1 **Experiences and perceptions of foreign-language customers on medication**

2 **information received in the pharmacy – a focus group study**

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16 Writing - review & editing.

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18 **Conflicts of interest**

19 T.N. and H.S. have none to declare.

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24 **Caption list**

25 Table 1. Characteristics of study participants

26 Table 2. Overview of the resulting themes and subthemes, including quotations.

27 Table 3. Overview of the communication facilitators identified in the study.

28

29 **Abstract**

30 **Background:** In pharmacies, communication is essential for providing information about medicine

31 and counselling customers on the correct use of medications. Previous studies have described

32 pharmacist experiencing language and cultural barriers in communication with foreign-language (FL)

33 customers.

34 **Objective**: This study aimed to explore FL customer experiences and perceptions of medication

35 information received in the pharmacy.

36 **Methods:** A qualitative method was used, including interviews in five focus groups. Study

37 participants (N=18) spoke Arabic or Kurdish but lived in Norway and had the experience of

38 purchasing medicine over the counter and/or prescription medicines in a Norwegian pharmacy. A

39 descriptive thematic content analysis was conducted.

40 **Results**: Overall, the FL customers were satisfied with the pharmacy service. However, they were

41 divided in their views of the pharmacy role, which could affect how they received medication

42 information. Communication barriers were prominent, and FL customers related language and

43 cultural barriers to negative health outcomes. Their preferences on medication information were not

44 met. Several communication facilitators that could support medication information were mentioned:

45 simplified prescription labels, written information, pictograms, mobile apps, interpretators and

46 bilingual staff.

47 **Conclusions**: The FL pharmacy customers experience of communication barriers and unfulfilled

48 needs for medical information can be a threat to patient safety. To overcome the barriers and ensure

49 the correct use of medicines, HCP in pharmacies must apply an array of communication aids, adapted

50 to the diversity in language, culture and health literacy in the heterogenous population.

51

52 **Keywords:** community pharmacy; medication information; communication; foreign-language

53 customers; qualitative

Introduction

Communication between patients and health-care personnel (HCP) is central to delivering high-quality healthcare, and language barriers are associated with several poor health outcomes: increased risk of hospital readmission [1], increased length of hospital stay [2], poorly controlled hypertension [3] and diabetes [4], and increased risk of adverse medical events [5]. In pharmacies, communication is essential in providing medication information and to counsel customers on the correct use of medicines. It is known that information on medications supports adherence to treatment [6]. Traditionally, medication information for patients in pharmacies involves verbal counselling supplemented by written information in the form of medicine prescription labels and patient information leaflets (PIL) [7]. Studies have described an ongoing need for prescription labels in various languages to patient groups who experience language barriers, e.g., foreign-language (FL) pharmacy customers [8,9]. Additionally, written medication information is to a small extent adapted to user needs and can be difficult to understand [10].

Studies have found that pharmacists experience language and cultural barriers as a challenge when communicating with FL customers [11-14], which may influence the pharmaceutical service provided to this population. A few qualitative studies have described pharmacists' experiences of communication barriers in providing information service to FL customers [12, 13]. Pharmacists in Scotland report that language barriers could influence the communication process and content, thereby hindering patient-centred communication [12]. Norwegian pharmacists described it as challenging to provide adequate service to FL customers, which greatly affected what kind of information and how much of it was provided [13]. Furthermore, pharmacists report regular contact with FL patients in giving them advice [11, 13, 14], emphasizing the relevance of this topic.

Knowledge of the patient experience is important for ensuring quality in healthcare, and a systematic review reported a positive association between patient experience, patient safety, and clinical effectiveness [15]. A scoping review exploring the patient experience of healthcare among individuals of limited native language proficiency, found that communication, language barriers, health literacy, and relationships with HCP should be addressed [16]. A qualitative study exploring the needs of culturally and linguistically diverse Australians, found that pharmacies play a minimal role in facilitating the correct use of medicines, largely due to language barriers and perceptions of the population [17]. The suboptimal communication between pharmacists and FL customers may lead to patients not taking their medicines or using them incorrectly, both of which may lead to adverse health outcomes.

In 2020, 15 % of the Norwegian population were immigrants [18], thus, much of the population are non-native speakers. Hence, there is a need for studies exploring patient's perspectives to gain in-depth knowledge on medication information and counselling practices in pharmacies. The aim of this

88   study was to explore FL customers' experiences and perceptions on medication information received

89   in the pharmacy.

