Exploring patient participation in pharmacy medication reviews

by

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Abstract

Comprehensive medication reviews provide an opportunity for patient-pharmacist dialogue and active patient participation in their care to identify and address their specific needs and concerns. Patient participation can contribute to positive patient experiences and high-quality care. However, little is known about the nature of patient participation during medication reviews. The purpose of this multi-paper dissertation was to (1) perform a scoping review to synthesize the literature on medication review programs in Canada and identify knowledge gaps, (2) conduct a qualitative descriptive study to explore pharmacists' perceptions of the factors that influence patient participation in medication reviews and to describe strategies used to engage patients, and (3) conduct a multimethod study to characterize patient active participation behaviours and pharmacist communication behaviours and describe patients' experiences with medication reviews.

The first study, a scoping review, identified 41 papers on medication reviews in Canada. The majority of studies were conducted in Ontario. Quantitative research methods were predominantly employed. The main research areas identified were program uptake, health outcomes, stakeholder beliefs and attitudes toward medication reviews, processes and collaboration, and pharmacy workplace culture. There was limited research on patient-pharmacist interactions, particularly patient participation. The review also highlighted the need for research to use theoretical frameworks to enhance understanding.

The second study used a qualitative descriptive methodology. Semi-structured interviews with 12 community pharmacists in Alberta were conducted and analyzed using the expanded Linguistic model of patient participation in care. Pharmacists described

patient predisposing, patient internal enabling, external enabling, and pharmacist factors influencing patient participation. Pharmacists perceived it was their job, as medication experts, to engage patients in medication reviews. However, it was challenging to engage individuals who had few perceived health needs, stable medication therapy, limited experience with the pharmacist's patient care role or those who resisted pharmacists' questions. Busyness was identified as a barrier, while patient knowledge and communication skills facilitated patient participation. To address the barriers, pharmacists used several strategies tailored to their perception of patients and workplace routines, such as adapting questions, explaining the purpose of the review, using patient laboratory results, incremental reviews, having a go-to location, scheduling strategies and respecting nonparticipants.

The third study was a multimethod study involving 11 audio-recorded observations of medication reviews and five patient interviews. Analysis of medication reviews based on the Active Patient Participation Coding system showed that patients demonstrated assertive behaviours in these interactions and less commonly asked questions, expressed concerns or used humour. Pharmacists asked questions eight times more frequently than patients. Pharmacists used supportive talk to encourage, reassure, and empathize with patients, three times more frequently than partnership building. Humour and social talk were highlighted as important ways to enhance patient participation in the interaction. Patients reported positive experiences and emphasized pharmacists' caring behaviours and trusting relationships as supporting their participation.

The overall findings of this dissertation provide insight into the barriers to active patient participation and a range of pharmacist strategies to support patient participation. The findings also add to the limited body of evidence on active patient participation and pharmacist behaviours expressed during comprehensive medication reviews, enhancing our understanding of this crucial element of patient-centred care. The research results could inform developing, implementing, and evaluating strategies that foster patient participation in medication reviews.

Preface

This doctoral dissertation is an original work by Damilola Olufemi-Yusuf. Three research studies were included as part of this dissertation. The first study did not involve human subjects, and ethics approval was not required. The second and third studies received ethics approval from the University of Alberta Research Ethics Board under the project name, "Exploring Patient Participation in Community Pharmacy Care," No. Pro00118332, July 25, 2022

Chapter 2 of this dissertation has been published as Olufemi-Yusuf DT, Kung JY, Guirguis LM. Medication Reviews in Community Pharmacy: A Scoping Review of Policy, Practice and Research in Canada. *J Pharm Health Serv Res*. 2021;12(4):633-650. Olufemi-Yusuf was responsible for the design of the study, study screening, review, data extraction, synthesis and writing of the manuscript. Kung developed the search strategy and performed a comprehensive literature search. Guirguis, as the supervisory author, provided input across all stages, including manuscript revisions.

Chapter 3 of this dissertation is written in manuscript format and will be prepared for submission to the Research in Social and Administrative Pharmacy journal. Olufemi-Yusuf led and designed the study, recruited and interviewed participants, and analyzed data. Olufemi-Yusuf wrote the manuscript. Gokiert and Cor provided input on the design, implementation of the study, and manuscript revisions. Guirguis, as the supervisory author, provided input across all stages of the study, including manuscript revisions.

Chapter 4 of this dissertation is written in manuscript format and will be prepared for submission to the Patient Education and Counselling journal. Olufemi-Yusuf led and designed the study, recruited participants, and collected and analyzed data. Olufemi-Yusuf wrote the manuscript. Gokiert and Cor provided input to the design, implementation, and manuscript revisions. Guirguis, as the supervisory author, provided input across all stages of the study, including manuscript revisions.

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List of Abbreviations

APA	Additional Prescribing Authorization
APPC	Active Patient Participation Coding system
CACP	Comprehensive Annual Care Plan
CINAHL	Cumulative Index of Nursing and Allied Health Literature
EMBASE	Excerpta Medica dataBASE
LMOPPC	Linguistic Model of Patient Participation in Care
MEDLINE	Medical Literature Analysis and Retrieval System Online
MR	Medication Review
PPCP	Pharmacist Patient Care Process
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PRISMA-ScR	Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews
SMMA	Standard Medication Management Assessment
SRQR	Standards for Reporting Qualitative Research

Chapter 1. Introduction

1.1. Context of problem

Medication-related problems represent a major issue leading to adverse drug events, hospital admissions and increased costs to health systems.[1–3] One strategy to address medication-related problems involves engaging patients in medication reviews. In medication reviews, pharmacists evaluate a patient's current medications to ensure they are safe and effective.[4] Pharmacists may rely on the patient's medication records or clinical data alone or may also incorporate patient interviews, resulting in a comprehensive review based on multiple sources of information.[4] The patient interview provides an opportunity for dialogue where patients actively participate and express their opinions, questions, and concerns. Street defines patient participation as the "extent to which patients produce verbal responses that have the potential to significantly influence the content and structure of the interaction as well as the health care provider's beliefs and behaviours."[5(p.62)] Clinicians, including pharmacists, play a key role in fostering patient participation during patient-clinician interactions. Pharmacists can facilitate active patient participation by inviting patients to share their perspectives about medications and illness, listening and asking open-ended questions, reassuring patients, and showing empathy.[6]

Patient participation in the medication review process is particularly relevant in identifying and addressing patients' needs, preferences, concerns and medication-related problems.[4,7] However, a systematic review evaluating the outcomes of patient participation in medication reviews did not yield positive findings.[8] Few international studies using observational methods found that patients had limited involvement in the conversation.

Pharmacists mostly asked closed questions when assessing drug therapy and missed opportunities to explore patient feelings, lifestyle or psychosocial issues.[9–11] Patients tended to be passive, primarily providing information to the pharmacists' inquiries about how they use medications and their knowledge about them. These findings suggest room for improving patient participation in medication reviews. Yet, none of these medication review studies have explored specific communication behaviours around patient participation using a patient participation theoretical framework. Therefore, this dissertation aims to address this gap in the literature and contribute to our understanding of patient participation in pharmacy care by examining patient and pharmacist experiences and perspectives.

1.2. Research purpose and objectives

This dissertation aims to enhance the understanding of patient participation in medication review encounters with the ultimate goal of contributing to patient-centered care and optimized health outcomes for people with chronic health conditions. The research explores patient participation in the context of community pharmacist-delivered medication reviews. This multi-paper dissertation comprises three studies: a scoping review (Study 1), a qualitative descriptive study (Study 2), and a multimethod study (Study 3). The specific objectives of each study are outlined in Table 1.1.

Table 1.1 Research objectives

Study	Thesis Chapter and Title	Objectives
Study 1	Chapter 2: Medication reviews in community	• To synthesize and map the body of available peer-reviewed literature regarding

Study	Thesis Chapter and Title	Objectives
	pharmacy: A scoping review of policy, practice, and research in Canada	community pharmacy medication reviews in Canada. • To identify the gaps in the existing literature.
Study 2	Chapter 3: A qualitative descriptive study of pharmacists' experiences of patient participation in medication reviews	• To explore pharmacists' perceptions of the factors that influence patient participation in medication reviews. • To describe pharmacist strategies used to engage patients during medication reviews.
Study 3	Chapter 4: A multimethod study of patient participation in medication reviews.	• To characterize active participation behaviours verbally expressed by patients in medication encounters with pharmacists • To identify pharmacists' verbal communication strategies that promote patient active participation in medication encounters. • To explore patients' perceptions and experience of participation in medication reviews with pharmacists.

1.3. Significance of research

While patient participation in health care is not new, describing patient participation within the context of patient-pharmacist encounters is a growing area. The Linguistic Model of Patient Participation in Care (LMOPPC) provides a useful theoretical framework for exploring the barriers, facilitators, and strategies related to patient participation. This dissertation adds to the body of knowledge on patient-pharmacist interaction by contributing empirical evidence regarding patient participation during medication reviews.

