

“These patients look lost” – Community pharmacy staff’s identification and support of patients with limited health literacy

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Abstract

Objective To date, routine use of health literacy assessment in clinical settings is limited. The objective of this study was to explore if community pharmacy staff can identify patients with limited health literacy, how they identify patients and how they support patients to improve medication use. In addition, perceived barriers in providing care for patients with limited health literacy were assessed.

Methods Structured face-to-face interviews with pharmacy staff were performed in 27 community pharmacies. Questions concerned pharmacy staff’s experiences with limited health literacy during their work, e.g. recognition of patients, communication strategies and possible interventions for this patient group to improve medication use.

Key findings Results from 74 interviews were included for analysis. Sixty-eight interviewees (92%) mentioned to identify patients with limited health literacy during their work, mostly based on intuition. Suggested strategies to improve medication use included tailored education and information, intensive support or use of aids such as a multidose drug dispensing system. Pharmacy staff indicated lack of time as a barrier to provide tailored pharmaceutical care.

Conclusions Most participants mentioned to recognize patients with limited health literacy merely on intuition or based on certain patient characteristics. Thus, an unknown number of patients with limited health literacy might be missed. This underlines the need to create more awareness of health literacy among pharmacy professionals. Moreover, training of pharmacy staff and use of aids to identify limited health literacy may help to identify more patients who need additional counselling.

Introduction

Many patients struggle with correct use of their medicines. An important reason for incorrect use of medicines might be patients’ misunderstanding of – both written and verbal – information or instructions given by health-care providers.^[1] Previous studies have shown that patients often experience difficulties in understanding medication related information, such as medicine information leaflets and drug labels.^[2–5]

Health literacy – defined by the United States Institute of Medicine (IOM) as ‘the degree to which individuals have the capacity to obtain, process and understand

health information and services to make appropriate health decisions,^[6] – is of importance to be able to understand medical treatment, e.g. (adverse) effects of medicines or instructions for use. Previous studies have shown that patients with limited health literacy often experienced problems with recall and understanding of medication information,^[2,3] resulting in medication related problems.^[7,8] Wali *et al.*^[9] recently described the challenges faced by patients with limited health literacy in the pharmacy. Major challenges included problems with understanding medication information, resulting in

problems, such as avoidable drug side effects and food–drug interactions.

Previous research in the Netherlands showed that up to 50% of the pharmacy visitors were classified as having limited health literacy.^[5] These patients need additional tailored information and counselling.^[10] It is important that healthcare providers have insight into their patient's health literacy. Different strategies have been developed to address limited health literacy in patient populations, such as use of adapted written information materials and patient centred communication techniques.^[11–13] However, the first step in tailored counselling is recognizing those patients with additional needs for support. Several instruments to measure an individual's health literacy skills have been developed, such as the Rapid Estimate of Adult Literacy in Medicine (REALM), the Newest Vital Sign (NVS), the Set of Brief Screening Questions (SBSQ), and the measure of Functional Communicative and Critical Health Literacy (FCCHL).^[14,15] As yet, routine use of health literacy assessment in clinical settings is limited. Concerns exist that patients are not willing to undergo health literacy assessment.^[16] Furthermore, many of these currently available measurement instruments are time-consuming and therefore not suitable for daily use in the daily clinical practice.^[14]

The community pharmacy is the primary setting for medication dispensing and also the likely place where medication counselling occurs. However, little is known about how pharmacy staff members address problems related to limited health literacy. Kairuz and colleagues conducted interviews with pharmacy staff to assess the perceptions of pharmacy staff of factors influencing health literacy. Communication – dialogue between patients and healthcare providers – was identified as one of the important themes.^[17] The current study was therefore performed to explore how community pharmacy staff identify patients with limited health literacy and how they support these patients to improve their medication use. In addition, perceived barriers in providing care for patients with limited health literacy were assessed.

