Exploring stakeholders' perspectives on the quality of services provided through community pharmacies

Introduction

Good quality pharmacy services are necessary to maximize the benefits of drug treatment on clinical, economic, and humanistic outcomes from services provided in community pharmacies.[1] To improve relevant service outcomes, pharmacy managers, pharmacy employees, and authorities need high-quality evidence to develop quality-of-care benchmarks and monitor the quality of the service over time.[2]

Pharmacy service quality is complex and multidimensional and can be challenging to define and measure,[3-6] and different stakeholders embody different perspectives on what is perceived as good quality. As registered healthcare professionals, pharmacists must comply with the laws and regulations that govern their practice while balancing financial viability when providing additional clinical services. Such services are now regarded as a core role for pharmacists.[7]

Traditionally, Norwegian pharmacy services have included the dispatch of prescriptions and advice concerning drug treatment. In addition to this essential everyday interaction, pharmacies have since 2016 had a significant focus on developing and implementing government-funded services, such as vaccine administration, inhalation guidance,[8] and guidance on the use of newly prescribed cardiovascular medicines.[9] There is a corresponding need to monitor and evaluate these services for continuous quality surveillance. The perception is that the quality of pharmacy services is good, but the focus has been on bureaucratic and financial goals such as compliance with rules, guidelines, laws, and customer satisfaction.[10] However, there is a need for both proximal and distal measurements to grasp the complexity of pharmacy services. Proximal measures will often be process indicators while distal measures will be outcome indicators.

Quality indicators (QIs) are standardized, evidence-based measurements used to measure the quality and performance of healthcare systems.[11] According to Donabedian, there has to be a balance between structure, process, and outcome indicators.[3] QIs have broad relevance in community pharmacies and have been developed in other countries.[12-15] The successful development of QIs benefits from a multi-stakeholder approach, but key stakeholders are seldom included in their actual development.[16-18] Instead, indicators are often developed from guidelines and literature, and stakeholders are invited to evaluate their importance, feasibility, and usefulness.[19] Therefore,

providers and recipients of the services should be involved in the development of QIs, to help inform a comprehensive understanding of quality and facilitate implementation.[20, 21]

This study aimed to identify key stakeholders' perspectives on the quality of services provided through community pharmacies in Norway, specifically by exploring their experiences and perceptions about what constitutes good service quality.

Method

Study design and ethics

Collecting information from focus groups enables multi-stakeholder participation to ensure different perspectives, experiences, and perceptions about the quality of pharmacy services.[22] Moreover, focus group interviews were chosen because participants could use each other's experiences and opinions to describe what they considered essential factors concerning the quality of pharmacy services. We used the consolidated criteria for reporting qualitative research (COREQ)[23] and followed the ethical standards for research from the Declaration of Helsinki.[24] We received approval from the Norwegian Center for Research Data (NSD).[25]

Participants and recruitment

Twenty-six participants were conveniently recruited nationwide into five focus groups in the following order: pilot interview (n=6), pharmacy managers (n=6), pharmacists (n=4), pharmacy technicians (n=5), and pharmacy users (n=5). We recruited participants by issuing invitations to Facebook groups, patient organizations, pharmacy chain offices, and workers' unions and by direct request. Active users of pharmacies and current employment in a pharmacy were inclusion criteria aiming for a mix of women and men and variety in age span and ethnicity. However, only women responded to the group invitation for pharmacy technicians and customers. Participation in the project was voluntary, and no compensation was given. The participants received an email about the focus group setting, information about the routine for withdrawal, and the consent form (Appendix 1). Before the interview, consent was given either orally or in writing. One participant withdrew mid-interview due to technical difficulties.

Data collection

A female researcher (AHJ), a licensed pharmacist with 15 years of pharmacy experience and trained in qualitative methods, moderated the interviews, and undertook data collection. The focus group interviews were conducted in Teams for Microsoft between October 2020 and March 2021. The interviews lasted between 66 and 83 minutes. Due to the Covid-19 pandemic restrictions,

participation was from home or the workplace. All interviews were audio-recorded, and KHH undertook additional notes during the interviews.

A semi-structured interview guide (Appendix 2) was developed with open-ended and follow-up questions to address the specific study objectives. A pilot interview was conducted to establish clarity, comprehensiveness, content, and face validity. The pilot interview data were included in our analysis, as no significant changes were made to the interview guide. All pilot interview participants had experience working as community pharmacists, and some had experience as pharmacy managers.