Findings from the dissertation may also contribute to the development of strategies that facilitate patient participation in medication reviews. Increasing patient participation

during medication reviews may improve the likelihood of positively impacting patient perceptions, care experiences and health outcomes.

1.4. Background

The purpose of this background section is to locate this dissertation within the context of medication reviews, patient-centered care and patient-pharmacist interactions. I introduce medication reviews as the context of the studies and present background information on medication review policies. This section also provides an overview of the theories and concepts relevant to this dissertation, including models of patient-pharmacist communication, audio-recording as a research method in studying patient-provider communication and the Linguistic Model of Patient Participation in Care (LMOPPC) framework.

1.4.1. Overview of medication reviews

Medications are increasingly used to manage chronic health conditions and improve a patient's well-being. However, many patients take medications that may be inappropriate or cause adverse health outcomes. Many medication problems arise due to the complex medication regimens used to manage chronic conditions and the involvement of multiple prescribers in the patient's care journey. It is estimated that 1 in 10 hospitalizations are associated with medication-related adverse drug events.[12] Furthermore, adverse consequences from using multiple long-term medications have an estimated cost of $419 million per year in Canada[13] and US$42 billion per year worldwide.[14] Thus, medication-related problems significantly burden patients and healthcare systems.

Medication reviews can address drug therapy problems, improve adherence and potentially improve patient health outcomes, particularly for patients with chronic conditions.[15–17] Despite these positive findings, other studies found that medication reviews did not improve patient health outcomes.[18–20] This raises questions about what happens in the patient-pharmacist interactions during medication reviews. Studies need to consider the communication processes and dialogue occurring in the context of medication review.

Although the evidence is mixed, medication reviews continue to be delivered as part of pharmacist practice in various countries, including Australia (MedsCheck, Home Medication Review - HMR and Residential Medication Management Reviews - RMMR), New Zealand (Medicine Use Review), United States (Medication Therapy Management - MTM and Comprehensive Medication Management - CMM), United Kingdom (Medicine Use Review), and many other European countries.[21–25] Medication reviews are delivered across various settings, including hospitals, long-term care, outpatient, clinics, community pharmacies, and patients' homes. Jurisdictions also establish patient eligibility policies and reimbursement models according to their specific contexts, so there are no universal standards.[26]

Medication reviews vary depending on the purpose and extent of the review.[21,27] In some jurisdictions, pharmacists review patients' prescriptions for accuracy and appropriateness or reconcile medications to obtain the best possible medication history, also known as medication reconciliation. Other medication reviews are performed to support patients in better understanding and adhering to their prescribed medications. Beyond medication reconciliation and adherence-focused reviews, pharmacists can perform

comprehensive medication assessments and create care plans using a patient-centered model to optimize drug therapy.[28,29]

1.4.2. Medication review policies in Alberta

Two forms of medication review were introduced in Alberta in 2012: Comprehensive Annual Care Plan (CACP) and Standard Medication Management Assessments (SMMA).[29,30] These are comprehensive medication review services rather than medication reconciliation or adherence-focused reviews. To be eligible for a CACP, patients must have at least two eligible chronic health conditions or one eligible chronic health condition and one or more risk factors. Patients who do not meet the criteria for CACPs but have at least one chronic condition and are taking three or more medications would qualify for an SMMA. Patients who have diabetes and are taking at least one medication or insulin, and/or patients who are actively using tobacco products and looking to access tobacco cessation services are also eligible. Pharmacists may also follow up with patients who receive a care plan up to 12 times a year. Pharmacies are reimbursed $100 for an initial CACP, $60 for an initial SMMAs and $20 for each follow-up.

CACPs are records prepared by a pharmacist that outlines and documents a patient's health goals.[29,30] The pharmacist uses the patient care process to complete a care plan.[31] The process begins with assessing the patient's current drug therapy and medical conditions to determine if there are any drug-related problems. Secondly, the pharmacist develops and implements a care plan, including goals jointly discussed with the patient. The next step is monitoring and follow-up evaluation of therapeutic outcomes for patients. After monitoring, the cycle feeds back into the patient assessment. In applying the patient care

process, pharmacists may collaborate with other healthcare professionals to optimize health and medication outcomes for the patient.[31]

1.4.3. Models of patient-pharmacist communication

Patient-pharmacist communication has been conceptualized according to two models: transmission and transaction.[32] Transmission refers to a linear one-way flow of information from the sender to the receiver. This is observed when the pharmacist focuses on providing the patient with verbal or written medication information.[32] On the other hand, the transaction model refers to a two-way interactive process where participants influence each other's communication behaviour and jointly influence the interaction.[32] Within the transaction model, the agenda and expertise of both the patient and pharmacist are recognized as important influences on communication behaviours in the patient-pharmacist encounter.[32]

The majority of research on patient-pharmacist interactions conceptualized communication as an action predominantly performed by pharmacists.[32] By focusing only on the pharmacists' behaviour during interactions, the patient's influence has been understudied, resulting in less attention to the patient's role during the interaction.[32] The emphasis on pharmacist communication may also reflect the biomedical approach, a one-way process where pharmacists focus on providing medication-related information or advice while patients assume a passive role with limited scope for active participation.[33] A literature review of studies using recorded patient-pharmacist interactions found that most interactions were confined to a biomedical focus rather than a patient-centered focus.[33] The biomedical approach prioritizes the pharmacist's expertise on medications and disease

management issues. In contrast, the patient-centered approach assumes communication is a two-way process in which pharmacists recognize and respond to the patient's needs and concerns, thereby enhancing patient participation and control.[33]

1.4.4. Communication research using recordings of patient-pharmacist interactions

Audio or videotaped recordings of interactions between patients and healthcare professionals are commonly employed in research on patient-provider communication in healthcare encounters.[34,35] Similarly, a growing body of communication research in pharmacy has used audio or video recordings to assess patient-pharmacist communication as it occurs in the natural setting.[33]

Recorded interactions offer some advantages for research purposes.[34,36] Recordings produce rich details of the actual communication between patients and healthcare professionals in the natural setting such that their verbal and nonverbal behaviours (in the case of videotaped recordings) can be studied.[34] The data obtained from the recording can be repeatedly viewed for thorough analysis.[36] DuFon argues that replaying the recording allows the researcher more time to reflect on the data and can reduce hasty interpretation.[36] Furthermore, different aspects of communication can be investigated, facilitating the secondary analysis of recorded data to answer new research questions. [34]

1.4.5. Engaging patients in patient-pharmacist interactions

Patient-centered care is viewed as the way forward for engaging patients in patient-centered services and advancing the pharmacy profession.[37] Yet, the move towards patient-centered roles requires both clinical knowledge and new ways of interacting with patients that give attention to the human aspects of illness and medications.[37,38] Pharmacists have

been described as highly trusted healthcare professionals who provide health and medication-related information and are responsible for supporting patients' medication needs.[39] During patient-pharmacist interactions, patients and pharmacists exchange information, share their expertise and experiences, build a trusting relationship and make health-related decisions.[40,41] Thus, communication between patients and pharmacists is essential in delivering patient care services

Patient-centered communication occurs when pharmacists explore and incorporate patients' needs, perspectives and emotions into the care process. In patient-centered communication, pharmacists use strategies to encourage active patient participation in care discussions, such as asking open-ended questions to invite the patient's perspective, listening, and being empathetic toward the patient.[6] For example, asking "what questions do you have for me?" versus "do you have any questions?" can more effectively invite patients to voice their questions or concerns.[37,42] In essence, facilitating patient participation and control in the care process is integral to patient-centered practice.

Pharmacists set the stage for patient participation by introducing and offering medication reviews to patients. Previous studies have reported numerous challenges when offering medication reviews related to patients, pharmacists and the context of the interaction. Patients' willingness to participate was influenced by their understanding of their health and medication problems, such as whether they perceived the review as relevant or potentially beneficial.[43] Some patients declined the invitation as they felt competent in managing their medications and did not perceive a benefit or the need for the pharmacist's support.[44,45] Even when patients agreed to participate in medication reviews,

many lacked clarity and expectations on the purpose of the review as they described non-health reasons rather than health benefits, such as feeling obliged to participate, showing courtesy, wanting to fill their free time and described helping the pharmacist to fulfill an administrative task.[9,46]

To overcome the challenges in engaging patients in medication reviews, some pharmacists engaged patients they knew, framed the services based on their perception of patients' needs or explained the potential benefits for the patient.[43,47,48] Some pharmacists offered medication reviews at the pharmacy counter when dispensing prescriptions as this was perceived to be an efficient strategy to achieve a higher uptake of the service.[49] However, the extent of patient involvement when pharmacists used this approach was not studied, though brief encounters lasting 2-5 minutes were found in an observational study.[45] A recent survey revealed that many patients did not explicitly recall they had a medication review or understand the reasons for it,[50] probably due to inadequate explanation when offered by the pharmacist.

