



Pharmaceutical care for visually impaired patients: a qualitative study of community pharmacists' needs and professional experience

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Abstract

Background Visual impairment is a disability that can have a significant impact on the ability to take medication safely. As a result, pharmacists must adjust their practice to provide targeted and adapted support for this type of patient.

Aim The aims of the present study were (1) to illustrate the usual clinical practice of community pharmacists to support the optimisation of medication use in visually impaired patients, and (2) to identify solutions to improve pharmaceutical care for visually impaired patients.

Method Semi-structured interviews with 18 French-speaking community pharmacists were conducted via videoconference in Belgium. Participants were recruited on a voluntary basis and through a snowball method. An interview guide was developed based on literature review. Interviews were carried out until theoretical saturation of the data, recorded, transcribed verbatim and analysed using thematic analysis. Data were organised by NVivo Software.

Results Four themes were identified: community pharmacists' training, identification of visually impaired patients by the pharmacist, communication with visually impaired patients and their proxies, and provision of appropriate pharmaceutical care. Participants stated that they had not received any training regarding visual impairment. They described that they did not always know how to recognise visually impaired patients and that communication was often difficult.

Conclusion This qualitative study has highlighted a lack of knowledge and skills among community pharmacists regarding visual impairment. One possible solution could be to develop recommendations and tools to improve the care of these patients.

Keywords Ambulatory clinical pharmacy · Community pharmacy · Pharmaceutical care · Qualitative research · Visual impairment

Impact statements

- Pharmacists are unfamiliar with visual impairment and are unable to effectively identify visually impaired patients.
- Awareness raising and training for community pharmacists need to be improved by providing them with recommendations and tools, so that they can adapt their pharmaceutical care for visually impaired patients.

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Introduction

The number of people with visual impairment (VI) is increasing worldwide and is growing with the aging of the population [1]. VI causes a series of safety problems in the management and use of medication [2, 3]. In particular, it affects the ability to read medication labels [4], information sheets, and package inserts as well as expiry dates [5], and dosages [6–8]. It is difficult for these patients to determine colour, size, shape, and markings that differentiate medication [9–11]. Proper use of medication can be challenging because the patient cannot see the graduations on measuring pipettes, the small markings on inhalation devices, count the drops of liquid forms and, administer injections or eye drops [11, 12]. In this context, community pharmacists play a significant role in the optimisation of medication use for patients with VI.

In addition to these findings, it should be noted that this disability is particularly prevalent among older persons [13]; indeed, two thirds of people with VI are over 65 years old [14, 15]. Visually impaired older persons are also more likely to suffer from depression, anxiety, diabetes, cardiovascular diseases, or stroke [16]. For four out of five visually impaired people, VI is associated with at least one other impairment. In most developed countries, an increasing number of older persons suffer from both multiple morbidity and VI primarily caused by age-related macular degeneration, cataract, diabetic retinopathy, or glaucoma [6, 17, 18]. Physiological changes in vision that occur with age reduce contrast sensitivity, and visual field impairment also contribute to reduce visual acuity [19]. Older persons with visual impairment are likely to have more chronic health problems and to be receiving polypharmacy [20]. It is therefore important to collect and structure the practices implemented by individual pharmacists.

However, the scientific literature on pharmaceutical care for visually impaired patients is limited. Indeed, the systematic review by Beverley et al. [21] identified only 12 studies, most of which were of poor quality. The majority of these studies were from the United Kingdom or United States. Likewise, the most recent systematic review by Kentab et al. [22] found no studies on the current practices of community pharmacists when providing services to visually impaired patients, or on the impact of these services, if any, on medication optimisation outcomes. This review highlighted the need for future research to promote the safe and effective use of medication and the provision of pharmaceutical care services for people with VI.

Aim

This study was designed to illustrate the usual clinical practice of Belgian community pharmacists to support the optimisation of medication use in visually impaired patients, and to identify solutions to improve pharmaceutical care for visually impaired patients.