Data analysis

In the thematic analysis with a reflexive approach, the researchers have epistemological flexibility and are not bound by theoretical frameworks. Instead, the researchers use their interpretive abilities to do the coding.[26] Audio recordings were transcribed verbatim and de-identified by AHJ. AHJ, LS ,and KHH analyzed the data. We used QSR NVivo v.12 to code, explore and organize the data. First, the authors reviewed the transcripts to become familiar with the empirical data. Then, we independently coded the first interview to identify themes, topics, and meaningful parts that supported our research question. Before analyzing the remaining interviews, the research team reviewed emerging themes and subthemes. Subsequently, the identified themes were organized into main- and subthemes, as shown in figure 1.
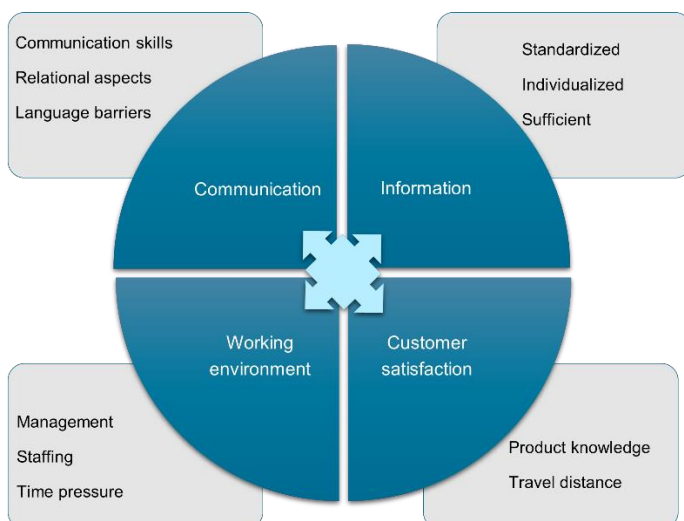

Figure 1 Illustration of the experiences and perceptions of quality of pharmacy services among pharmacy customers and staff.

Results

We asked participants about their experiences and perspectives on the quality of services in community pharmacies. Whilst the concept of quality is multifactorial, the themes are reported independently in this results section. To illustrate and better understand the depth of the informants' perspectives, selected quotes from the focus group discussions are presented.

Sufficient and substantively suitable information to cover individual needs

Suitable and sufficient information about medicines and self-care was debated in all groups. Participants addressed standardization of information, the importance of providing and receiving individualized information, and barriers to non-customized information. Individual adjustment on quantity and level was considered necessary for the information to be helpful.

The value of standardized information

Pharmacy staff and users emphasized the importance of providing and receiving information that ensured the correct use of medicines. Several informants stated that the information had to be standardized to guarantee that critical information was delivered effectively.

"The perceived quality of receiving necessary information and guidance makes me feel good when I leave the pharmacy. Trust in the pharmacy staff and the experience of receiving additional service is essential." Pharmacy customer participant

Pharmacist participants emphasized that the provision of standardized information was valuable, especially when several customers were awaiting their services. To ensure high-quality services, they called for a system that provided their customers with the necessary information.

"…you have two or three points you can tick off …. I have given that information and advice, or I have talked to the customer about something" Pharmacist participant

Individualized information

Customer participants expected a minimum level of standardized information, and several reported a better customer experience and better service when receiving information tailored to their needs. Pharmacy employee participants stated that customized information indicated excellent services.

"Many pharmacy chains have standards for the customer meeting…. but you must be able to provide customized individual information based on these standards….this will ensure professional quality to the customer" Pharmacist participant

Sufficient information

Some informants stated that the amount of information provided was essential. Information on generic substitution and customer loyalty programs was sometimes prioritized over medical information. Pharmacist participants expressed that too much information to customers who are unable or uninterested in receiving this information could be perceived as poor quality.

"I think it's difficult to streamline information completely. The customers who are reluctant to talk also need information, but you must consider the workload. If it is hectic in the pharmacy, you may have to maintain a minimum level of information." Pharmacy manager participant

Communication skills and relationship with the pharmacy professionals

Several participants addressed the importance of good communication as a key factor in facilitating high-quality services in the pharmacy. Topics discussed included the ability to communicate, barriers in communication, and a trusted relationship between customers and employees. Pharmacy employees also stated that there were limited communication-focused continuing education opportunities.

The importance of good communication skills

The informants emphasized the value of solid communication skills among the pharmacy staff. Such skills are critical in identifying customer needs, providing customized information, and checking the customer's perception of the information. Training on asking good questions, interpreting answers, and understanding the rationale behind the inquiries was crucial for developing good communication skills.