None of these studies explicitly focused on patients' and pharmacists' perceptions and behaviours related to communication or used a patient participation theoretical framework. There is a lack of clarity surrounding patient engagement practices in medication reviews, which may limit the development of potential strategies for meaningfully engaging patients.

1.4.6. Theoretical framework

This dissertation draws on the expanded Linguistic Model of Patient Participation in Care (LMOPPC) as the conceptual framework for studying patient-pharmacist

communication in medication reviews.[51] The expanded LMOPPC framework was adapted from Street's LMOPPC[52] for the community pharmacy context in a systematic review by Qudah and other researchers. The conceptual framework is a two-way communication model that unpacks the communication processes and factors contributing to patient participation in an interaction. Four types of verbal actions define a patient's involvement in the context of healthcare encounters, including asking questions, expressing concerns and emotions, providing narratives of their healthcare experiences, and being assertive in sharing their preferences and opinions.

The expanded model advances four factors influencing patients' verbal participation when communicating with healthcare providers: patients' predisposing factors, patients' internal enabling factors, external enabling factors, and pharmacist responses.[51] Predisposing factors relate to the patient, including belief in the legitimacy of patient participation, motivation and perception of health needs, personality, loyalty to physicians, and provider–patient rapport. Internal enabling factors describe patient knowledge of the topic and repertoire of communication skills. External enabling factors relate to the influence of the environment in which communication takes place. These include the pharmacy's busyness, presence of a companion, pharmacy layout, availability of a counselling room, wait times, type of prescription dispensed, prescription handoff, pharmacy type and place of residence.

Pharmacist responses account for the relational nature of patient participation and include partnership building and supportive behaviours.[51] Partnership building refers to verbal communicative acts that encourage and invite the patients to discuss their opinions,

express feelings, ask questions, and participate in decisions. Partnership building also occurs when the pharmacist agrees with or affirms the patient's opinion, belief, or request. The supportive talk includes statements of reassurance, encouragement, empathy, and other verbal displays of interpersonal sensitivity. These behaviours facilitate patient participation because they verbally encourage the patient to express their views, concerns and needs.

1.5. Research design and methodology

In this multi-paper dissertation, three studies and methodologies were used to address the research objectives: a scoping review (study one), a qualitative descriptive approach (study two), and a qualitative multimethod study (study three). Study one used a scoping review methodology to synthesize and map the body of available peer-reviewed literature regarding community pharmacy medication reviews in Canada and identify existing literature gaps. Study two applied a qualitative descriptive methodology and the expanded LMOPPC framework to explore pharmacists' experiences and perceptions of patient participation in medication reviews. Study three used a qualitative descriptive multimethod and the Active Patient Participation Coding system (APPC) to characterize patients' active participation behaviours and pharmacists' verbal communication strategies that promote active patient participation in medication review encounters. An overview of each research design is provided, along with relevant assumptions and rationale.

1.5.1. Study 1 Research design: scoping review

The objectives of the scoping review were to synthesize and map the body of available peer-reviewed literature regarding community pharmacy medication reviews in

Canada, and to identify knowledge gaps.[53] A scoping review was the appropriate evidence synthesis approach to address the research objective because it comprehensively synthesizes existing research on a specific topic.[54] It allowed the researcher to identify the breadth of available empirical evidence in Canada and highlight research gaps that could inform future research priorities. The scoping review followed the methodological framework developed by Arksey and O'Malley as follows: (1) identifying the research question, (2) identifying relevant studies, (3) selecting the study (4) charting the data, and (5) summarizing and reporting the results. This study is described in detail in Chapter 2, Medication Reviews in Community Pharmacy: A Scoping Review of Policy, Practice and Research in Canada.

1.5.2. Study 2 Research design: qualitative descriptive study

The objectives of the qualitative descriptive study were to explore pharmacists' perceptions of the factors that influence patient participation in medication reviews and describe strategies to engage patients. A qualitative descriptive design was suitable as the study aimed to understand and describe pharmacists' experiences regarding patient participation while staying close to their accounts.[55,56] The limited research on this topic benefits from the exploratory design of qualitative description. The study results focus on a rich and detailed description of who, what, where, and why of the participants' experiences in easily understood language that makes sense to the reader. From a philosophical viewpoint, qualitative description is aligned with pragmatic assumptions, allowing researchers to select the most suitable methods to answer the research question.[57] One of the advantages of qualitative description is that it provides rich and practical insights into

patient or provider experiences, which could inform health professionals' practice and/or improve patient care.[58]

Semi-structured interviews were used to gain deeper insights into pharmacists' experiences and perceptions of patient participation in medication reviews. The open-ended question format creates a conversational environment where participants could share their thoughts, and the researcher could ask follow-up or probing questions to gain more specific information and detailed explanations of responses from participants. This study is described in detail in Chapter 3, A qualitative descriptive study of pharmacists' experiences of patient participation in medication reviews.

1.5.3. Study 3 Research design: multimethod study

The primary objectives of the qualitative descriptive multimethod study were to characterize patient active participation behaviours and identify pharmacist communication strategies expressed during medication review encounters. The secondary objective was to explore patients' perspectives and experiences regarding their participation in a medication review. Qualitative descriptive design was again selected as the method allowing the researcher to draw on multiple sources of data, including audiorecordings of medication review conversation, pharmacy observations and interviews with patients. The rationale and assumptions for a qualitative descriptive design as the same as study 2 above.

1.6. Researcher's positionality

I am a trained pharmacist, which makes me feel like an insider. However, I am internationally educated, have not worked in a pharmacy in Canada, and am currently a

doctoral student trained in pharmacy practice research, so I could also be considered an outsider. During my practice experience as a pharmacist, I worked with patients in the community setting who were taking chronic medications and experienced challenges in managing their medications. These practice experiences fueled my scholarly interest in how pharmacists care for patients and address their medication problems. Over the last two decades, publicly funded medication review services have been formally introduced in many countries, including Canada, to remunerate pharmacists to support patients and address medication-related problems. While these policies do not solve all the barriers community pharmacists encounter in their work, I believe they address the lack of incentives for patient care services to an extent (which has been a long-standing barrier) and increase pharmacists' opportunity to support patients' medication use and develop a therapeutic relationship with the patient in their health care journey.

My curiosity regarding patient-pharmacist communication in medication reviews grew after conducting a scoping review of the Canadian literature on medication reviews. I realized that the current research provided extensive information on implementation barriers, health outcomes, and stakeholders' perceptions about engaging in medication reviews, yet less attention has been given to patient-pharmacist communication in this context. Likewise, strategies that pharmacists use to engage patients during medication reviews have not been explored in-depth in the literature. Another factor that motivated my interest in the topic is my informal discussions with pharmacists regarding medication reviews. They described setting up these reviews as a challenge in their pharmacies. Pharmacists perceived that while some medication reviews seemed beneficial for patients,

others did not deliver much value as pharmacists did not identify any medication-related problems. They also described difficulty in convincing patients to see value in medication reviews. After seeing the consistency between the literature and practice experiences, I became determined to study this area more deeply.

I had assumed that the lack of patient awareness of medication reviews was a major barrier to the uptake of medication reviews. So, I thought the uptake would likely increase if patients became more aware of the availability of medication reviews at a pharmacy at no out-of-pocket cost to them and requested medication reviews from pharmacists. However, I began to understand that other factors could impact how patients participate in discussions about medications. I view communication as a fundamental part of the medication review process. Communication underpins patient-pharmacist interactions. Many patients are familiar with the dispensing role of pharmacists but have not experienced a sit-down, one-on-one conversation with a pharmacist in a counselling room when they come to the pharmacy. So, patients may not be expecting anything other than to pick up medications. I believe pharmacists have a responsibility to create an environment that fosters patient participation by introducing and offering medication reviews in a way that patients can understand and value. I also believe that patients have different ways of participating in the conversation that need to be explored. I assume that pharmacists and patients with an existing relationship would influence the nature of patient participation that occurs. How pharmacists and patients communicate could contribute to patients' positive perception of the role of pharmacists as health care providers.

Ultimately, my pharmacy background and desire to describe what I perceive as a practice issue have led me to the research topic. The purpose of this dissertation is to understand how patients and pharmacists communicate during medication reviews, with a focus on patient participation. I am motivated to contribute to practice knowledge on how pharmacists leverage reimbursed medication reviews to provide care for patients taking chronic medications. However, I am not invested in a specific research result.

1.7. Summary

Patient participation in medication reviews cannot be attributed to a single factor since many elements related to patients, pharmacists, and context could influence patient participation. Thus, gaining insight into the factors that affect patient participation from patient and pharmacist perspectives is important. Two empirical studies in this dissertation aimed to answer the question, “What are pharmacists' and patients' experiences and perceptions regarding patient participation in medication reviews?” I explored patient and pharmacist perspectives on patient participation in medication reviews. Using the APPC, I characterized patients’ active participation and pharmacists' communication behaviours.