Ethics approval

The study protocol was approved on 22 April 2022 by the Ethics Committee of the Faculty of Psychology and Education of the University of Mons (file number: 220422TM). All participants provided informed consent. Finally, during transcription, all data were pseudonymised according to following convention: the letters IPh, standing for “Interview Pharmacist”, were associated with a number assigned in the order in which the semi-structured interviews were conducted.

Method

Study design

The method consisted of semi-structured interviews with community pharmacists practicing in Belgium. The study focused on older patients with VI, i.e., reduction in visual acuity and/or visual field, taking 5 or more chronic medications. An interview guide (Supplementary material) composed of 6 main topics developed a priori was constructed based on a review of the existing literature from other countries. The following topics were covered: visual impairment knowledge; communication with visually impaired patients; pharmaceutical care for visually impaired patients; technical aids used for visually impaired patients; older patients with VI and polypharmacy; and community pharmacists’ training needs.

The interview guide included main and follow-up open-ended questions so that the pharmacists could freely develop their ideas [23–25]. Each question had a simple grammatical structure and vocabulary adopted was scientific and precise [26].

This interview guide was then pretested and validated at 2 levels:

- *Internal testing:* The guide was first read by the advisory group consisting of the research team, health professionals (including 2 community pharmacists and an ophthalmologist with expertise in poor vision), and representatives from organisations for visually impaired persons [27].
- *Field testing:* A semi-structured interview was then carried out under real-life conditions with a suitable participant to establish the duration of the interview (approximately 50 min) and to receive constructive feedback on the interview guide [27].

Selection criteria

The 18 participants included in the study were French-speaking community pharmacists, with the status of owner or non-owner, practicing in the Walloon or the Brussels-Capital region, with at least five years of experience. Pharmaceutical-technical assistants and hospital pharmacists were excluded.

Participants were recruited on a voluntary basis and using the snowball method [28]. For this purpose, community pharmacists were contacted by telephone, and the researcher briefly explained the study objectives and process.

Data collection

The semi-structured interviews were conducted via videoconference using the Microsoft Teams application by TM over a five-month period (May 2022 to September 2022). The interviews lasted an average of (51 ± 11) minutes and were directly recorded on the application to facilitate transcription [23]. Prior to commencing the interview, the researcher requested the pharmacist's agreement to record the interview. Throughout the interview, questions were asked topic by topic and follow-up questions were used only when necessary to expand the discourse [23, 27].

Data analysis

Each interview was transcribed verbatim into a separate Word document [23]. Moreover, the topic concerning older patients with VI and polypharmacy was independently transcribed from the other topics. The transcription process was carried out soon after the interviews to ensure that the main points made were retained [23]. The process lasted around 6 to 8 h per interview. TM conducted a hybrid analysis for each interview based on the 6 phases of Braun & Clarke's thematic analysis [29]. The analysis is referred to as a "hybrid" (deductive-inductive) approach, where themes were identified from the scientific literature using the deductive method. Other themes were added based on ideas emerged through the inductive method [30, 31]. These newly created themes were subsequently searched for in the set of interviews. This phase was performed at the same time as the data collection phase using NVivo 12. This iterative process was repeated until the theoretical saturation of the data was achieved, meaning that no new data that could answer the research question appeared during an interview [27, 32]. Theoretical data saturation was reached after 16 interviews, and 2 additional interviews were conducted to confirm saturation.

Trustworthiness

This qualitative study was reported following the SRQR checklist [33] and the trustworthiness was assessed according to the criteria defined by Korstjens et al. [34]. The credibility of the research was promoted by 3 distinct strategies: prolonged engagement, persistent observation, and member check. Transferability was promoted through a rich description of the study context (thick description). Finally, dependability was promoted through strict adherence to the 6 phases of Braun & Clarke's thematic analysis [29].

Results

The interviews facilitated a comprehensive investigation into the matter of VI in Belgian pharmacies as perceived by pharmacists. Table 1 presents the pharmacists' sociodemographic information.

Community pharmacists' professional experience with visually impaired patients

Four themes emerged from the anchored data, which were further divided into 13 sub-themes (Table 2). The themes are presented individually and are illustrated with relevant verbatim excerpts.