"You can discuss situations with other employees. How can we do better next time? Why did you ask those questions, and what did you want to achieve? You do not ask questions just to ask questions. You want to clarify something or help in one way or another. Not everyone has practiced enough on this" Pharmacist participant

"Occasionally, you have to use slightly more open-ended questions to reveal the problems, and I think that we could think more about communication training and our practice. Because it is difficult" Pilot pharmacist participant

Language as a challenge to quality

Ideally, pharmacy staff and customers should share a common language to communicate effectively and preferably in Norwegian. In the absence of a common language and to prevent

miscommunication and reduced customer satisfaction, access to translation support systems was highlighted.

"I support the inhalation guidance and New medicine service as valuable services, communication in Norwegian can be difficult at times, especially when there is time pressure and limited time for every customer» Pharmacist participant

"When it comes to spoken language, it is also a quality parameter. How do we meet the people at the pharmacy? There should be a procedure if we do not know the language at the pharmacy. It should not be a coincidence who you meet" Pilot pharmacist participant

Relationship with pharmacy personnel

Focus group participants preferred to visit pharmacies where they have established a professional relationship with the employees, especially when the pharmacy visit requires more than shopping for ordinary goods. A friendly and attentive staff is essential for trust and is beneficial for customer interaction.

"It is important how the employees greet you. It is much easier to address questions if met in a friendly and pleasant way. Not everything is pleasant to talk about, so there may be a threshold you have to cross, and a confidential and trustworthy atmosphere is essential" Pharmacy customer participant

"I'm delighted when someone I know is at work because they know what I need. Anyone on duty can dispatch me but I am delighted when the pharmacist I always talk to is available" Pharmacy customer participant

Customer satisfaction with knowledgeable employees and conveniently located pharmacies

The overall customer experience was essential for several informants, and extra attention was devoted to two subtopics, product knowledge and convenience.

The importance of product knowledge

The pharmacy users valued the pharmacy staff's proficient knowledge of prescription medicines and over-the-counter products, resulting in positive customer experiences and high expectations.

Customers trusted the pharmacy employees and pointed out that double-checking increased this trust.

"It is wonderful when the advice I get for my skin is based on knowledge. Competence in the advice is important to me" Pharmacy customer participant

"I also really appreciate… regardless of who I ask at a pharmacy, that they can give me an answer or ask someone.... instead of reading on the computer screen or the leaflet." Pharmacy customer participant

The pharmacy technicians acknowledged the need to update their knowledge before campaigns and product launches. Product knowledge, both new and existing, provide increased confidence for the employees in a customer meeting and improves the quality of service.

"We have to keep up to date, and with the assortment news twice a year, we get product updates. Pharmacy technicians are responsible for updating themselves on products in the self-selection. There is also a lot out here that is not written in any book" Pharmacy technician participant

Travelling distance to the pharmacy and waiting time

Proximity to a pharmacy is critical for some participants. Still, others were willing to drive past several geographically closer pharmacies to attend a pharmacy where they perceived the quality to be better. Waiting time was essential for some participants and might result in customer dissatisfaction, but according to the customers, it was ranked lower if the perceived service quality was better.

"I live near several pharmacies but drive a few miles to get to the pharmacy I prefer. I don't want to be unsure about the service. There is a big difference between the pharmacies…" Pharmacy customer participant

Factors that affect the pharmacy working environment

Pharmacy employees addressed the impact of the working environment on the overall quality of the services. Themes such as the importance of good leadership, staff composition, the need for continuing education, and time pressure were highlighted by several informants.

The importance of good leadership

The pharmacy manager has an essential role in building and maintaining the quality of the provided services. Motivated and committed pharmacist managers facilitate a good working environment, follow-up of employees, professional updating, and service development. A good pharmacy manager will work continuously to have quality procedures and routines in place. The manager sets the standard for the working environment and quality development.

"I think that management is an important quality aspect. What does the manager think about the quality and his employees, and how should they bring quality into the work they do" Pilot Pharmacy manager participant

Pharmacy staffing implications

Pharmacies with low staffing were perceived to provide suboptimal quality services by the informants. The pharmacy managers emphasized that a stable staff enables systematic and continuous development of competence among the employees. The lack of continuing education for the employees was a topic of concern, especially among pharmacists.

"Sufficient staffing is important to have time for each customer. It should not be like that; we do not bother to inform when four or five are in line. Having time for each customer is essential" Pharmacy technician participant

"If you only have two pharmacists, and they do not have time to give advice or talk to customers, so it's not just about how qualified these people are, but if there are enough people around" Pharmacist participant

Time pressure

Employees stated that they were more reluctant to take the time to provide information to customers when it was busy in the pharmacy. The quality of internal communication and how it deteriorates under time pressure were debated, leading to essential tasks being ignored, forgotten, or overlooked.