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Chapter 2. Medication Reviews in Community Pharmacy: A Scoping Review of Policy, Practice and Research in Canada

A version of this chapter has been published. Olufemi-Yusuf DT, Kung JY, Guirguis LM. Medication Reviews in Community Pharmacy: A Scoping Review of Policy, Practice and Research in Canada. *J Pharm Health Serv Res*. 2021;12(4):633-650.

2.1. Abstract

Objectives: The aim of this scoping review to systematically map the empirical evidence on publicly funded medication reviews in Canada and identify gaps that could inform future research directions.

Methods: We used a scoping review framework and PRISMA guidelines for Scoping Reviews to conduct the study. Three electronic databases were searched for papers published between January 2000 until August 2020. Data was charted on study characteristics and a thematic synthesis was performed.

Key findings: Of 41 original studies included, most were conducted in Ontario (n=21). Majority of the studies employed quantitative designs (70%). Five major themes identified were program uptake, patient health outcomes, stakeholder beliefs and attitudes, processes and collaboration, and pharmacy workplace culture, which varied considerably. Numerous interrelated factors at the individual, organizational, community and policy level influenced program uptake and delivery. Using technology to identify eligible patients and reorganizing staff schedules encouraged uptake by pharmacists while multiple workplace barriers challenged the implementation of medication reviews in pharmacist practice. Insufficient collaboration with patients and health care professionals contributed to negative perceptions about value of the service and problems in recruiting patients. Substantial gaps

in eligibility policy excluded some patients who may have complex needs. Differences in clinical outcomes may relate to different types of medication review and pharmacist practice across Canada. Few researchers evaluated eligibility criteria, strategies to engage patients and healthcare professionals, communication between patient and pharmacists or compared practice models of medication reviews. About twelve percent of the research applied a theoretical framework.

Conclusions: Publicly funded medication reviews in Canadian community pharmacies reduce medication-related problems and potentially improve patient health outcomes. The findings can inform other jurisdictions with similar contexts. Future research and policies could consider addressing barriers and exploring models for sustainable delivery of high-quality medication reviews internationally.

2.2. Introduction

Poor medication management has been directly linked to negative health outcomes such as preventable adverse drug events, emergency visits, and hospital admissions.[1] These medication-related problems are not only burdensome to patients and families but are costly to health systems. As such, tackling poor medication management through community-based medication reviews is of policy interest for health systems globally.[2] Medication review services have become an important component of pharmacists patient care services to address drug therapy problems, optimize medication use, and potentially improve patient health outcomes, particularly for patients with complex care needs.[3,4] Many countries have developed models of pharmacists-provided medication reviews, including Australia, New Zealand, United States, United Kingdom, and other European countries.[5–9] Typically, medication review services are funded by government programs and delivered across a range of settings including hospitals, long-term care, outpatient clinics, community pharmacies, and patients' homes.[10] Different types of medication reviews exist depending on the comprehensiveness involved.[11] These include prescription review, medication reconciliation, and adherence review, and comprehensive clinical medication assessments. Within a patient-centered model, medication reviews provide the opportunity for pharmacists to actively engage patients to understand their perspectives and concerns regarding medications, prevent or resolve problems with medications, agree on goals of medication therapy, and develop and implement an appropriate care plan to monitor conditions and medications.[12] Internationally, medication reviews have become one of the commonly remunerated patient-focused services provided by community pharmacists

though there are wide variations in patient eligibility criteria, type of medication review, reimbursement models, and activities performed.[13,14]

2.2.1. Canadian Context for Medication reviews

Canada has a publicly funded health care system that comprises ten provincial and three territorial health systems based on national principles of medically necessary health care.[15] In Canada, seniors are the highest users of medications compared to any other age group.[16] About 65.7% of seniors aged 65 and over were prescribed five or more different drug classes and more than one-quarter had 10 or more prescribed medications to manage multiple chronic conditions.[16] With the increased risk of adverse consequences from using multiple long-term medications costing an estimated $419 million per year,[16] regular medication reviews by pharmacists represent a key area for Canadian health systems to ensure safe and appropriate medication use.[16,17]

Similar to other countries, community pharmacists in Canada provide medication reviews for eligible patients through publicly funded (provincial) health programs. Ontario was the first province to roll out formal community pharmacist medication review "MedsCheck" in 2007. Currently, eight out of ten provinces, except for Quebec and Manitoba, fund medication review programs for patients meeting prespecified criteria. Pharmacists are not mandated to undergo additional training or certification to provide the service.[14] Since pharmacists are regulated on the provincial or territorial level, the scope of practice shapes the delivery of medication reviews in each Canadian jurisdiction.[14]

Eligibility policies, reimbursement, and type of medication review also differ across provinces. Table 2.1 broadly outlines the characteristics of medication review programs

offered in eight provinces - British Columbia, Alberta, Saskatchewan, Ontario, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador.

Table 2.1 Community pharmacist medication reviews in Canada

Characteristics		Provinces									
		BC	**AB**	**SK**	**MB**	**ON**	**QC**	**NS**	**NB**	**PEI**	**NL**
Publicly funded Medication reviews	Annual Medication reviews	Yes	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes
	Follow-ups per year	4	12	2	N/A	1	N/A	2	No	4	No
Year introduced		2011	2012	2013	N/A	2007	N/A	2008	2012	2013	2012
Type of medication review	Basic	Yes	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes
	Diabetes-specific	No	Yes	No	N/A	Yes	N/A	No	No	Yes	Yes
	Enhanced/ Comprehensive	Yes	Yes	No	N/A	Yes	N/A	Yes	No	No	No
Criteria for eligibility	Age	No	No	Yes	N/A	No	N/A	Yes	Yes	No	Yes
	Income	No	No	No	N/A	No	N/A	No	Yes	No	No
	Specific chronic condition	No	Yes	No	N/A	No	N/A	No	No	No	Yes
	Chronic medications	No	No	Yes	N/A	Yes	N/A	Yes	No	Yes	No
	Specific medications	Yes	No	Yes	N/A	No	N/A	No	No	No	No

AB, Alberta; BC, British Columbia; MB, Manitoba; NB, New Brunswick; NL, Newfoundland and Labrador; NS, Nova Scotia; ON, Ontario; PEI, Prince Edward Island; QC, Quebec; SK, Saskatchewan.

NB: Terminology for medication review programs varies by jurisdiction. Examples are PharmaCheck (Newfoundland), MedsCheck (Ontario), Standard Medication Assessment Program - SMAP (Saskatchewan), and the Comprehensive annual care plan (CACP) and Standard Medication Management Assessment (SMMA) programs in Alberta.

Basic medication reviews are available in all eight provinces that entail reconciling a medication list and assessing patient adherence to medications. Some provinces

remunerate pharmacists to comprehensively assess drug therapy on an annual basis and follow up while other programs remunerate targeted reviews for specific conditions (e.g. diabetes). A more comprehensive approach is available in Alberta, where pharmacists assess patients and develop care plans. Medication reviews are reimbursed to varying extents by provincial governments. Comprehensive care plans, enhanced medication reviews and home reviews for homebound patients are reimbursed at higher rates ($100-150) than basic programs ($50-60) and follow-up assessments ($15-50).[18,19] In response to the COVID-19 pandemic, policy changes were made to encourage the uptake of virtual pharmacy services in Canada. These changes temporarily removed the requirement to have in-person consultations and written patient consent in order to bill for medication reviews in some provinces. As a result, pharmacists in Alberta, Saskatchewan, and Ontario can bill for government-funded medication reviews conducted virtually.

Since 2007, when publicly funded medication reviews began in Canada, the literature on implementation and evaluation of these programs has grown considerably. However, this body of research has not been synthesized. A summary of evidence could provide an understanding of the uptake and benefits of publicly funded medication reviews within the diverse pharmacist scope of practice and remuneration models existing in Canada.[13] Therefore, the current study was undertaken to systematically gather, review, and synthesize research on publicly funded medication reviews provided by community pharmacists in Canada and identify gaps in the literature that can inform future research directions. Specific objectives of this review were to:

1) map the literature according to study designs and research areas,

2) synthesize the study findings based on research areas, and

3) determine gaps in the existing literature

2.3. Methods

Our research question of synthesizing the diverse Canadian literature on community pharmacist medication reviews lends itself to a scoping review approach over a systematic review based on the purpose of the study.[20] Scoping reviews are intended for summarising the breadth and depth of evidence on a broad research topic by systematically mapping the key concepts, sources of evidence, and identifying knowledge gaps.[20–22] In contrast, systematic reviews often address a specific question on the appropriateness or effectiveness of a defined practice or treatment.[20]

This scoping review was conducted according to the framework proposed by Levac and colleagues [22] which extended the original framework developed by Arksey and O'Malley.[21] The enhanced framework provides more clarity and specific details on the six stages of the review process. We used the first five stages as the sixth stage (stakeholders consultation) did not have articulated benefits for our study. We followed the PRISMA-ScR guidelines (i.e. Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) to follow best and transparent reporting practices.[23,24] The completed PRISMA-ScR checklist can be found in Appendix A.