90

Method

92   This was a qualitative study with five focus group interviews of FL pharmacy customers. Focus groups

93   were used because they are suitable to explore perspectives of a group of people sharing knowledge

94   and experience. The data collection took place in Norway from February to October 2019. The study

95   utilized sensitive personal information, and the Norwegian Centre for Research Data (NSD) approved

96   the project (reference 782043).

Study setting

98   The study was done in four municipalities representing urban, suburban, and a rural district in mid-

99   Norway, with a population range from 4000 to 197 000 in 2020. The municipalities had a varying

100   number of pharmacies (from one to 18). Immigrants are defined as persons born abroad of two

101   foreign-born parents and four foreign-born grandparents. Immigrants from Syria and Iraq constitute

102   the second largest population group based on country background, with totally 55 212 immigrants.

103   Number of persons with refugee background were 238 281 in 2020 [18]. Totally 33 846 adult

104   immigrants participated in Norwegian language training and social studies [18]. There are regional

105   differences in the proportion of immigrants in the population, but Arabic-speaking immigrants are

106   prevalent in municipalities in mid-Norway.

Sampling strategy

108   Inclusion criteria were: Persons above the age of 18 who were non-native Norwegian speakers, had

109   purchased a medicine over the counter (OTC) and/or prescription medicines in a Norwegian

110   pharmacy, and were able to give their written consent to participate.

111   Study participants were recruited through refugee coordinators, who provided contact information

112   to teachers in Norwegian-language courses for adults. Teachers handed out written project

113   information (in Norwegian and Arabic) to potential participants, and subsequently collected consent

114   forms included contact information. In one municipality the researchers were invited to give a

115   project presentation at a school where FL citizens were attending. In one municipality, the health

116   nurse helped recruitment by contacting potential participants and distributing project information.

117   The participants received a gift card of 250,- NOK. Data saturation was achieved after five focus

118   groups. A preliminary data analysis was performed after four focus groups, and when performing the

119   fifth focus group, analysis yielded no novel subthemes but added examples within the existing.

Data collection

4

121 Data were collected in focus groups held at the adult education schools. Before the interviews

122 started, general project information was given, including aim of study, what participation entailed,

123 and what the results would be used for. Written consent was given by all participants. The interviews

124 lasted from 37 to 61 minutes. The researchers did not speak or understand spoken Arabic, and real-

125 time interpretation was used. The researcher asked questions in Norwegian, the interpreter asked

126 the questions in Arabic, and subsequently translated responses to the researchers as the discussion

127 occurred. All focus groups used a licensed public attendance interpreter from Salita TT AS, an ISO

128 certified (ISO9001-2015) language interpreter company.

129 The interviews were performed according to a predetermined guide (Appendix 1) that included

130 open-ended questions to stimulate discussion. The sessions started with asking all the participants to

131 respond to the first question in the guide on a predetermined sequence. Subsequently, they were

132 encouraged into an open discussion with natural progression but giving the interpreter the possibility

133 to translate. The researcher allowed all to speak and was otherwise free to probe answers with

134 follow-up questions not specified in the guide.

135 **Data analysis and result reporting**

136 The focus group discussions were audio recorded, and the Norwegian part of the interviews were

137 transcribed verbatim. A descriptive thematic content analysis was conducted by a four-step

138 process[19]. In the first step, the authors read the transcripts to get a general impression of the data

139 and identified preliminary themes that were compared and discussed. Secondly, both authors

140 independently read the transcripts and identified meaning units that related to the research

141 question. Author TN coded the transcripts according to the preliminary themes. Subsequently, the

142 authors met to discuss and align the meaning units into subthemes and themes, including adjusting

143 the preliminary themes. In the third step, Author TN used the meaning units to create a condensate

144 of the subthemes. The last step involved creating an analytical text, which represented the overall

145 subtheme discussion and study participants' quotes. To ensure trustworthiness and credibility of

146 findings, an audit trail was obtained. The results were reported according to Standards for Reporting

147 Qualitative Research (SRQR) [20].

148

149 **Results**

150 In total, 18 informants participated in five focus groups. The age of the participants varied between

151 18 and 49 years (median age was 34 years). All participants understood spoken Arabic and

152 participated in adult education. In three of the focus groups, three informants participated,

153 otherwise the number of study participants were two and seven. Two focus groups comprised

154 women only, and three focus groups comprised both men and women. The focus groups were

otherwise heterogenous regarding education, years lived in Norway, and number of medicines used (see Table 1). The native languages of the study participants were either Arabic (N = 13) or Kurdish (N = 5).