"I think we have all agreed that we could have done better sometimes, that we did not ask those questions, and that it sometimes goes a little too fast" Pilot pharmacist participant

"The quality of customer encounters varies. In my opinion, spending sufficient time with a customer is a quality parameter. If the interaction is short, the quality will be poorer, that's how it is". Pharmacist participant

Discussion

In this study, we explored the experiences and perceptions of key stakeholders, i.e., pharmacy staff and customers, of the quality of community pharmacy services. Overall, we found that exploring the notion of the quality of community pharmacy services was complex, often with multiple interacting considerations. In this discussion we have grouped individual experiences of quality into themes which can in turn interact with other themes (e.g., information and communication, communication and customer satisfaction) to contribute to the quality of pharmacy services, from the ground up.

This study links and builds on existing literature to monitor and improve pharmacy services. Adding proximal perspectives from different stakeholders will enhance the understanding of what constitutes good quality of pharmacy services. We suggest using this approach to identify community pharmacy service quality aspects, and employ these findings to broaden quality indicator development beyond guidelines. The results showed that the development of quality metrics to quantify the quality of community pharmacy services should focus on aspects concerning provision of information, communication skills, customer satisfaction, and the work environment. This would guide pharmacy staff in quality improvement and customers to make informed choices based on the quality of service.

The main findings show that customers value a professional relationship with the pharmacy employees. The importance of receiving tailored information to cover their needs and expectations to gain added treatment knowledge before customers leave the pharmacy was highlighted. Customer participants anticipated meeting qualified and knowledgeable health personnel who can facilitate health improvement. Employee participants stated that there is a lack of time to inform all customers when it is busy in the pharmacy, and identified this as a barrier to performing services at the highest quality level.

Sepp et al. demonstrated a significant demand for psychological support and counseling in times of crisis. They identified an increased focus on communication and information as a critical factor in pharmacies.[27] This occurred in our study, as all participants had experience on the challenges of working and or receiving care in community pharmacies whilst under Covid-19 pandemic restrictions. This could have influenced participants' views about this aspect of pharmacy services.

Communication challenges

Exercising communication skills among pharmacy staff is essential in achieving good quality services, and good communication triggers an informative customer encounter. Surprisingly, some studies suggest that communication in the pharmacy is not on medical and pharmaceutical topics but on

non-medical issues.[28] Communication skills seem underdeveloped, which is paradoxical, considering the importance expressed by our study participants.

Pharmacy employees in our study stated that there were few communication-focused continuing education opportunities. This underpins the importance for higher education institutions to focus on communication theory and practice communication skills before and during compulsory community pharmacy practice.[29]

A professional relationship with the pharmacy employees was essential if the visit concerned sensitive health issues or if prior knowledge of their medical history was essential. On the other hand, a personal relationship was considered non-essential if the pharmacy visits concerned over-the-counter medicines, such as painkillers or other necessities. Another study also showed that personal relationships are essential when customers highlight quality aspects of pharmacy services in primary pharmacies. Friendly and attentive services and an individual approach to customer health problems were highlighted as crucial.[30]

Customer satisfaction

Our data suggest customers value convenience and proximity to the pharmacy to fulfill simple needs. In Norway, it has been a goal to increase the availability of pharmacy services by increasing the number of pharmacies.[31] However, some participants were willing to travel beyond their closest pharmacy when they considered it important to receive services of perceived higher quality, delivered in-person and face-to-face.

Short waiting times in the pharmacy may positively impact customer satisfaction.[32] Other studies also show that satisfaction increases when clinical and cognitive services are involved.[33] When waiting time is used as a quality measure alone, longer waiting time is viewed as negative.[34] Among our informants, customers accepted increased waiting time if they achieved better services and stated that other factors were considered more critical for the choice of pharmacy—for instance, the importance of receiving individualized service. Van de Pol et al. stated that accessibility is important but found that the changing role of pharmacies and a shift towards a more personal and inclusive pharmacy services are important quality aspects. Pharmacies where the possibility of being able to advise standard prescription dispensing was preferred when set up against only availability.[33]