2.3.1. Stage 1: Identifying the research question

The research question guiding the review was: What are the research methods and key findings described in the peer-reviewed literature on publicly funded community pharmacist medication reviews in Canada?

2.3.2. Stage 2: Identifying relevant studies

The medical librarian conducted searches in three electronic databases Ovid MEDLINE, Ovid Embase, and CINAHL for literature published between January 2000 to August 2020. Date limit was set to the 2000s since Ontario's MedsCheck program was launched in 2007. No language limits were applied. Our goal was to identify peer-reviewed studies, thus we excluded grey literature. The final search results were exported into Refworks, a reference manager, and duplicates were removed. The unique records were exported to Covidence software, a web tool designed to track and manage the steps within the review process. [25] The full search strategy for databases is presented in Appendix B.

2.3.3. Stage 3: Study selection

Two reviewers (D.O and L.G) met to discuss inclusion and exclusion criteria and continued to refine the criteria through an iterative process as they gained familiarity with the literature. Inclusion and exclusion criteria were defined by country, setting, provider, study focus, design, and type of publication (Table 2.2). Studies were independently screened in two stages. In the initial stage, both researchers independently screened titles and abstracts for potentially relevant papers. Discrepancies were resolved through discussion. In the second stage, we obtained and assessed the full-text of relevant papers for eligibility using the specified criteria. We resolved disagreements on full-text papers by discussion.

Table 2.2 Inclusion and exclusion criteria

Criteria	Inclusion criteria (study meets all criteria)	Exclusion criteria (study meets any criteria)
Country	Canada	Outside Canada
Setting	Community pharmacy	Ambulatory, outpatient clinics, hospital, long-term care unless an element of community pharmacy was studied and reported
Provider	Pharmacists, pharmacy technician, students, assistants, interns	Multidisciplinary teams
Program type	Publicly funded medication reviews	Program does not qualify for public funding
Study focus	Addressed medication review services alone or a distinct element of medication reviews within the range of pharmacist services	Only addressed pharmacy services broadly; Specific medication review services were not distinct from other pharmacy services
Study design	All research designs with empirical data	No empirical data, review articles, method/concept papers, commentary, editorials
Publication	Full-text peer-reviewed journal articles	Non-peer reviewed articles, grey literature, reports, abstracts

2.3.4. Stage 4: Charting the data

Data charting spreadsheets were developed by one researcher (D.O) to extract data from included full-text studies consistent with the research objectives. Data were extracted on the following study characteristics: first author, year of publication, province, participants studied, research design, method of data collection, data analysis techniques, and main findings.

2.3.5. Stage 5: Collating, summarizing, and reporting the results

Research objectives, methods, and findings for each study were analyzed to identify the particular focus or topic of research. Similar topics were synthesized together. After analyzing the results, gaps in the literature were identified.

2.4. Results

We identified 1149 articles through searching electronic databases, and additional three papers through hand searches. To avoid double-counting, we excluded three records (erratum and corrigendum) from the number of included papers as they corrected data in previously published papers and were not new studies. In total, 41 articles were included in the review. Figure 2.1 shows the details of the number of papers identified throughout the review. Data on the study characteristics are reported in detail in Appendix C.

2.4.1. Province

Majority of research on community pharmacist medication reviews was conducted in the Canadian province of Ontario (n=21).[26–46] Major funders were the Ontario government and Ontario Pharmacy Evidence Network (OPEN). Eight studies were from Alberta,[47–54] and the remaining studies were from British Columbia (n=5),[55–59] Saskatchewan (n=3),[60–62] and Nova Scotia (n=1).[63] Two pan-Canadian studies[64,65] were included and one collaborative study between Alberta and Ontario. [66] No studies were found in the other three provinces providing publicly funded medication review programs, namely New Brunswick, Prince Edward Island, and Newfoundland and Labrador.

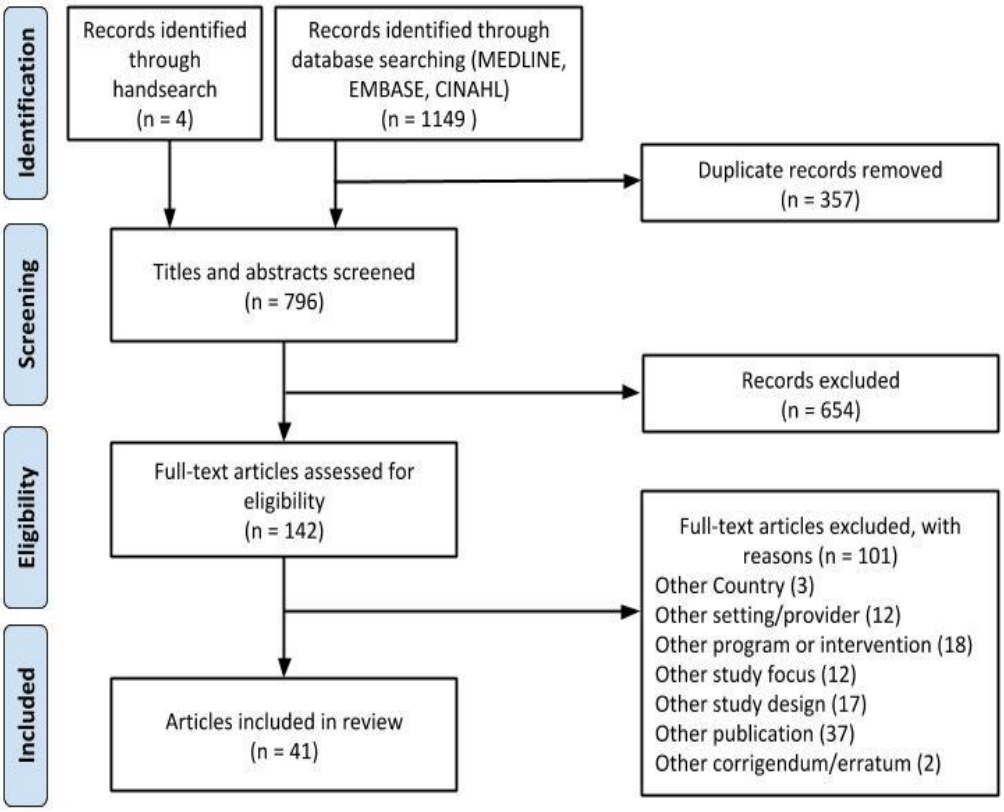

Figure 2.1 PRISMA flow diagram

2.4.2. Research design

Based on the data sources (types of evidence) and analytical approach, three major types of study designs were identified. These include: 1) 29 quantitative studies based on population-based claims data, surveys, controlled trials or quasi-experimental designs[27,30–37,39,40,42,43,45–49,52,54,56–59,61–63,65,66] 2) Ten qualitative studies using data from interviews, focus groups, observation, document analysis, or written reflections[28,29,38,41,44,51,53,55,60,64] 3) Two mixed-method studies adopting both quantitative and qualitative designs.[26,50]

The selection of methodological design was closely related to the research objectives. The type of research questions addressed by quantitative methods focused on

measuring program uptake, stakeholder perceptions, and outcomes of medication reviews. Cohort studies and other population-based studies assessed program utilization rates and the impact of policies on program uptake. Controlled trials, cohort, and quasi-experimental designs were used to evaluate the impact of medication reviews on patient outcomes. Surveys were mainly used to gather experiences and perceptions of stakeholders on their attitudes towards medication reviews, perceived value, benefits, and factors associated with uptake.

On the other hand, the qualitative approaches used include qualitative description, grounded theory, ethnography, and case study. Qualitative methods relied heavily on interviews and focus groups as data collection techniques with less adoption of direct observation methods and document analysis. Interviews and focus groups were used to gather stakeholder experiences in addition to implementation factors and strategies for delivering medication review services across multiple levels - patient, pharmacist, pharmacy, and broader contexts of community and health systems. Stakeholders included patients, physicians, pharmacy technicians or assistants, pharmacy students, pharmacists (community, hospital, specialist), pharmacy managers, and corporate executives. One study was based on written reflections of pharmacy student experiences providing medication reviews. The other two qualitative techniques (observations and document analysis) investigated pharmacy workflow to learn how medication reviews were operationalized in everyday practice. One policy brief analyzed documents to review patient eligibility policies across Canada.

In terms of explicit use of theory, models, or theoretical frameworks, only five studies reported using any of these tools to guide decisions at different stages of the research process.[37,38,43,50,53] Three of the frameworks were implementation frameworks.[37,38,50] Three studies consistently applied a theoretical framework or theory throughout the research,[37,50,53] including a survey using Theoretical Domain Framework v2, [37] a qualitative case study using Sociomaterial and Document theories, [53] and a mixed-method study based on the Promoting Action on Research Implementation in Health Services (PARiHS) framework. [50] The S.W.O.T. analysis (Strength, Weakness, Opportunities, and Threat - SWOT) model informed aspects of planning a new delivery model for medication reviews[43] while the Consolidated Framework for Implementation Research (CFIR) was applied to analyse and contextualize findings from qualitative interviews.[38]

2.4.3. Research Area

The main findings from each study were analysed and synthesized into research areas based on key data presented (Table 3). Some included papers contained unique data and fit into distinct categories while findings from many of the studies were diverse and were placed across multiple research categories. Specifically, five research categories were identified including:

1. program uptake,
2. health outcomes,
3. stakeholder beliefs and attitudes,
4. processes and collaboration, and

5. pharmacy workplace culture.