Theme 1 — Community pharmacists' training Pharmacists reported that there was no specific training available for them in relation to VI and technical aids. They believed that developing training on this subject would be of interest and beneficial to provide specific and adapted pharmaceutical care for visually impaired patients. For example, pharmacists would appreciate receiving information about VI itself, tips on enhancing the care of these patients, access to relevant materials, and useful links to find more detailed information. In general, they felt that hands-on workshops and face-to-face courses would be the most suitable means to integrate this new knowledge. Some pharmacists also supported the inclusion of seminars on this topic in the Pharmaceutical Sciences master's degree programme.

"Learning more about visual impairment would be great, because it is actually something that is not covered at all in our courses." IPh1 (15 years' experience)

"What I like are little tricks. For example, special pill organisers or an app on their phone that would allow them to decipher notices, already knowing what exists and on my end having a list of things that I can suggest and where to find them as well." IPh16 (23 years' experience)

Theme 2 — Identification of visually impaired patients by the pharmacist Many pharmacists reported that they did not routinely ask a question to detect vision loss in their patients, that patients with VI did not always share their disability, and that access to their pharmacy was challenging. They were also unfamiliar with all the signs to recognise a visually impaired patient and often dealt with a proxy. To address this identification problem, certain pharmacists proposed queries regarding vision problems should be integrated into the systematic standardised pharmaceutical questioning, and that a note in the patient's record was needed to easily identify the patient each time

Table 1 Sociodemographic data of the sample (n = 18)

Pharmacists	Gender	Province of profession	Experience (years)	Number of visually impaired patients estimated by pharmacists in their own pharmacies
IPh1	W	Namur	15	<5
IPh2	M	Namur	12	<5
IPh3	M	Hainaut	6	<5
IPh4	W	Hainaut	30	>40
IPh5	M	Liege	25	<5
IPh6	W	Flanders Brabant	23	0
IPh7	M	Liege	35	<5
IPh8	W	Hainaut	19	No idea
IPh9	M	Walloon Brabant	20	5–20
IPh10	M	Luxembourg	16	<5
IPh11	M	Walloon Brabant	30	20–40
IPh12	W	Brussels-Capital	22	<5
IPh13	M	Walloon Brabant	27	20–40
IPh14	W	Namur	9	No idea
IPh15	W	Hainaut	11	No idea
IPh16	W	Brussels-Capital	7	<5
IPh17	M	Hainaut	30	No idea
IPh18	W	Namur	15	5–20

M: man; W: woman

Table 2 Main themes and sub-themes resulting from the analysis

Themes	Sub-themes
Community pharmacists' training	<ol style="list-style-type: none"> 1. <i>Lack of knowledge</i> 2. Training needs 3. Types of training 4. University courses
<i>Identification of visually impaired patients by the pharmacist</i>	<ol style="list-style-type: none"> 1. Barriers to identification 2. <i>Solutions to optimise identification</i>
Communication with visually impaired patients and their proxies	<ol style="list-style-type: none"> 1. <i>Ideal communication</i> 2. <i>Barriers to communication</i> 3. <i>Inefficiency of transmission</i>
<i>Provision of appropriate pharmaceutical care</i>	<ol style="list-style-type: none"> 1. General care 2. Administration to others 3. Pharmaceutical forms 4. <i>Solutions to address barriers to pharmaceutical care</i>

Themes and sub-themes in italics were created during the analysis

they come to the counter. Additionally, pharmacists suggested various accommodations to enhance pharmacy accessibility. The pharmacy should feature airy and spacious aisles, seating for waiting, automatic doors, and a step-free entrance. A few pharmacists also proposed the

placement of floor markings to facilitate navigation for these patients.