Information aspects

All groups discussed information needs and how to provide information. In situations with a heavy workload, standardized information could be an option to maintain a minimum quality for the customer. Although standardized information may cover basic needs, employees acknowledged that

individually tailored information might be necessary to deliver adequate quality. A study shows that advice and information must be individually tailored to achieve quality standards, such as minimizing harm in drug treatment.[35] Pharmacist participants stated that they aim to provide tailored information. However, information barriers are exemplified by internal financial requirements on additional sales, recruitment to customer loyalty programs, and information for generic exchange of medicines took precedence in customer meetings. This is also supported by Olsson et al. reporting that much of the information provided to pharmacy customers is of a non-medical or non-pharmaceutical nature.[28]

Moreover, other studies have shown that only 50% of customer meetings involved information on medical treatment.[36] Our informants discuss the lack of time to provide essential information to customers. Taking on a more active role as health care providers, pharmacy staff should anticipate that more time is needed to address and identify medication-related problems and provide information accordingly. In this context, it appears paradoxical that the available time is spent on non-medical information.

Work environment

Employees highlighted the role of the pharmacy manager as a factor for providing good quality, and critical features for a strong pharmacy manager were the ability to organize, continuous employee follow-up, and establishing good routines and procedures. The pharmacy leadership role is complicated, and the liberty to address and solve daily challenges is not followed by adequate responsibilities.[37]

The participants in the employee groups suggested time pressure and workload as indicators of pharmacy service quality. Other studies show a link between increased workload, decreased working environment, and an increased risk of errors.[38] The participants informed that time constraints implied omitting other essential tasks. Studies also show that time pressure and workload are barriers to implementing pharmacy services[39], in addition to implementing quality indicators.[40] In the meeting we discussed the necessity of high-quality services irrespective of workload.

Strengths and limitations

Focus group interviews are appropriate for gaining experience and opinions on a topic.[22] By using this qualitative approach, we aimed to identify diverging views concerning the quality of pharmacy services. Although the topics identified in this study are based on the Norwegian pharmacy system, they might apply to quality perceptions in other countries.

By performing the focus group interviews digitally, we enabled a broader geographic participation.[41] Several participants took part in the focus interviews from home. Being comfortable in familiar surroundings may have facilitated good discussions on certain topics that could have been challenging in unfamiliar surroundings or at the workplace. The diverse stakeholder sample provided a wide span of perspectives and viewpoints. This might contribute to fill a gap in the development of the quality of pharmacy services By introducing a qualitative method we have established a deeper understanding of what constitues good quality of pharmacy services

Although the stakeholders in this study participated voluntarily and without remuneration, we might have introduced a selection bias in recruiting stakeholders already interested in personal service and information.[42]

We used a semi-structured interview guide to ensure open communications and not stifle discussions between participants. However, the digital focus group interviews may have limited the group dynamics and behavior of the participants. When not physically in a room, responding to statements from other participants and interpreting body language could be more challenging. When losing some of the natural group dynamics, participants could choose not to confirm statements or refrain from adding statements to the discussion.

When observing the interactions within the focus groups, we noted that the group members checked with the moderator whether the topic debated was appropriate. Studies have shown that this is typical behavior when the moderator closely relates to the research field. [43] Participants may have been reluctant to comment negatively on the quality of the pharmacies and may have held back opinions and experiences that can be considered a workplace critique. This might have introduced a bias toward a more optimistic view of quality, and additionally prevented the uncovering of richer data. Audio and video delay may also remove spontaneity, thus affecting the group dynamics.[44] For instance, one participant withdrew from the interview due to technical difficulties, which would not have happened if the interviews had been conducted face-to-face.

Developing and implementing QIs in pharmacies has the potential to improve patient safety and the quality of services provided.[3] Including customers in developing QIs for pharmacies is important. This will allow informed choices based on validated metrics. By introducing qualitative methods early in the development of QIs, we add a dimension that can help fill the gap between QI development based on existing literature, guidelines, and clinical practice. However, further qualitative studies are needed to identify QIs that can capture an even broader perspective on the quality of pharmacy services.

Conclusions

This study has identified areas that pharmacy professionals and customers regard as essential to define good quality of community pharmacy services. Effective communication skills, appropriate provision of information, customer satisfaction, and working environment are all essential factors when developing quality metrics for community pharmacies.