2.4.3.1. Uptake of medication review programs

Sixteen studies reported on the uptake of medication reviews, focusing on one or more aspects of the program: 1) extent of utilization in eligible patients[27,33,36,42,52,62–64] 2) categories of patients missed by policy criteria [40,60,61,65] 3) factors that influenced uptake of medication reviews within the policy or regulatory context. [27,30,38,45,49]

Patient eligibility requirements varied widely across provinces but commonly focused on known risk factors associated with drug therapy problems (DTPs) such as chronic conditions, medications, and age 65 years and over.[64] Many high risk patients qualified to receive publicly funded medication reviews, but a small proportion of eligible patients actually received them within the first year of the program. Low uptake was reported as 1% in Nova Scotia, [63] 7.5% in Saskatchewan [62] and 11% in Ontario. [27] As more programs were rolled out in Ontario such as MedsCheck Diabetes, uptake increased rapidly to almost 50% for diabetes patients, [36] but repeat annual and follow up assessments were underutilized. [27,36] The majority of patients who received medication reviews had hypertension [27,52] or were seniors taking multiple medications. [33] However, longitudinal analysis showed recipients tended to be younger and less complex patients over time. [27] Older patients and seniors with more comorbidities,[42,52] taking multiple and potentially inappropriate medications, visiting a high prescription volume pharmacy or living in rural areas were less likely to receive medication reviews.[42]

Further analysis of eligibility policies showed that although criteria generally identified patients with more severe DTPs who may benefit more from a medication

review, [65] they could also miss some categories of patients who may benefit. [40,60,61,65] These excluded groups include complex patients under 65 years [60,61] homebound patients or individuals insured under federal programs (e.g. First Nations, Inuit),[60,61] patients with moderate risk but serious drug therapy problems,[64] and ambulatory patients who do not qualify for home medication reviews but have drug therapy problems arising from poor medication practices at home. [40]

Pharmacy location and policy changes had a significant impact on the uptake of pharmacist medication reviews. Most pharmacies (95%) provided medication reviews, [27] though the majority of them were located in urban areas.[63] Studies showed the number of medication reviews increased with reduced revenue from dispensing generic drugs, [27,38] introduction of financial compensation or billing policies,[49] and additional start-up payments were made to pharmacies. [27] By contrast, service uptake in Ontario dropped after increasing MedsCheck documentation requirements[45] and dispensing-focused pharmacies hiring three or more regulated pharmacy technicians were less likely to provide medication reviews.[30]

2.4.3.2. Health Outcomes

The ECHO (Economic, Clinical, and Humanistic Outcomes) model serves as a useful framework to characterise the impact of medication reviews on health outcomes along multiple dimensions.[67]The outcomes and impact of medication reviews have been studied in three provinces - British Columbia, Alberta, and Ontario. In Alberta, community pharmacists provided comprehensive care plans combined with initial access prescribing

while pharmacists in the other two provinces provided medication reconciliation and adherence-focused reviews.

Economic outcomes

Three studies analysed the impact of medication reviews on economic outcomes measured in terms of pharmacy revenue in Ontario, [32,43] and medication costs in British Columbia. [56] There was an increase in pharmacy revenue of an average of $12,270 [32] and $35,755 [43] but no decrease in medication costs. [56] In these programs, pharmacists provided an adherence type of review.

Clinical outcomes

Ten studies measured patient outcomes from the clinical perspective in Alberta, [47,48,52,54] Ontario, [31,34,39,40,43] and British Columbia. [56] Measures that signify the control of disease conditions, risk factors, hospitalizations, physician visits, emergency department visits, death were considered as core clinical outcomes. Drug-related problems, potentially inappropriate medications, and medication persistence were assessed as medication-related process variables.

Six studies reported on clinical parameters, of which four studies utilized randomised controlled designs,[31,47,48,54] one quasi-experimental design, [52] and one cohort study. [34] In three RxEACH trials in Alberta,[47,48,54] community pharmacists provided comprehensive care plans combined with patient assessment and prescribing in 56 Alberta pharmacies. These patients had reduced cardiovascular risk, improved control of blood pressure, low-density lipoprotein cholesterol, tobacco cessation, and exercise frequency compared with usual care. Unlike the Alberta study, the trial in Ontario did not show a

significant impact on cardiovascular outcomes. [31] Analysis of population-based administrative databases revealed mixed effects of medication reviews on health care services utilization in two provinces - Ontario[34] and Alberta.[52] Medication reviews slightly reduced emergency department (ED) visits and all-cause hospitalizations, ED visits related to ambulatory care sensitive conditions, and physician visits [52] and also slightly reduced short-term hospital readmission and death. [34] On the other hand, medication reviews increased physician visits, [34] hospitalizations related to ambulatory care sensitive conditions, and all-cause ED visits. [52]

Four studies reported on medication-related processes with mixed results. Drug-related problems were identified during medication reviews including nonadherence, adverse drug reactions and additional therapy, and were resolved by the pharmacist alone or with the patients' physician.[39,40,43] Patients receiving medication reviews at home had expired, duplicate and unnecessary medication removed from their homes.[39,40] There was no evidence that medication reviews were associated with persistence to common classes of medications or deprescribing of unnecessary or potentially inappropriate medications in British Columbia.[56]

Humanistic outcomes

Humanistic outcomes evaluated in seven studies included measures related to medication knowledge, patient satisfaction, and patient experiences of care. [28,41,43,51,53,55,58] Perceptions of patients regarding medication reviews were influenced to varying degrees by the type of medication review as well as interpersonal and contextual factors such as access, wait times, duration of consultation, location, privacy of setting, and information

sharing practices. Patients receiving comprehensive care plans in Alberta valued shorter wait times and convenient access compared with physician visits.[53] Patients perceived they had better understanding of their conditions, medications, felt comfortable asking questions, discussing their health goals, action plans, and self-management practices to improve their health.[51,53] They also perceived their care was better coordinated through pharmacist-physician collaboration.[53] The frequent and continuous nature of interactions was an important factor in enhancing familiarity and building patient-pharmacist relationships.[53] Patients gained more awareness of pharmacists' role in monitoring medications and supporting them to get more benefits from their medications, beyond dispensing activities.[51,53] Though patients were not asked to choose their preferred location during pharmacy visits, longer medication reviews that occurred in a private consultation room had a positive impression on patients,[41,53] who were usually uncomfortable discussing health concerns at the pharmacy counter or non-private areas.[41] However, some patients in British Columbia preferred short visits.[58] Many patients receiving adherence focused reviews in British Columbia and Ontario were satisfied with the quality of pharmacists' advice and interaction time, clarity of information on medication use, and felt less confused about their medications.[43,55] Despite positive findings, medication reviews did not improve patient experiences across the types of medication reviews. Barriers included inappropriate patient selection, lack of preparation, and insufficient time for patient-pharmacist interaction. [28] Some patients did not receive an updated medication list,[41] and other patients did not develop an understanding of their medications, [28] treatment goals, and action plans.[53]

2.4.3.3. Stakeholder Beliefs and attitudes about engaging in medication reviews

Twelve studies provided diverse perspectives from pharmacists, physicians, and patients about their beliefs and attitudes towards medication reviews.[26,29,37,41,44,51,53,55,58–61] Pharmacists held different views about engaging in medication reviews. Pharmacists and pharmacy students perceived medication review services as part of their role and responsibility in patient care [26,29,37,41,51,59,60] though they understood this role in different ways. Some pharmacists defined the goal of medication reviews as creating up-to-date patient medication list [26,29,41] while others described higher expectations of optimising patient's therapy and outcomes [26,29,37,41,51,59,60] that required pharmacists to adopt a new understanding of their role in patient care. [51] There were pharmacists who reported meaningful partnerships with patients and increased professional satisfaction as motivating factors to engage in medication reviews.[26,51,53,55,61] Despite perceived benefits and individual readiness (knowledge, beliefs, and confidence) to provide medication reviews and follow up,[37,61] some pharmacists reported multiple personal barriers including limited understanding of patient-centered care concepts such as shared decision-making,[44] lack of confidence in managing complex patients, [60,61] and interpersonal factors such as critical attitudes of physicians.[55,60]