Methods

Study design

We performed structured face-to-face interviews with pharmacy staff working in community pharmacies in the Netherlands. The study protocol was approved by the Institutional Review Board of the Pharmacoepidemiology and Clinical Pharmacology division of Utrecht University, the Netherlands.^[18]

Setting and participants

Community pharmacies affiliated with the Utrecht Pharmacy Practice network for Education and Research (UPPER), consisting of approximately 1300 community pharmacies, distributed across the Netherlands and located in both rural and urban areas, received an email invitation to participate in the study. They were asked to respond within 2 weeks if they were willing to participate during the proposed study period. These pharmacies participate regularly in pharmacy practice projects and education (e.g. internships for Master of Pharmacy students at the Utrecht School of Pharmacy).^[18]

Participant identification and recruitment

In each participating pharmacy, we aimed to interview three pharmacy staff members, of which at least one should be a pharmacist, to ensure a variety of views of staff who spend time at the pharmacy counter.

Development of data collection instruments

Although not much is known about how community pharmacy staff address limited health literacy in daily clinical practice, communication between patients and healthcare providers has been mentioned before as an important factor in this process.^[17]

We therefore developed an interview questionnaire (Table 1) focusing on patient communication. The interview questionnaire included questions on (1) identification of patients with low health literacy in the pharmacy, (2) communication with these patients and (3) possible solutions. Before the start of the data collection, the interview questionnaire was tested with pharmacy students and researchers at the Utrecht School of Pharmacy to assess clarity of questions and to ensure similar interpretation of answers during the interviews.

Training of interviewers

Master of Pharmacy students ($n = 15$) attending a course on pharmacy practice research at the Utrecht School of Pharmacy conducted the structured interviews with individual pharmacy staff members, both pharmacists and pharmacy technicians. All students received instructions on the interview procedure and were trained in interview skills. Students were instructed to await the pharmacy staffs' answers and prompt them with additional questions or ask for examples if elaboration on initial answers was needed. In addition, students were instructed to check for correct understanding and reporting of information at the end of the interview.

Table 1 Interview questionnaire

Topic	Questions/subtopics
Identification	Which problems related to health literacy do you perceive during your work in the pharmacy? Do patients express problems with understanding of information? Could you give an example? How do you recognize patients with limited health literacy?
Medication related problems	Do you think the frequency of medication related problems is higher in patients with limited health literacy? Which problems do these patients have?
Communication	How do you change your work procedure for patients with limited health literacy? Which information (tools) focused on patients with limited health literacy do you use?
Solution to improve medication use	Which interventions or solutions to improve medication use in this patient group do you see? Do you have sufficient skills or tools to do this? Why (not)? Could you give an example?
General information	Age, gender, work experience

Data collection

Students visited the pharmacies to conduct face-to-face structured interviews. Before start of the interview, the concept of health literacy according to the United States Institute of Medicine definition was introduced.^[6] Verbal consent was obtained from all participants. The interview questionnaire was filled in by the student during the interview.

Data management and analysis

All interview data were collected and was stored in an online database (LimeSurvey, Hamburg, Germany) by the student. Interviews were anonymised and only study identifiers were registered in the database. The answers to open-ended questions were explored and categorized by two of the researchers separately (EK and DP). First, a preliminary list of categories was developed for each interview segment and answers in that segment were coded according to one or more of these categories. All open-ended questions were coded by one researcher (EK) and then checked by a second researcher (DP). Discrepancies were resolved through discussion and additional codes were added during this process. Second, themes and subthemes were described and quotations were used to illustrate findings for a specific (sub)theme. Data were

analysed on a pharmacy staff member level and not clustered on the pharmacy level, as different individuals working in the same pharmacy may have different views and experiences regarding identification and counselling of patients with limited health literacy skills.

Descriptive statistics were used to describe responses to closed (multiple choice) questions and answers to the coded questions. Chi-square testing was used to analyse differences in responses between pharmacists and pharmacy technicians, different genders and different age categories. All data were analysed using SPSS for Windows, version 20.0 (IBM, Armonk, USA).