“We need a path to the counter that is as clear as possible, to avoid having aisles that are too small, having stuff that is lying around everywhere.” IPh3 (6 years' experience)

“Strips maybe to really direct them more easily to the counter, so they don't bump into this or that cabinet.” IPh8 (19 years' experience)

Theme 3 — Communication with visually impaired patients and their proxies According to the pharmacists interviewed in the study, effective communication with visually impaired patients necessitated oral interaction and ample time. Nevertheless, they identified several barriers to this oral communication. First, the noise in the pharmacy during peak hours could hinder the quality of oral communication. Pharmacists often engaged in dual communication with their patients, providing both oral advice regarding proper use of medication and written dosage, and essential information on the medication boxes. However, patients with visual impairment may struggle to integrate the advice offered by pharmacists, relying solely on memory. Furthermore, when communicating with proxies, pharmacists reported that transmitting information could be inefficient. Indeed, proxies may not always provide visually impaired patients with complete and accurate information and it may be distorted.

“It is recognised that the patient does not really take in, or at least not entirely, the advice we give at the pharmacy when they come.” IPh8 (19 years' experience)

“I talk to a person at the counter, and they will come out having retained 80% of what I told them. That 80% will be given to someone else who will only retain 80%. So, in the end, only half of the message reaches the final recipient.” IPh2 (12 years' experience).

Theme 4 — Provision of appropriate pharmaceutical care Pharmacists proposed solutions that could be implemented to improve overall VI patients' management. Writing in large letters, distinguishing boxes by colour or other distinctive features, carrying out a box identification exercise at the counter, or developing a treatment plan were all considered potentially helpful. To facilitate the daily identification of boxes, it was not advisable to switch from one generic to another for the same medication.

“Writing the labels in large print and with a marker rather than small writing and with a pen, that I think is essential.” IPh15 (11 years' experience).

“I would ask them to bring in all their medication to see if they are actually able to recognise them.” IPh1 (15 years' experience)

“For example, to choose generic boxes with very distinct colours and avoid having boxes that look too similar to avoid confusion.” IPh18 (15 years' experience)

Furthermore, it was believed that providing medication in a single-use dose package (e.g., medication packaged by time of administration) and recording the dispensed information would ease the administration of medication to others, such as a visually impaired parent who needs to give medication to the child. Training could also be offered to visually impaired patients or they could receive assistance from a helper.

“Ideally, it would be a tablet or solid administration or in any case by unidose so in sachet, in ampoule or then make a system of unidose syrup.” IPh14 (9 years' experience)

“I would eventually suggest that they record what I say on their smartphone, so they can listen to it again at home.” IPh6 (23 years' experience)

Finally, different pharmaceutical forms (inhalation devices, insulins, eye drops, droppers, and syrups) required specific advice to optimise administration. For example, single-dose or tablet substitutes may be more suitable for syrups and droppers. Moreover, the instruction of administering inhaled medication could be enhanced by using audiovisual information and practising under the supervision of a community pharmacist.

“You can really imagine pharmaceutical care with the pharmacist making sure that the patient is using their device properly and the patient has the opportunity to test it in front of them and it can be corrected.” IPh9 (20 years' experience)

“For cough syrups, we can switch to solid forms where it's a dose that's appropriate for an adult in general.” IPh10 (16 years' experience)

The schematic proposed in Fig. 1 represents a reflection of the themes described above.

Community pharmacists' professional experience with older patients with visual impairment and polypharmacy

The results for older patients with VI and polypharmacy were broadly similar to those obtained for the visually impaired population in general (Fig. 2). The main differences were observed in themes 3 and 4, which pertain to communication and provision of appropriate pharmaceutical care, respectively. Therefore, only these 2 themes are described upon in the following section.

Theme 3 — Communication between professionals Pharmacists noted that effective communication between doctors and pharmacists was crucial for providing