References

1. Varas-Doval R, Saéz-Benito L, Gastelurrutia MA, Benrimoj SI, Garcia-Cardenas V, Martinez-Martínez F. Systematic review of pragmatic randomised control trials assessing the effectiveness of professional pharmacy services in community pharmacies. *BMC Health Serv Res.* 2021;21:156:doi:10.1186/s12913-021-06150-8

2. Stelfox HT, Straus SE. Measuring quality of care: considering measurement frameworks and needs assessment to guide quality indicator development. *J Clin Epidemiol.* 2013;66:1320-1327:doi:10.1016/j.jclinepi.2013.05.018

3. Donabedian A. The quality of care. How can it be assessed? *JAMA.* 1988;206:1743-1748

4. Rupp MT. Assessing Quality of Care in Pharmacy: Remembering Donabedian. *Journal of Managed Care & Specialty Pharmacy.* 2018;24:354-356:doi:10.18553/jmcp.2018.24.4.354

5. Shiyanbola OO, Mort JR, Lyons K. Advancing the use of community pharmacy quality measures: a qualitative study. *J Am Pharm Assoc (2003).* 2013;53:400-407:doi:10.1331/JAPhA.2013.12160

6. Nau DP. Measuring pharmacy quality. *Journal of the American Pharmacists Association.* 2009;49:154-163:doi:https://doi.org/10.1331/JAPhA.2009.09019

7. Watson MC, Skea ZC. Jugglers and tightrope walkers: The challenge of delivering quality community pharmacy services. *PLoS One.* 2018;13:e0200610:doi:10.1371/journal.pone.0200610

8. Ruud KW, Rønningen SW, Faksvåg PK, Ariansen H, Hovland R. Evaluation of a structured pharmacist-led inhalation technique assessment service for patients with asthma and COPD in Norwegian pharmacies. *Patient Education and Counseling.* 2018;101:1828-1837:doi:https://doi.org/10.1016/j.pec.2018.05.018

9. Elliott RA, Boyd MJ, Tanajewski L, et al. 'New Medicine Service': supporting adherence in people starting a new medication for a long-term condition: 26-week follow-up of a pragmatic randomised controlled trial. *BMJ Quality & Safety.* 2020;29:286:doi:10.1136/bmjqs-2018-009177

10. Norwegian Business School. Norwegian Customer Barometer. www.kundebarometer.com2017 [10.09.18].

11. Agency for Healthcare Research and Quality. Quality indicator measure development, implementation, maintenance, and retirement. *Rockville, MD.* 2011

12. Campell SM, Braspenning J,Hutchinson A,Marshall M N. Reserach methods used in developing and applying quality indicators in primary care. *BMJ.* 2003;326:816-819

13. Fujita K, Kushida K, Okada H, Moles RJ, Chen TF. Developing and testing a set of quality indicators for pharmacist home visit services: A mixed methods study in Japan. *Br J Clin Pharmacol.* 2021;87:1940-1952:doi:10.1111/bcp.14587

14. Pereira Guerreiro M, Martins AP, Cantrill JA. Preventable drug-related morbidity in community pharmacy: development and piloting of a complex intervention. *Int J Clin Pharm.* 2012;34:699-709:doi:10.1007/s11096-012-9625-3

15. De Bie J, Kijlstra NB, Daemen BJG, Bouvy ML. The development of quality indicators for community pharmacy care. *BMJ Quality & Safety.* 2011;20:666:doi:10.1136/bmjqs.2010.045237

16. Kötter T, Schaefer FA, Scherer M, Blozik E. Involving patients in quality indicator development - a systematic review. *Patient Prefer Adherence.* 2013;7:259-268:doi:10.2147/PPA.S39803

17. Krska J, Mackridge AJ. Involving the public and other stakeholders in development and evaluation of a community pharmacy alcohol screening and brief advice service. *Public Health.* 2014;128:309-316:doi:https://doi.org/10.1016/j.puhe.2013.11.001

18. Boutin K, Nevers W, Gorman SK, Slavik RS, Martinusen DJ, Lo C. Development of intervention-related quality indicators for renal clinical pharmacists using a modified Delphi approach. *Int J Pharm Pract.* 2019;27:436-442:doi:10.1111/ijpp.12484

19. Grey E, Harris M, Rodham K, Weiss MC. Characteristics of good quality pharmaceutical services common to community pharmacies and dispensing general practices. *Int J Pharm Pract.* 2016;24:311-318:doi:10.1111/ijpp.12253

20. Schang L, Blotenberg I, Boywitt D. What makes a good quality indicator set? A systematic review of criteria. *International Journal for Quality in Health Care.* 2021;33:doi:10.1093/intqhc/mzab107

21. Latif A, Gulzar N, Lowe F, Ansong T, Gohil S. Engaging community pharmacists in quality improvement (QI): a qualitative case study of a partnership between a Higher Education Institute and Local Pharmaceutical Committees. *BMJ Open Qual.* 2021;10:doi:10.1136/bmjoq-2020-001047

22. Crabtree BF, and Miller W.L. *Doing qualitative research.* Second edition ed. Sage Publications,Inc1999.

23. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care.* 2007;19:349-357:doi:10.1093/intqhc/mzm042