Results

Characteristics of the study population

Twenty-seven community pharmacies participated. These pharmacies were distributed across the Netherlands, mostly located in urban areas (56%). In most of them, there was one pharmacist and between two and ten pharmacy technicians present per day. In total, 76 pharmacy staff members were interviewed (1–5 questionnaires per pharmacy). Two interviews were excluded from the analysis because the participants reported that they had no direct patient contact. Therefore, our final study population consisted of 74 participants (21 pharmacists (PharmD), 4 bachelors of pharmacy and 49 pharmacy technicians). Most pharmacy staff (64%) spent between 10 and 20 h per week at the pharmacy counter, 5% spent more than 20 h at the counter and 31% reported to spend less than 10 h per week at the pharmacy counter. The majority of interviewees were women (87%) and aged between 25 and 44 years (64%).

Identification of patients

The majority of the interviewees (92%) reported that they encountered patients with limited health literacy in the pharmacy. Fifty-six respondents (76%) mentioned that these patients sometimes spontaneously acknowledge difficulties in understanding information or instructions. Table 2 reports the ways pharmacy staff identified patients with limited health literacy. Most mentioned they generally had a 'gut feeling', based on patients' nonverbal and verbal communication, that a patient had limited health literacy. In addition, many interviewees mentioned a non-native background and other patient characteristics, such as hearing disabilities and mental health problems as indicators for limited health literacy.

R3: pharmacy technician: "You can tell by the things they say. These patients look lost."

Table 2 Identification of patients with limited health literacy skills

Topic	N (%)	Example
'Gut feeling' of the staff member	28 (37.8)	The way of responding, the way patients look at you, appearance, based on experience of staff member, nervous patients
Non-native background	25 (33.8)	Language barrier, appearance
Patient characteristics	20 (27.0)	Hearing impairment, intellectual disabilities
Patient asks for extra information	16 (21.6)	Some patients ask many questions
Age	13 (17.6)	Older people experience more difficulties in understanding
Patient does not understand information	7 (9.5)	Misunderstanding of drug label, wrong administration technique, wrong use of drugs
Educational level	6 (8.1)	Low educational level
Signal from pharmacy information system	5 (6.8)	Sometimes limited health literacy has been identified previously and has been reported in the pharmacy information system
Literacy level	4 (5.4)	Problems with reading or writing
Non-adherence	4 (5.4)	Too late or too early filling of prescriptions
Other	4 (5.4)	Based on address (socioeconomic status), alcohol or drug abuse

R22: pharmacy technician: "You will recognize them by non-verbal signals, these patients are often nervous."

The majority of staff members (76%) also thought that the prevalence of drug-related problems, mainly non-adherence, would be higher among patients with limited health literacy.

Communication with patients with limited health literacy

Seventy staff members (95%) indicated that they had changed their work procedures when a patient with limited health literacy visited the pharmacy, mostly by changing their communication style, such as adjusting their language, checking for understanding and repeating information (Table 3).

R2: pharmacy technician: "I adjust my language and I always ask the patient to repeat the things I have said or explained to them."

R5: pharmacy technician: "I explain everything more slowly or repeat the information."

R26: pharmacist: "You have to adjust your goals and see what the client can understand. The most basal information is important: what to take, when and for how long."

Solutions to improve medication taking for patients with limited health literacy

Staff members were also asked which solutions they could suggest to improve medication taking in this patient group. Interviewees underlined the importance of tailored education and information provision (58%), intensive support (30%), information provision to an informal carer (15%) or the use of aids such as multidose drug dispensing to facilitate medication use (22%).

Table 3 Counselling of patients with limited health literacy skills

Topic	N (%)	Example
Adjust communication style	29 (41.4)	Speak slow, speak more clearly, do not use jargon
Check for understanding	20 (28.6)	Check with patient if information is correctly interpreted
Repeat information	14 (20.0)	Repeat information or instructions
Use of visual information	11 (15.7)	Use of pictograms, movies, pictures
Provide extra information	10 (14.3)	Information leaflet to take home, websites
Provide less information	10 (14.3)	Only provide most important information during encounter
Schedule extra time	9 (12.9)	Schedule extra time
Use of consultation room	9 (12.9)	Counselling in more private surroundings
Translating information	6 (8.6)	Use of leaflets in patient's native language, use of interpreter, communication with contact person
Other	12 (17.1)	Use coloured drug labels, use of interpreter

R11: pharmacist: "It is important to provide tailored care for these patients. I provide them with information from patient organizations and draw their attention to websites with information."