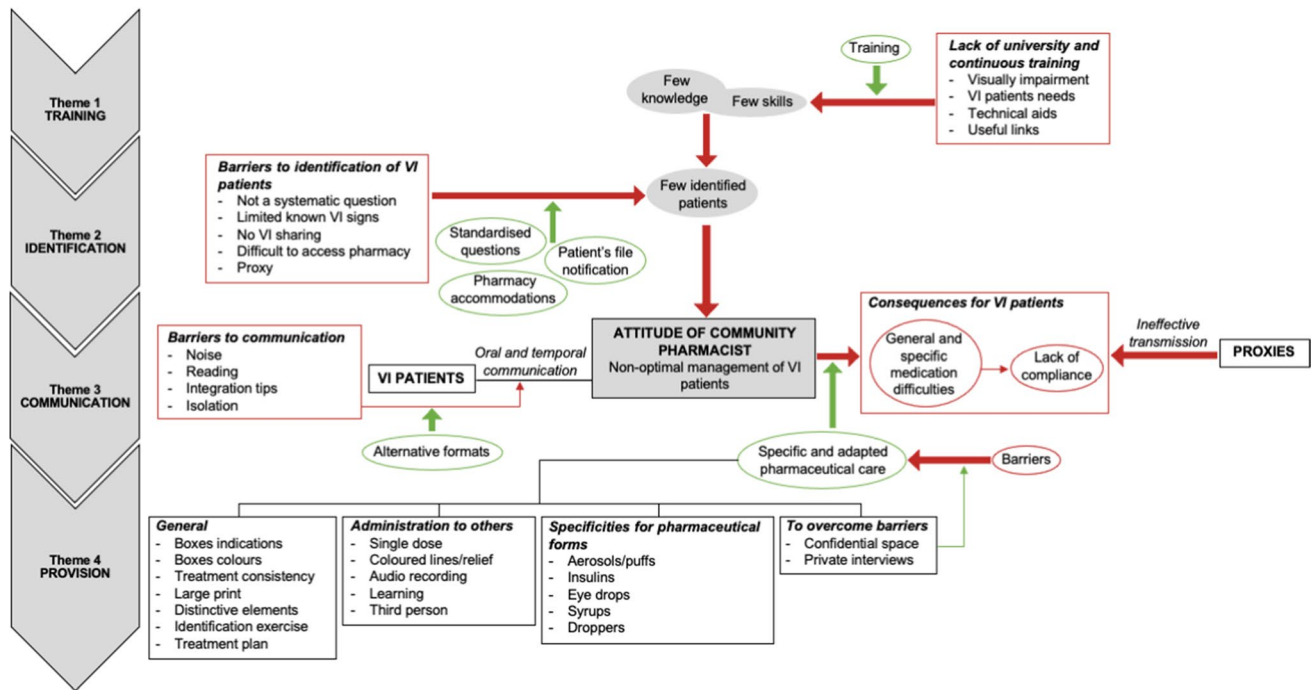


Fig. 1 Schematic of community pharmacists' professional experience with visually impaired patients. The provision of of specific and adapted pharmaceutical care constitutes the central process of this

schematic. Full black arrows represent the solutions and empty dotted black arrows represent the problems. VI: visually impaired

appropriate pharmaceutical care for this patient group. However, several pharmacists encountered difficulties in communication (e.g. difficult phone contact with doctors). They suggested possible solutions; some recommended choosing a preferred communication channel and setting specific time slots for optimal communication. They also endorsed medical-pharmaceutical consultations and the establishment of a shared medical record.

"I would suggest to the doctors that we have a privileged channel of exchange: either that they give me their e-mail address or that they agree to give me their telephone number. I promise not to bother them for nothing, but that the day I need to, I can have someone to communicate with." IPh16 (7 years' experience)

Theme 4 — Provision of appropriate pharmaceutical care There were certain aspects of pharmaceutical care considered crucial for patients receiving polypharmacy. Firstly, some pharmacists consider that conducting a medication review was relevant for this patient group. In addition, the majority of the pharmacists interviewed expressed that supplying a pill organiser was essential. Where appropriate, a method was suggested for storing boxes in various locations within the home based on the time medications were taken or by providing generics from

different companies, enabling patients to recognise boxes or tablets by their colours.

"I think they would be the first ones I would do a medication review on to see if we can't eliminate medication to minimise the number of times, they have to take." IPh2 (12 years' experience)

"Pill organisers are essential given the number of medication they have to take to avoid as many errors as possible." IPh3 (6 years' experience)

Discussion

Statement of key findings

This study highlights a gap in knowledge and skills amongst pharmacists in relation to visual impairment due to an absence of training. Visually impaired patients are not being sufficiently identified by the pharmacists resulting in sub-optimal management and probable general and specific medication difficulties, and a lack of compliance. The study by Lee et al. [3] also uncovered this gap and the challenge of recognising visually impaired patients. To the best of our knowledge and that of the Belgian Pharmaceutical Association (BPA), there are no recommendations for Belgian community pharmacists or studies on this subject.