All participants had experiences with receiving medication information in a pharmacy when purchasing an OTC or prescription medicine. Generally, they talked about language barriers being prominent and limiting for communication. The analysis identified three main themes that summarize the participants' experiences and perceptions of medication information in the pharmacy. The themes and subthemes are presented in Table 2 including participants quotations. The themes are as follows:

The pharmacy role

Overall, the FL study participants were satisfied with the pharmacy service, and staff were perceived as friendly, service minded, and willing to provide medication information. Many of the study participants consulted the pharmacy for health-care advice or medication before going to the doctor, and pharmacy visits were perceived easy and efficient.

In contrast, study participants in two of the focus groups perceived the pharmacy as a shop to purchase medicines, and pharmacy staff as mere salespeople with whom they were reluctant to discuss their health problems and ask questions. These FL customers questioned the pharmacy's role in providing medication information.

The pharmacy system, structure, and routines were unfamiliar to most of the study participants. During the interviews, they asked many questions revealing a need for information about e.g., the electronic prescription system, generic substitution, medication reimbursement policy, and pharmacy staff confidentiality. They were frustrated about being sent back and forth between the doctor and the pharmacy, and were insecure regarding the role of HCP in giving medicine information, whether this was the responsibility of the doctor or the pharmacy staff. The frustration and lack of knowledge stole focus and could affect how they perceived the medication information given.

Communication barriers and facilitators

Subjects in all focus groups experienced communication barriers when visiting a pharmacy. They had problems communicating with the pharmacy staff due to poor language skills and/or poor reading and writing skills and experienced missed opportunities to ask questions. The participants often found themselves in situations where they did not understand the medication information given, and perceived that language barriers could pose challenges to their medication management.

A cultural barrier that adversely affected communication was emphasized by the female participants who had difficulties discussing their medical problems with male pharmacy staff. They were

189 uncomfortable asking questions about medicines for women or typically female health issues and the

190 treatment or self-care: e.g., contraceptives, menstruation, menopause, and pregnancy.

191 The participants said that the pharmacy staff used various facilitators in communicating information

192 about medicines, see Table 3. They differed in their opinions regarding prescription labels, which

193 they for the most part found to be in Norwegian. Some found prescription labels to be useless

194 because they could not read. Other participants could read, but did not read the prescription labels,

195 since sufficient information was given by the doctor. Others found them easy to understand, while

196 some found simplified labels valuable, as they understood numbers and some words. Regardless, the

197 participants highlighted the value of providing written medicine information, which could be

198 translated or explained to them by bilinguals at a later time. One participant mentioned PIL as a

199 source of information.

200 The FL pharmacy customers used various communication facilitators, see Table 3. For example, they

201 searched the Internet for medication information and used Google translate. However, they

202 worried about the translations not always being correct.

203 **Preferences and information received**

204 Most of the participants wanted medication information about dosage, side effects, drug-drug and

205 food-drug interactions, storage conditions, advice about administration, and what to do if a

206 medication dose was missed. Regarding the format of medication information, the preferences of

207 the FL customers were mixed. Some preferred written information only; others wanted verbal

208 information in combination with written information. Some mentioned the usefulness of pictures

209 and illustrations in written information, and bilingual pharmacy staff was acknowledged as positive.

210 One focus group discussed the need for a mobile app that could provide useful medication

211 information in different languages.

212 When consulting the pharmacy, they had received information on medicine dosage and

213 administration method, and both oral and written information. They perceived that the information

214 provided varied among different pharmacies and individual staff members. Furthermore, many of

215 the participants perceived that the information provided was insufficient, they wanted more

216 information. Four of the FL customers believed inadequate medication information resulted in

217 negative consequences, for which two had experienced adverse drug reactions, and two participants

218 perceived it to influence their medication adherence.

219

220 **Discussion**

221 This study has explored experience and perception of FL pharmacy customers on medication

222 information, and identified relevant themes regarding the pharmacy role, communication barriers

223 and facilitators, and information on preferences and information received.