Other stakeholders had mixed perceptions. In British Columbia, the majority of the public [58] and physicians [59] ranked medication reviews as the most important component of medication management services to improve patients' health when compared to other pharmacist services such as prescribing, non-prescription product counselling, or administering injections. Despite positive views, many patients and health care providers

were perceived to have a low level of understanding about the value of medication reviews.[26,29,41,55,61] Renal pharmacists and nephrologists perceived the program may be duplicating services they already provide but supported its continuity.[60] These specialists also doubted community pharmacists clinical knowledge and skills to manage complex needs of renal patients.[60] Many physicians in British Columbia reported feeling dissatisfied with higher reimbursement for pharmacist medication reviews than physician visits and lack of compensation for reviewing recommendations.[55] Furthermore, some physicians perceived they were the ideal healthcare professional to provide medication reviews[59] based on clinical knowledge and skills.[55] In British Columbia, Alberta, and Ontario, patients and physicians showed more interest in engaging in medication reviews in certain situations such as where they had strong relationships with pharmacists,[29,41,53,55,59] or physicians were responsible for referring patients,[55,59] or the invitation to participate was framed in terms of perceived patient needs.[29]

2.4.3.4. Processes and collaboration

We found 13 studies [28,29,35,38,41,43,46,50,51,54,60,61,66] that examined the processes involved, perceptions of stakeholders about the process, and influence of medication reviews on collaboration. The components of medication reviews included the following processes: identify and recruit patients, prepare for patient consultation (for scheduled appointments), conduct patient interview and assessments (including physical assessment and laboratory data in comprehensive reviews or care plans), resolve drug therapy problems (or refer to patient's physician to make recommended changes to medications), document medication list or care plans, follow-up, and monitoring of therapy goals.[43,51]

Medication review processes varied among pharmacies. Typically, pharmacy staff recruited patients[38,50,51] while referrals from other care providers occurred in specific feasibility trials.[35,46] Pharmacies predominantly used an ad-hoc approach to identify, recruit and conduct immediate medication reviews for eligible patients who visit the pharmacy for prescriptions,[38,51,66] while only a few pharmacies used a proactive strategy to target high-risk patients likely to benefit most from the service based on clinical needs.[29,38,54] Walk-in reviews were used for logistic reasons - convenience, reduced rates of "no shows" and avoiding unplanned patient visits to pharmacy, ultimately allowing higher uptake.[38,50] On the other hand, pharmacy staff scheduled appointments during overlap pharmacist coverage because it caused fewer workflow disruptions and allowed pharmacists sufficient time to prepare for and better engage patients in medication reviews.[50,51] One study in Ontario found patients appreciated the convenient timing and ease of booking appointments.[46]

Good patient-pharmacist relationships were associated with higher recruitment success and service uptake.[29,41] To facilitate the medication review process, patient laboratory results and prescription information were frequently accessed from provincial electronic health records, in provinces where available [51,54,61] whereas lack of access was a barrier to service delivery in other provinces.[37] An average of 30 minutes was needed to interview the patient [50] and an additional 15-60 minutes[50] to up to four hours [51] for documentation under the care plan model in Alberta. In Ontario, complex cases[29] and reviews done in the patient's home[40] took longer than the estimated 30 minutes to complete. Longer reviews and regular follow-up assessments were perceived as more comprehensive and beneficial to patients [29,41] than brief interactions (2-5 minutes) at the

pharmacy counter.[41] Most medication reviews were performed by pharmacists[41,51] or supervised pharmacy students.[29] In some practices, pharmacy technicians or assistants delivered aspects of the program such as identifying and recruiting eligible patients, booking appointments and billing information.[38,43,51]

Pharmacist medication reviews influenced collaboration and relationships with patients and other healthcare providers such as physicians, and hospital or ambulatory care pharmacists. Collaboration was increased through timely sharing of information and documents (e.g. medication lists, patient care plans from medication reviews) with patients and other health care providers.[35,41,43,46,53] On the other hand, lack of timely communication, lack of access, and poor quality of medication review documents hindered collaboration and also contributed to negative perceptions of other providers regarding medication reviews performed by community pharmacists.[28,53,60,61]

2.4.3.5. Pharmacy workplace culture

The community pharmacy environment has featured prominently in the Canadian research on medication reviews as evident in 12 studies.[27,30,37,38,43,45,50(p20),51,53,55,57,61] Two areas were studied: workplace factors that affected delivery of medication reviews and strategies to address workplace barriers.

Workplace barriers were reported as the primary challenge to implementing medication reviews in community pharmacy practice across Canadian jurisdictions. Pharmacists cited barriers related to heavy workload, insufficient staffing, inadequate time to complete job tasks, and difficulty in integrating medication reviews into workflow.[26,37,50,55,61] Services such as dispensing, influenza vaccinations, and patient self-

care requests often took priority over medication reviews in busy pharmacies.[50,61] Workload was further increased by lengthy documentation [45,50,51] and follow up requirements [37] stipulated in reimbursement policies. Contrary to the dominant view of workload barriers, there were positive perceptions about the value of spending time with patients among high performing pharmacists in Alberta.[53]

Pharmacy type, ownership and reimbursement models were important workplace factors affecting uptake by pharmacists. Dispensing-focused pharmacies had a lower uptake of medication reviews than pharmacies with lower prescription volumes and fewer technicians.[30] Compared to independent pharmacies, chain pharmacists in Saskatchewan, British Columbia and Ontario commonly used service quotas or targets to increase the number of medication reviews.[38,57,61] Pharmacists' reactions to quotas varied. While some pharmacy managers and pharmacists favoured the use of targets and financial incentives, respectively, as motivational strategies to increase service uptake, others expressed concerns about the potential impact on patient safety and quality of care.[38,57] Insufficient reimbursement for individual pharmacists was a major barrier to delivering medication reviews as reimbursement was provided to pharmacies, not pharmacists.[37]

A range of strategies that may facilitate a supportive work environment and contribute to pharmacist increasing the uptake of medication reviews were identified, including: human resource strategies - staffing and expanding pharmacist and technician roles[26,38,51,53] designating pharmacists to provide medication reviews [43,53] staff training, formal professional development, and learning from experience[38,51] adapting software to support recruitment and documentation process,[38,43,51] financial incentives or other staff

rewards[38,43,51] and timely access to patient health records where practice regulations allow.[38,51,61]

2.5. Discussion

2.5.1. Discussion and Implications for policy, practice and research

This scoping review characterised the Canadian literature on pharmacist medication reviews published over the last 13 years. The uptake of annual medication reviews was variable, follow up was low, perceptions of stakeholders varied and the impact on patient outcomes was mixed. Multiple sources of evidence and study designs (quantitative, qualitative and mixed methods) corroborated most of the key findings. However, the review identified variation in results within the same province which may have been due to study design. For example, a cross-sectional study [33] suggested that complex patients (defined as patients taking multiple medications) received more medication reviews, while longitudinal studies[42] reported less utilization in complex patients over time in Ontario.

Publicly funded medication review programs have been rolled out in all but two Canadian provinces but system level barriers still challenged their uptake. Our review showed that provincial eligibility policies were inconsistent and may be creating barriers to patient uptake because policies exclude some patients with medical and medication needs who may benefit. For example, Indigenous people who are insured under the federal program - NIHB (Non-Insured Health Benefits) do not have coverage for provincially funded medication reviews.[68,69] Chronic health conditions are a stronger predictor of a patient's health needs than age, [70] yet age restrictions were used in half of provinces to

select who can benefit from a medication review. Apart from chronic conditions, difficulty using medical devices and lack of caregiver support at home were identified as factors that may be correlated with a higher risk for drug therapy problems[40] and may need to be considered in policy decisions to expand programs and patient eligibility criteria. Future studies could determine the most appropriate eligibility policy for selecting patients for medication reviews.

International literature has highlighted the mixed evidence of medication reviews on patient outcomes, revealing positive or negative impact and sometimes inconclusive results.[3,4,71] Few studies have focused on accounting for these differences by analysing variations in delivery models[72] or investigating the effect of the intervention according to the type of medication review.[3] Our current review showed a similar trend of variable outcomes in three provinces - Alberta, Ontario, and British Columbia. For example, four studies looked at the impact of pharmacists' medication reviews on cardiovascular outcomes, with three in Alberta reporting improved clinical outcomes[47,48,54] while one study in Ontario found no impact.[31] To explain the discrepancies in clinical outcomes, we considered the difference in type of medication reviews, and scope of pharmacist practice in Alberta and Ontario. Alberta has the most in-depth medication reviews (known as comprehensive annual care plans (CACP) and reimbursement model for up to 12 follow-ups per year. As of March 2020, Alberta pharmacists completed an average of 4.3 follow-ups for each CACP.[18] Pharmacists in Alberta can also access, order and interpret laboratory tests, and independently initiate medications, as part of scope of practice,[73,74] whereas pharmacists in Ontario lack both access to laboratory values and independent prescribing

authority to initiate a new prescription drug.[73,74] We hypothesize that differences in cardiovascular outcomes may be because pharmacists in Alberta are able to act on findings from a medication review while pharmacists in Ontario could only make recommendations to another prescriber. Future investigations are required to unpack the impact of pharmacist scope of practice in addition to the model of medication reviews.