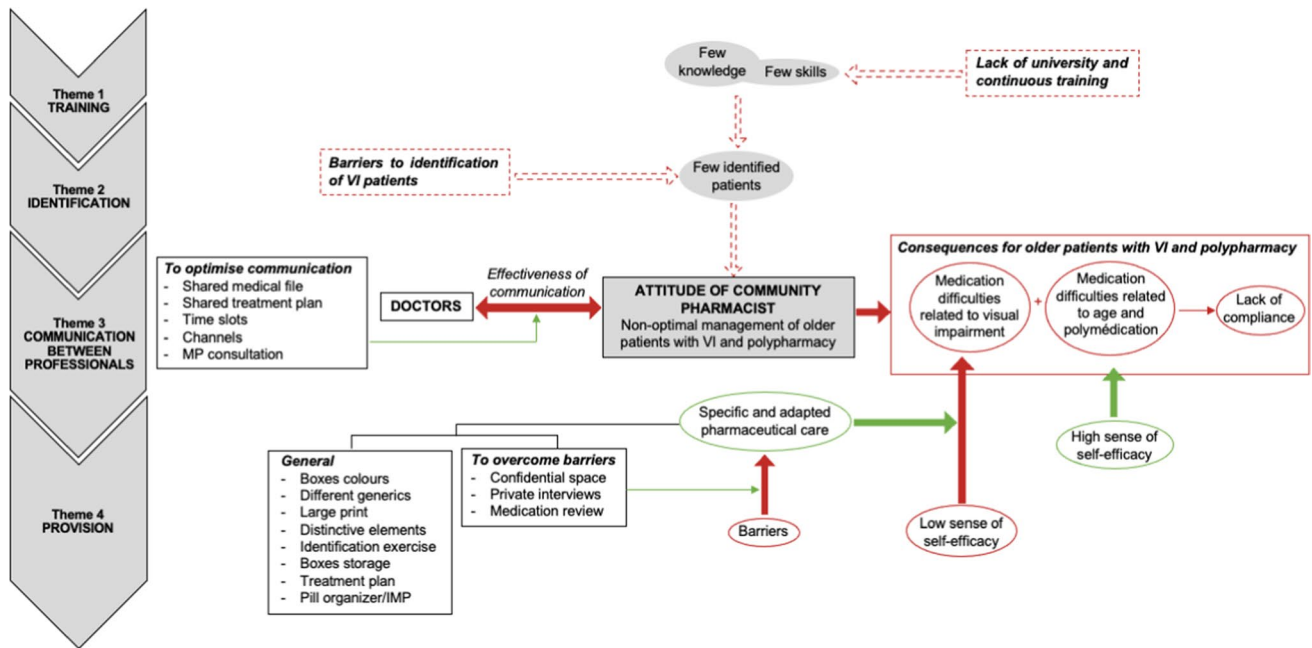


Fig. 2 Schematic of community pharmacists’ professional experience with older visually impaired patients with polypharmacy. Full black arrows represent the solutions and empty dotted black arrows represent the problems. The black dotted lines are applicable to all patients

with visual impairment, while the black solid lines are only applicable to older patients with visual impairment and polypharmacy. MP: medical-pharmaceutical; IMP: Individualised Medical Preparation

During the interviews conducted, community pharmacists confirmed that they had no awareness of any university or post-graduate training offered on the topic. Additionally, pharmacists did not think to check if patients have a VI, and no adaptations were suggested to provide adapted pharmaceutical care other than large print, a commonly used method for communication with these patients [35]. It was also observed that pharmacists were not always aware of their patients' disabilities and did not ask them about any loss of vision. In July 2022, the BPA provided figures of 4656 pharmacies collectively serving 220,096 people with VI. This translates to an average of 47 visually impaired patients per pharmacy [36]. As such, the estimate of visually impaired patients per pharmacy is notably lower than theoretical projections. To ensure that patients with VI have access to medication information, pharmacists ought to identify and welcome these patients and refer them to rehabilitation centres, and provide technical aids [37], and other resources.

