e., the absence of a clear framework for LTC pharmacy, and role underqualification i.e., limited clinical training and awareness of LTC in undergraduate pharmacy education – could explain the lower participation of pharmacists at the NNLTC. Compared to other traditional pharmacists' roles clearly identified in role identity sub-themes (e.g., logistics), clinical pharmacy services represent a relatively new field of practice for pharmacists, contributing to explanation of this overall perception [30]. On the other hand, multicentred work with simultaneous assistance to several different LTC units and the related lack of time were mentioned by pharmacists as barriers to LTC pharmacy practice in Portugal [31]. These barriers might explain the emerging of role overqualification, given the little time spent in each LTC facility and the limited interactions with prescribers, who also mostly work part-time at LTC facilities [11]. Nonetheless, role overload was not identified from data, which might be explained given that the sample was not exclusively comprised of LTC practicing pharmacists. Regarding role identity sub-themes, these are aligned with the seven-star pharmacist concept introduced by the World Health Organization (e.g., teacher, decision-maker, manager), represented in our findings through 'staff education and information', 'clinical pharmacy', and 'logistics skills' sub-themes, respectively. This concept comprehends a set of roles which pharmacists must perform, and include other concepts such as caregiver, communicator, life-long learner, and leader [32].

Published similar research is scarce. Nevertheless, the findings of Kwak et al. from South Korea are in many aspects close to ours [33]. In Kwak's study, the sample was comprised of 12 non-pharmacy professionals (social workers, nurses, and physicians), and besides acknowledging the same desired role of pharmacists in *"medication review/ reconciliation"* and *"pharmaceutical education/counseling"* (also identified in our study), the participants identified three other views' on pharmacists similar to our findings: i) *"financial stability of LTCFs"*—when asked about the NNLTC's weaknesses and strengths, our participants repeatedly mentioned lack of funding as a feature to improve (including to increase pharmacist hiring); ii) *"to establish more official duties"*: as highlighted in our study, Kwak et. al findings also suggest that pharmacist's role in LTC would benefit from a clarification on *"the roles of pharmacists in LTCFs"*; iii) *"professional development of pharmacists"*: participants enrolled by Kwak et. al mentioned *"the importance of 'specified knowledge and experiences'"* like in our findings. In this aspect (i.e., competences), our results suggest that many of the technical competences relevant to LTC practice (e.g., palliative care, nutrition) are not only lacking amongst pharmacists but also amongst other healthcare professionals, in line with data published in the literature [34].

Other studies addressing pharmacists' participation in healthcare teams and in LTC or other settings, also identified the importance of communication between professionals and awareness of each team members' roles. In these studies, the importance of effective communication among healthcare professionals frequently involved in medicine usage (i.e., nurses, pharmacists, and physicians), played a crucial role in achieving better clinical and economical outcomes, through improved interprofessional collaboration [35, 36]. Along with 'technical competences', 'relational competences' were mentioned by our participants as playing a pivotal role in interprofessional relations, in line with literature [37–39]. Role conflict was not identified from data. Notwithstanding, lower proactivity of pharmacists to integrate teams and the already mentioned little time spent in LTC facilities, might explain the absence of role conflict identification. Healthcare professionals' perceptions of pharmacists as 'non-clinicians', poor interaction at early stages of professional education and a lack of engagement in more proactive communication by

pharmacists, could contribute to the reduced pharmacists' proactivity [36, 40, 41].

Further research

It is unclear whether a more comprehensive implementation of pharmacy activities, especially clinical pharmacy interventions, has been hindered by lack of a legal framework, financial, ideological, or other barriers. Moreover, further research should explore whether fewer pharmacists work in LTC because of professional isolation [42]. Future research should also design interventions to help pharmacists apply their knowledge to be more proactive in LTC settings. The pharmacy profession in Portugal should lobby for LTC regulations which refer to pharmacists. The relation between facility size and patients' profile assisted and the number of pharmacists and the extension of their duties should also be investigated. The impact of pharmacists' interventions described on role identity would benefit from further research, particularly where research methodologies are framed by implementation science approaches [43].

Conclusion

Pharmacists' expertise in medicines optimisation was identified as a valuable resource in improving LTC patients' process of care. Activities of clinical pharmacy and staff education, along with logistic activities, were perceived as the most important pharmacist-driven interventions, building LTC pharmacists' role identity; though these skills are not fully used in the interdisciplinary context of LTC teams (role overqualification). Pharmacists' lower clinical training and proactivity in LTC teams were pointed out as weaknesses. Additionally, deeper training in the management of older people's health conditions, nutrition and palliative care are missing for pharmacists (role underqualification), as well as for all healthcare professionals involved in LTC. The absence of a legal framework establishing pharmacist' roles is as a potential hindrance for a wider and optimized participation (role ambiguity). Further studies should expand these findings towards the clarification of barriers and facilitators in pharmacists' participation in LTC.

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