24. World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *Jama.* 2013;310:2191-2194

25. Sikt. Norwegian Agency for Shared Services in Education and Research. Retrieved from https://sikt.no/en/home.

26. Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health.* 2019;11:589-597:doi:10.1080/2159676X.2019.1628806

27. Sepp K, Lubi K, Rass H, Volmer D. Provision of community pharmacy services during the first wave of COVID-19 pandemic in Estonia – experiences and future implications. *SHS Web Conf.* 2022;131

28. Olsson E, Ingman P, Ahmed B, Kälvemark Sporrong S. Pharmacist–patient communication in Swedish community pharmacies. *Research in Social and Administrative Pharmacy.* 2014;10:149-155:doi:https://doi.org/10.1016/j.sapharm.2013.03.001

29. Svensberg K, Sporrong SK, Lupattelli A, Olsson E, Wallman A, Björnsdottir I. Nordic Pharmacy Students' Opinions of their Patient Communication Skills Training. *American journal of pharmaceutical education.* 2018;82:6208-6208:doi:10.5688/ajpe6208

30. Watson MC, Silver K, Watkins R. How does the public conceptualise the quality of care and its measurement in community pharmacies in the UK: a qualitative interview study. *BMJ Open.* 2019;9:e027198-e027198:doi:10.1136/bmjopen-2018-027198

31. Ministry of Health and Care Services. White Paper No 28 Report on Pharmaceuticals In: Services MoHaC, ed. Regjeringen.no2015.

32. Slowiak JM, Huitema BE, Dickinson AM. Reducing wait time in a hospital pharmacy to promote customer service. *Qual Manag Health Care.* 2008;17:112-127:doi:10.1097/01.Qmh.0000316989.48673.49

33. van de Pol JM, van Dijk L, Koster ES, de Jong J, Bouvy ML. How does the general public balance convenience and cognitive pharmaceutical services in community pharmacy practice. *Research in Social and Administrative Pharmacy.* 2021;17:606-612:doi:https://doi.org/10.1016/j.sapharm.2020.05.014

34. Naik Panvelkar P, Saini B, Armour C. Measurement of patient satisfaction with community pharmacy services: a review. *Pharmacy World & Science.* 2009;31:525-537:doi:10.1007/s11096-009-9311-2

35. Halsall D, Noyce PR, Ashcroft DM. Characterizing healthcare quality in the community pharmacy setting: insights from a focus group study. *Res Social Adm Pharm.* 2012;8:360-370:doi:10.1016/j.sapharm.2011.09.001

36. Svensberg K, Sporrong SK, Björnsdottir I. A review of countries' pharmacist-patient communication legal requirements on prescription medications and alignment with practice:

Comparison of Nordic countries. *Research in Social and Administrative Pharmacy.* 2015;11:784-802:doi:https://doi.org/10.1016/j.sapharm.2015.01.002

37. Gregory PAM, Seuthprachack W, Austin Z. Community pharmacists' perceptions of leadership. *Research in Social and Administrative Pharmacy.* 2020;16:1737-1745:doi:https://doi.org/10.1016/j.sapharm.2020.02.001

38. Lea VM, Corlett SA, Rodgers RM. Workload and its impact on community pharmacists' job satisfaction and stress: a review of the literature. *International Journal of Pharmacy Practice.* 2012;20:259-271:doi:10.1111/j.2042-7174.2012.00192.x

39. Agomo CO, Ogunleye J, Portlock J. A survey to identify barriers in the public health role of community pharmacists. *Journal of Pharmaceutical Health Services Research.* 2016;7:253-261:doi:10.1111/jphs.12153

40. Minard LV, Deal H, Harrison ME, Toombs K, Neville H, Meade A. Pharmacists' Perceptions of the Barriers and Facilitators to the Implementation of Clinical Pharmacy Key Performance Indicators. *PLoS One.* 2016;11:e0152903-e0152903:doi:10.1371/journal.pone.0152903

41. Halliday M, Mill D, Johnson J, Lee K. Let's talk virtual! Online focus group facilitation for the modern researcher. *Research in Social and Administrative Pharmacy.* 2021;17:2145-2150:doi:https://doi.org/10.1016/j.sapharm.2021.02.003

42. Renberg T, Wichman Törnqvist K, Kälvemark Sporrong S, Kettis Lindblad Å, Tully MP. Pharmacy users' expectations of pharmacy encounters: a Q-methodological study. *Health Expectations.* 2011;14:361-373:doi:https://doi.org/10.1111/j.1369-7625.2010.00643.x

43. Twinn S. The analysis of focus group data: A challenge to the rigour of qualitative research. *NT Research.* 2000;5:140-146:doi:10.1177/136140960000500212

44. Gill P, Baillie J. Interviews and focus groups in qualitative research: an update for the digital age. *Br Dent J.* 2018:doi:10.1038/sj.bdj.2018.815

Appendix 1

Participation in a research project

Quality indicators in community pharmacies

You have been invited to participate in a research project on development of quality indicators in community pharmacies. This letter provides information on the project and your rights if you chose to participate.