Strengths and weaknesses

The interviewer was a qualified pharmacist, and her expertise may have aided her in understanding and interpreting some of the participants' comments related to specific pharmaceutical concepts and terminology. However, this comprehension could have potentially hindered in-depth

investigation of these concepts, possibly leading to the omission of their underlying ideas. A bias in recruitment was identified as those most heavily involved in the issue were more likely to agree to participate in the study. There was also some redundancy in the data collected, which can be explained by acknowledging that the interviews covered both visually impaired patients in general and older patients with VI and polypharmacy.

Interpretation

It is essential to provide specific and adapted pharmaceutical care. This care could be rooted in the schematic with 4 themes: community pharmacists’ training, identification of visually impaired patients by the pharmacist, communication with these patients and their proxies, and provision of appropriate pharmaceutical care. Training courses, and recommendations are necessary to equip pharmacists with the knowledge required to identify visually impaired patients in their pharmacies. One way to optimise this identification phase is to improve access to the pharmacy so that the patient comes themselves, question the patient about possible loss of vision, and note in the patient's record when VI is identified. This would allow a notification to remind the pharmacist of the visual deficit each time the patient's name is entered into the pharmacy computer. In Australia, pharmacists

have recommendations to help them recognise visually impaired patients [38]. Moreover, good communication with visually impaired patients is essential to enable them to integrate medication advice provided by pharmacists. In previous a study, visually impaired patients reported difficulties of communication with pharmacists [39]. One solution identified to enhance this communication is the utilisation of alternative communication formats, such as audio labels or Braille labels, in addition to large print. Comparable solutions recommended by pharmacists can be found in the literature [3, 40]. The first 3 themes play a crucial role in implementing the fourth theme, which is providing specific and adapted pharmaceutical care. Two elements were identified during the interviews to help to overcome barriers to pharmaceutical care for visually impaired patients: provision of a confidential space and conducting private interviews. However, the solutions suggested may not be universally applicable for all visually impaired patients. Pharmaceutical care should be adapted according to patients' needs, type of treatment, and degree of VI.

For older patients with polypharmacy, the provision of specific and adapted pharmaceutical care is essential due to likely polypharmacy [41]. The schematic includes the same 4 themes with minor variations on the first. Effective communication between doctors and pharmacists is crucial to optimise the management of older patients with VI and polypharmacy. To overcome barriers to pharmaceutical care, a medication review is a feasible solution which consists of reviewing patients' treatments to verify the usefulness of medication and optimise the number of medication and their frequency [42].

The American Foundation for the Blind has developed guidelines for labelling medication and offers comprehensive information on technical aids, resources, and services that pharmacists can share with their visually impaired patients [20]. Likewise, the pharmacy department at Moorfields Eye Hospital in the UK, with input from the Royal National Institute of Blind People, has developed cards to help visually impaired patients in using medication safely and provides recommendations for pharmacists [43]. The Belgian pharmaceutical system differs from both the US and UK systems. As indicated in the results, pharmacists are asking for training to improve the quality of care for visually impaired patients in Belgian pharmacies.

Further research

The visually impaired population represents a heterogeneous group, which requires the consideration of their various co-morbidities to provide adapted pharmaceutical care. In this context, it is important to develop tools to support community pharmacists to overcome this problem. The

semi-structured interviews made it possible to collect data that provided interesting suggestions for the development of recommendations aimed at changing the pharmacists' practices and optimising the management of visually impaired patients. However, it is crucial to comprehend the opinion of patients with VI regarding medication management and their experience of pharmaceutical care. This understanding is essential in designing recommendations that would ensure a secure, suitable, and person-focused approach.

Conclusion

This study reveals a lack of awareness among community pharmacists regarding visual impairment, as well as an inadequate university and continuing education courses and recommendations for managing patients with visual impairment. Nevertheless, the semi-structured interviews conducted with community pharmacists provided valuable insights for developing recommendations and training for these healthcare professionals.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11096-023-01686-7>.

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