R23: bachelor of pharmacy: "Intensive monitoring and follow-up of these patients is important. For example, providing extra information during first prescription encounters and ensuring that similar extra attention will be paid to the second prescription counselling."

Two-thirds of the pharmacy staff members (66%) mentioned they provided information materials tailored for

patients with limited health literacy. These were mostly leaflets with simplified information (45%), pictures (43%) or leaflets in different languages (20%).

R1: pharmacy technician: *“We use PowerPoint presentations during first prescription encounters and give inhalation instructions with the help of instruction movies.”*

R61: bachelor of pharmacy: *“We use information leaflets in different languages or ask the patient to return to the pharmacy with somebody who speaks Dutch.”*

Prerequisites for providing care for patients with limited health literacy

Pharmacy staff members were asked whether they thought they had sufficient skills or suitable aids to help patients with limited health literacy. The majority (72%) indicated they did use aids, such as animations and other visual information obtained from the Royal Dutch Pharmacists Association, the professional organization for pharmacists. However, 82% said lack of time was a barrier in providing optimal pharmaceutical care for these patients. Furthermore, privacy and lack of reimbursement were mentioned as limitations for providing the care needed. Some said that close collaboration with the general practitioner (GP) was important in addressing this issue as the GP might also notice limited health literacy during patient consultations.

R51: pharmacist: *“Yes, there are enough tools to provide information, however lack of time or staff is a problem.”*

R13: pharmacy technician: *“Yes, especially good collaboration with the general practitioner is important.”*

There were no differences between pharmacists and pharmacy technicians in responses. In both groups, the majority mentioned recognizing patients with limited health literacy (95% versus 90%, $P = 0.54$) and to adjust their work procedures (95% versus 94%, $P = 0.82$). Furthermore, approximately two-thirds mentioned having sufficient skills or tools to provide care for these patients. (72% versus 69%, $P = 0.56$). Also, differences in age or gender did not influence the results between participants ($P > 0.05$).

Discussion

The majority of pharmacy staff (92%) mentioned that they were able to recognize patients with limited health literacy. Most of them thought they were well equipped to address this, although lack of time and reimbursement were mentioned as barriers to provide tailored care.

Strengths and limitations

One of the strengths of this study was the use of a structured interview protocol with open-ended questions allowing participants to use their own words, but at the same time structuring the interview. Data were collected from a relatively large sample of pharmacy staff members from different community pharmacies ensuring data saturation. Thus, it is likely that the perceptions on health literacy are generalizable. It is however possible that the pharmacies participating in our study had relatively high levels of interest in health literacy. Per pharmacy, different staff members (approximately three per pharmacy) were interviewed; therefore, some participants may have mentioned the same solutions or interventions. However, recognition of and supporting patients with limited health literacy is expected to be more dependent on the individual health care provider than on the pharmacy setting. Therefore, results were analysed by the level of the pharmacy member instead of the pharmacy. Additional analysis was performed to check this assumption showing no differences between pharmacies in recognition or adjustment of work procedures. However, this can also be due to the limited number of interviews per pharmacy.

A potential limitation of the study might be that different students, with possible variation in interview skills, collected the data. However, all students received instructions on how to conduct the interview. In addition, the interviews were guided by a structured interview protocol; therefore, we assume this limitation will not affect our findings. We frequently work with pharmacy interns and successfully used students for data collection in our previous studies.^[5,18,19] It should be noted that the social desirability bias may have influenced the respondents and that in daily clinical practice their actual behaviour to attend for patients with limited health literacy patients may be different. Finally, we did not investigate to what extent pharmacy staff efforts to counsel these patients have led to better informed patients or improved patients' drug decisions.