The project is part of PhD candidate [name]'s doctoral thesis under supervision of associate professor [name]. Both work at the [name of institution] in the research group [name of research group].

In the first part of the project, we aim to interview pharmacy personnel and pharmacy customers about their experiences and perceptions of services in community pharmacies to identify areas for quality measurements.

You are invited to participate as you work or have worked in a community pharmacy as a pharmacy technician, pharmacist, pharmacy manager, or is a user of pharmacy services. You will be placed in a focus group with up to 10 individuals. The focus group interview will be conducted digitally.

What does participation mean for you?

The focus group interviews last up to 90 minutes and involve audio recording of conversations between participants perceptions and experiences with different situations in community pharmacies. Recordings will be deleted upon completion of the project. Your participation will be anonymized; no data will be traceable to individuals.

Participation is voluntary

Should you choose to participate, you can withdraw your consent at any time without giving any reason. There will be no negative consequences if you choose to withdraw.

Confidentiality – how we store and use your information

The information collected will be used as stated above. Your response will be treated confidentially and according to privacy laws and regulations.

- Only members of the research team will have access to information that emerges during the focus group interview
- Audio will be recorded in Teams
- Recordings and transcripts will be stored securely on UiT's research servers. No names or contact details will be recorded, and any names and place names will be anonymized in all transcripts and future publications
- A collaboration with the University of Sydney may occur, and parts of the anonymized transcripts may be made available with researchers from this institution

Benefits and Risks

As long as you can be identified in the data material, you have the right to:

- Access your personal registered data, and upon request receive a copy of the data
- Correct personal data
- Have your personal data deleted
- Send a complaint to the Norwegian Data Protection Authority about processing of your personal data.

We process your personal information based on your consent.

On behalf of the Department of Pharmacy, NSD - Norwegian Center for Research Data AS has assessed that the processing of personal data in this project is in accordance with the privacy regulations.

Contact

If you have any questions or concerns regarding this study, please contact:

- Associate Professor [Name, mail, phone]Ph.D Student [Name, mail, phone]
- Personal data protection ombudsman: [Name, mail, phone]

For questions regarding the NSD assessment of the project, please contact:

NSD- Norwegian Center for Researchdata AS on email (personverntjenester@nds.no) or Phone: +47 55 58 21 17

Best regards,

(Supervisor/Project manager)   (Ph.D. Student)

Declaration of consent

I have received information on the project Quality indicators in community pharmacies and am allowed to ask questions. I consent to:

- Participate in a focus group interview
- The information optained in the focus group interview can be used in the project Quality Indicators in community pharmacies

I consent to the information collected being processed until the completion of the research project

----

(Signed by project participant, date)

Appendix 2

Focus group interview guide (translation from Norwegian)

English translation	
Topics	**Question**
Introductory question	How would you describe the quality of pharmacy services?
Key questions Structure/Process/Outcome	In your opinion, which quality aspects identify the good quality of pharmacy services?
Key question Process/Outcome	Can you describe experiences that illustrate the good quality of pharmacy services? What were the characteristics of these situations?
Key question Outcome/ Structure/ Process	Can you describe experiences that illustrate substandard quality of the pharmacy services? What were the characteristics of these situations?
Follow-up questions	-Can you elaborate on this topic?-Do you hold any experiences of your own that are similar to what was uttered? -Can you give a more explicit description of that situation? -Can you provide more examples of this? - Can you elaborate on why you think it is essential aspect? - You mention the design of the pharmacy as an essential factor; why do you consider this important? - You mention (something to do with the pharmacy's processes) as an essential. Why is this decisive for quality? -Concerning what you mentioned earlier....can you give more details?-Do you have own similar experiences? -Can you provide a more detailed description of what happened? *Pursue the answers, and explore their content without saying which dimension to consider.*
Closing questions	How did you experience the interview? Do you consider this a good approach to discussing quality?
	If you were to assess the quality of pharmacy services, what would you measure, and how would you evaluate the information?
Final question	Do you want to add something before we end the interview?