Strengths and limitations

A limitation of this study is the selection of participants, that has a narrow age distribution and comprises only Arabic/Kurdish speaking FL customers attending language training, influencing transferability of results. Moreover, the study population might differ from the overall Norwegian immigrant population regarding communication barriers and challenges. The health literacy of the study participants was not assessed. Another study limitation is the use of an interpreter that may have affected the collection and quality of data. The interpreter sometimes asked the researcher to paraphrase the questions, and there were a few times where the group discussions went on for a long period of time, complicating the ability to translate correctly. Moreover, there might be information in the interviews that was misinterpreted or inaccurate, since the interviews were transcribed only in Norwegian. The composition of focus groups might have influenced and limited participation and group dynamics; two focus groups comprised women only; three comprised both men and women; one focus group comprised only two study participants.

The strength of this study includes providing valuable insights into patient experiences within pharmacies, a context previously overlooked in the literature. The study has identified themes regarding medication information that are relevant to other FL populations, and that adds new knowledge on intercultural communication in pharmacies.

Discussion of results in the context of previous studies

FL customers perceived the pharmacy as a reliable healthcare service that provides useful information on medicines, but experienced communication barriers and had unfulfilled needs for medication information, which they related to negative consequences, e.g., adverse drug reactions. Furthermore, FL customers were generally satisfied with the pharmacy healthcare service's dispensing of medicines; however, the pharmacy staff members were sometimes considered salespeople and did not meet the expectations of customers in giving medication information. Similar results were found in Australia, where CALD community members were not aware of the professional role of the pharmacist as being separate from the sales element [17]. Pharmacies should take on their responsibility of advising their customers on the correct use of medicines, especially the FL customers, as they experience communication barriers that represent a risk to patient safety [1-5]. Additionally, pharmacists must focus on their professional role in communication with their customers, since a patient's relationship with the HCP is an important determinant of their experience of care and can positively influence patient safety and effectiveness of therapy [15, 16]. Furthermore, this study found that the frustration about the pharmacy system could affect FL customers susceptibility to medical information, and may also influence whether they visit the

258 pharmacy for medical information and advice. Hence, education on the healthcare system including

259 pharmacies can be beneficial.

260 The communication barriers and facilitators identified in this study align with previous research,

261 comprising language and cultural barriers and facilitators such as interpretation, bilingual HCP, non-

262 verbal communication, simplified prescription labels, and written medication information [16-17]. In

263 contrast to the study by Mohammad and co-workers [17], this study found that the FL customers

264 commonly used the Internet as a source of medication information. The quality of health information

265 on the Internet varies significantly [21], and patients must read the information critically. The

266 participants in this study mentioned the possibility of incorrect translation in Google translate,

267 however, did not reflect on the quality of the webpages they used to find medicine information. Skills

268 in retrieving high-quality information is needed when using internet as source, and access may not

269 assure understanding, as health literacy play a role in evaluating online health information [22].

270 Pharmacists experience barriers in communication with FL customers with limited native language

271 proficiency [8, 11-14], including insufficient provision of customised written medication information [8,9].

272 This aligns with the results of this study, describing an unfulfilled need of medication information

273 among FL customers. A scoping review also describes unmet informational needs among limited

274 native language proficiency patients and how this has a negative impact on health literacy [16].

275 Moreover, this evidence highlights the need for facilitatory communication interventions, as

276 communication between patients and HCP is essential for adherence to medication therapies and

277 positive health outcomes [1-6]. Examples of faciliatory communication aids mentioned by the

278 participants in this study, were bilingual HCP, pictograms, and a mobile app. Medication counselling

279 combined with customized written information including pictograms may also be beneficial, as

280 pictograms used in patient counselling support proper use of medicines and are particularly useful to

281 patient populations at a high risk of non-adherence, such as patients with low health literacy [23].

282 Digital communication tools might be appropriate for some FL-customers, e.g., digital multilingual

283 PILs, including pictograms. An example is the FIP Pictogram Software PictoRX [24]. However, care must

284 be taken to adapt written medicine information, communication tools and other interventions to the

285 diversity of FL pharmacy customers. Effective health communication must take into consideration

286 both health literacy, language, and culture among the diverse populations [25]. This complexity

287 demands an integrated approach that requires an interprofessional collaboration and the

288 involvement and empowerment of the FL customers. The results of this study form the basis for

289 further interventional research and quality improvement work.