Comparison with previous research

Previous studies showed that up to 50% of the patient population, including pharmacy visitors, have limited health literacy, making this a common public health problem.^[2,3,5,7,20] Pharmacy staff members are aware of the problem, but we do not know to what extent they identified all patients with limited health literacy in daily routine care. Praska et al.^[21] conducted a telephone survey among 30 pharmacies in the USA and showed that

pharmacies infrequently attempt to identify patients with limited health literacy in order to provide tailored care. Although it is reassuring that pharmacy staff in our study were familiar with this problem, we do not know the proportion of patients with limited health literacy who were not identified.

Many interviewees in our study mentioned identifying patients with limited health literacy by looking at patient characteristics, such as having a foreign background, being older, or having hearing or mental problems. Some studies have indeed shown associations between limited health literacy and sociodemographic factors, such as educational level and age.^[7,10,22,23] Other studies did confirm that education was an indicator of limited health literacy.^[24] Limited health literacy is probably a widespread problem that will also affect younger people with a native (non-foreign) background. Therefore, by focusing only on patients with certain sociodemographic characteristics, a proportion of at risk patients will certainly be missed. Furthermore, pharmacy staff mentioned using patients' feedback about not understanding information and patients' questions as indicators for limited health literacy.^[25,26] However, it is important to realize that patients with limited health literacy may not admit or may even not realize to have difficulties in understanding of information and are less likely to ask questions.^[27–29] In addition, it has been shown that pharmacy staff's communication style does not always stimulate patients' participation in the conversation at the counter.^[30]

For patients with limited health literacy tailored solutions and communication techniques to confirm whether a patient understands what is being explained to them (teach back methods) or use of adjusted written materials are needed.^[31] Although pharmacists and technicians recognized the importance of tailored solutions, they also mentioned lack of time, privacy and reimbursement as barriers to actually performing such tailored care. In many implementation programs, similar factors have been described as barriers for successful implementation of interventions in pharmacies^[32,33] and healthcare settings in general.^[34]

Practice implications

The finding that many interviewees mentioned characteristics, such as language barriers or hearing impairments, suggests lack of understanding of the full concept of health literacy. Health literacy is a complex concept that comprises different levels.^[35] Although there have been studies that looked at components of health literacy in this context,^[2,3,10,36,37] comprehensive inventories of useful methods to recognize limited

health literacy and to address related problems are not yet available.

As current health literacy screening instruments are not focused on medication use or not suitable for use in daily practice, a practical, easy to use, health literacy screening tool is needed which covers more than only observing patients' communication style and responses to the provided information. This instrument could be used during patient education, e.g. specific medication instructions or first dispensing counselling. In addition, training of staff in order to recognize patients with limited skills and additional needs and counsel these patients is needed. Finally, attention is needed to resolve the lack of time, reimbursement and limited patient privacy in the pharmacy, as these are barriers for applying interventions for patients with limited health literacy.

Conclusion

This study has provided insight into community pharmacy staff's identification and support of patients with limited health literacy in their daily practice. Most interviewees were aware of the importance of health literacy for realizing optimal outcomes of drug therapy. Moreover, most interviewees recognized patients with limited health literacy in daily clinical practice. However, these patients with these problems are not systematically identified, but merely on intuition. Pharmacy staff focus primarily on certain patient characteristics and therefore are likely to miss an unknown number of patients with limited health literacy. Furthermore, lack of time, reimbursement and privacy are barriers to routine care for these patients. We therefore believe it is important to support pharmacy professionals with tools to identify and help health illiterate patients.

Declarations

Conflict of interest

The authors declare no conflict of interest relevant to this study.

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Authors' contributions

E.S. Koster, D. Philbert and L. Blom designed the initial study. E.S. Koster carried out the initial analyses, drafted

the initial manuscript and approved the final manuscript as submitted. D. Philbert participated in the data analysis and coordination of data collection, and reviewed and revised the manuscript. L. Blom and M.L. Bouvy participated in interpretation of the data, critically reviewed and

revised the manuscript, and approved the final manuscript as submitted. All authors state that they had complete access to the study data that support the publication.

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