290

291 **Conclusions**

292   Healthcare quality depends on knowledge about the patient experience, including minority

293   populations like FL pharmacy customers. Additionally, language barriers and health literacy are

294   known to pose a risk to quality of healthcare [1-5, 25]. This study provides in-depth knowledge of the

295   patient experience of medication information within the pharmacy context, where communication

296   barriers between FL customers and HCP were evident. Furthermore, preferences on medication

297   information were not met, which they believed had negative consequences. To improve healthcare

298   quality for FL customers, HCP in pharmacies must apply an array of communication aids. Further

299   research should focus on interventions that can facilitate communication between FL customers and

300   HCP in pharmacies, adapting to the heterogeneous population and addressing needs regarding

301   language, culture and health literacy.

302

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360   Table 1. Characteristics of study participants

| Age | Range women (median) | 21-46 (30) years |
| | Range men (median) | 18-49 (37) years |

		Number of participants
Gender	Female	9
	Male	9
Years lived in Norway	0-1	2
	2-3	11
	4-5	5
Education	Primary school	6
	Secondary school	5
	High school	2
	University	5
Number of medicines in use	1-2	8
	3-4	0
	>5	1
	Pro re nata	4
	Missing	5

361

Table 2. Overview of the resulting themes and subthemes, including quotations.

Main theme	Subthemes	Quotations
The pharmacy role	Health-care service	*I usually go to the pharmacy first, before I go to the doctor here in Norway. Sometimes I feel that I get better information in the pharmacy than from the doctor.* (Participant #5)
	Pharmacy staff as salespeople	*For example, in Syria, when we go to the pharmacy when you have a problem, then you can ask those who work in the pharmacy to give you a medicine without you having to go to the doctor. In Norway, a pharmacy employee is a salesperson and not someone you can talk with about your ailment. So, you can't get medicine without going to the doctor.* (Participant #2)
	Unfamiliar systems and routines	*In Norway the relationship between the doctor and the pharmacy is complicated. Complicated also for us who are unable to speak the language... In Syria, when the doctor writes a prescription, the doctor usually informs whether the medicine should be used before or after food. Here in Norway, we do not get that information.* (Participant #4)
Communication barriers and facilitators	Language barriers	*The last time I visited a pharmacy was one month ago. There were challenges in relation to the use of medicine and the explanation of how to use it. Because no one speaks our mother tongue.* (Participant #4)
	Cultural barriers	*"They tried to explain it to me, but it was medicine only for women. It was a woman's medicine. It was hard for me to know how to use it."* (Participant #1)
	Facilitators used by pharmacists	*Although it says here how many times to take the medicine* (points to the label on the medicine), *there are some who cannot read at all. I can read and understand the numbers but not the words on the labels.* (Participant #7)
	Facilitators used by FL customers	*One time I got medicine from the pharmacy, but I did not understand what I was going to use it for. Because I did not understand the language. I took a mobile picture of the medicine note to get it translated in Google translate, but I found the translation to be bad. Then, I wrote the medicine name in Google Chrome, and then you can automatically choose the page you open to be translated into Arabic. Then I got the whole thing translated.* (Participant #6)
Preferences and information received	The preferences of FL customers	*"For example, when going to the pharmacy to get my medicine, then I wonder if there are side effects when using the medicine. I have not been informed about that."* (Participant #18)
	Information provided by pharmacy staff	*"She said to me, use cream on your daughter twice daily for a week, against eczema. She said it repeatedly in Norwegian, talked slowly. Lubricate each morning and each evening."* (Participant #15)
	Unfulfilled need and consequences	*"When I was pregnant, I had low iron levels, and got iron tablets. I received no information about side effects, and was very unwell, with nausea. Then I went to the midwife who explained that it could be side effects, and it could get better if I took the tablet in the evening combined with vitamin C. Then it got better. It may have been a small unfortunate event, but it meant a lot to me."* (Participant #10)

Table 3. Overview of the communcation facilitators identified in the study.

Facilitators used by pharmacists	Facilitators used by FL customers	Other facilitators mentioned
Non-verbal signals	Non-verbal signals	Written medicine information
Google translate	Google translate	Pictograms (pictures, illustrations)
Multilingual staff	Internet	Mobile app with multilingual medication information
Simplified prescription labels	Interpreters (family and friends)	