Another crucial point for facilitating patient-centered practice in medication review services is the opportunity to consider the individual patient context that may be contributing to adverse health outcomes.[12,75,76] A patient's medication experience, beliefs, feelings, and preferences, shapes if and how patients take medications.[12,75–77] These patient-related experiences are valuable in identifying the reasons for drug therapy problems such as non-adherence, adverse drug reactions, and poor control of chronic disease conditions.[75–77] Surprisingly, none of the studies in our review explored this research area. It is possible that pharmacists may be missing opportunities to actively engage patients and explore their perspectives about medications, as noted in other studies.[78,79] There is a need to understand factors that affect communication processes and develop strategies that can better engage patients and tailor the service to patient needs.[80]

Patients' experiences are not only crucial in conducting a medication review, they may also be key in determining priorities and conducting research on medication reviews, considering the growing evidence supporting the involvement of patients and the public in health research.[81] Patients were the subject of the study in research examining program uptake using population-based administrative databases in Canada's jurisdictions. Other studies in our scoping review gathered patients' perceptions in surveys, or qualitative

approaches. However, it does not appear that patients were engaged in the research process either by informing research, getting involved with the research team, or collaborating as a research partner. Engaging patients in a meaningful way in various stages of the research has the potential to align research priorities with issues that matter to patients, enhance transparency, credibility, and translation of research findings aimed at improving delivery of care.[82,83]

The ability to collaborate with physicians influenced medication review uptake.[41,53,55,59,60] Previous studies have demonstrated that interprofessional relationships and collaboration play a key role in facilitating decision making about drug therapy changes and coordinating patient care.[3,5,8,9,84] Still, researchers primarily studied pharmacists beliefs, behaviours, and actions regarding medication reviews. Only four studies focused on physicians' perceptions of the program with a qualitative approach[53,55,60] or survey.[59] There were no comparisons between medication reviews between pharmacists and other health care providers. It may be relevant to explore the perspectives of other healthcare providers to understand how to increase awareness and work together to integrate medication reviews in other healthcare practices.

Research on medication reviews in Canada described variable uptake of the service in relation to workplace culture. While most pharmacies leveraged technology, modified their staffing arrangements and used financial incentives to achieve widespread uptake of medication reviews, these strategies appear to have focused on workflow efficiency and productivity with less emphasis on using a patient-centered approach to engaging patients who would benefit the most and addressing patient needs. On the other hand, low uptake

was commonly attributed to workplace barriers and insufficient reimbursement models. Previous research has documented numerous barriers and challenges to implementing medication reviews in community pharmacy.[85–87] To successfully address barriers and enhance the quality of medication reviews, future research efforts need to move beyond the discourse on workflow and consider exploring ways to better meet patient needs and improve experiences of care.

The continuity of medication reviews, like other publicly funded services, are significantly impacted by regulatory and government policies. For example, one study in our review found the uptake of medication reviews declined in Ontario community pharmacies after new documentation standards were introduced by provincial authorities.[45] Evaluating the impact of various policy contexts on program delivery would be an important priority for future research. Previous work has also recognised that community pharmacy medication reviews are complex, dynamic and influenced by multiple factors across individual, interpersonal, organisational and health system levels.[84,88,89] Theoretical frameworks can be useful tools to understand the relationship between multiple interrelated factors and the implementation of patient care services in community pharmacy practice.[84,88,89] Yet, only five studies in our review applied any form of theory, model or framework, similar to other research.[90] Pharmacy health services researchers may benefit from exploring how to incorporate implementation science literature and researchers into their evaluation of medication reviews. Future policies should consider the mutual interdependence of relevant factors across all levels - individual, interpersonal, community pharmacy, and health care system, when developing and implementing changes.

Several gaps were identified in the Canadian research on pharmacist medication reviews. Further attention to the following areas could be a priority in medication review research: evaluating patient eligibility policy, medication review coverage for Indigenous people, influence of pharmacist reimbursement and practice models on outcomes, patient-pharmacist communication, developing and evaluating strategies to identify and address patient needs. The COVID-19 pandemic has led pharmacists to adopt virtual means to provide services. As studies in our review were conducted before the pandemic, it may be useful to investigate the effect of COVID on medication reviews uptake and processes. Finally, to better understand the impact of policy and reimbursement models, researchers should compare the uptake of medication reviews, quality of care, and patient experiences among jurisdictions with differing medication review models.

2.5.2. Study limitations

Our search could have missed some literature even though we followed a comprehensive search process. We also limited our search to peer-reviewed literature and full-text articles and did not include grey literature or abstracts. We identified many abstracts in this field which we did not summarize as they had insufficient detail. However, this suggests the research will continue to expand.

2.6. Conclusion

A growing number of studies employed mostly quantitative research methods, in addition to qualitative and mixed method studies, to investigate community pharmacist medication reviews. Five dimensions were identified - program uptake, outcomes,

stakeholder beliefs and attitudes, processes and collaboration, and pharmacy workplace culture. From our review, we found that all the themes varied and were influenced by multiple interrelated individual, interpersonal, pharmacy and health system factors. Future research that explicitly uses theory or theoretical frameworks that cuts across relevant themes will increase our understanding of medication review practices in community pharmacy. More research is needed to evaluate patient eligibility policy, medication review coverage for Indigenous people, influence of pharmacist reimbursement and practice models on outcomes, patient-pharmacist communication, develop strategies to identify and address patient needs, and comparisons of practice models of medication reviews between jurisdictions across the world. In this way, researchers may inform policies on sustainable delivery of medication review programs in Canada and internationally.

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Chapter 3. A Qualitative Descriptive Study of Pharmacists' Experiences of Patient Participation in Medication Reviews

Olufemi-Yusuf D, Gokiert R, Cor K, Guirguis LM. A version of this chapter will be prepared as a manuscript for submission to *Research in Social and Administrative Pharmacy.* The chapter is written in AMA style to maintain a consistent format in this dissertation.

3.1. Abstract

Background: Patient participation is a core element of optimizing patients' treatment outcomes. Pharmacists play a key role in facilitating patient participation in medication reviews, and their experiences need to be better understood.

Objectives: This study aimed to (1) explore pharmacists' perceptions of factors influencing patient participation in medication reviews, and (2) describe pharmacists' strategies to engage patients.

Methods: A qualitative descriptive methodology using semi-structured virtual interviews with twelve community pharmacists was used. Interviews were recorded, transcribed, and analyzed using qualitative content analysis and guided by the expanded Linguistic model of patient participation.

Results: Patient participation was influenced by patient predisposing, internal and external enabling, and pharmacist factors. Pharmacists perceived it as their job to engage patients in medication reviews (pharmacist factors). However, it was challenging to engage individuals who had low motivation, few perceived health needs, stable medication therapy, limited experience with the pharmacist's patient care role or resisted pharmacists' questions (patient predisposing factors). Barriers related to the work environment were also identified

(external enabling factors). Patient knowledge and communication skills facilitated participation (patient internal enabling factors). Pharmacists employed various strategies to overcome barriers and engage patients, including adapting terminology for medication reviews, adapting questions, explaining the review's purpose, and promoting the pharmacist's role. Pharmacists also described using patient laboratory results accessed from shared electronic health records, having a go-to location where the medication review interaction is typically conducted, conducting incremental reviews focused on a portion of a patient's medication or specific conditions, scheduling strategies to accommodate walk-ins, appointments or virtual medication reviews and showing respect for patient's preference not to participate in the review.

Conclusion: Pharmacists were positive about engaging patients and tailored strategies based on workplace routines and their perceptions of patients. Pharmacists leveraged the practice context in Alberta (e.g. laboratory results) to engage patients. Future research is needed to determine how pharmacists' strategies for patient participation impact the uptake of medication reviews, patient experiences and quality of patient care.

3.2. Introduction

Medication therapy problems significantly burden patients and increase healthcare costs.[1,2] One way to address medication-related problems is to engage patients in medication reviews, which systematically evaluate medications to improve medication use and health outcomes.[3] The current evidence on the impact of medication reviews on patient health shows inconsistent results. Some studies found significant improvements in clinical, economic and humanistic outcomes,[4–6] while others did not yield such benefits.[4,7–9]

Although the evidence for medication reviews is mixed, they are a component of pharmacist's practice in several countries.[10–14] In Alberta, Canada, two levels of government-funded comprehensive medication reviews are offered based on patients' chronic conditions, medications, and risk factors: Comprehensive Annual Care Plan (CACP) and Standard Medication Management Assessments (SMMA)[14] (See Table 3.1 for a description). Under these comprehensive medication review models, pharmacists can spend time developing an individualized care plan in collaboration with the patient,[6,15] emphasizing a patient-centered approach to care.

Patient participation is growing in importance in health care and is especially important in optimizing patients' medication and health. The emphasis on healthcare delivery is shifting from paternalistic models in which clinicians, including pharmacists, dominate and hold power over decision-making, to more patient-centered models of care where not only is power shared between patients and clinicians, but patients' values and preferences are incorporated into making therapeutic decisions.[16–18] From a communication perspective, patient participation means patients take an active role in interactions with

clinicians by asking questions, stating preferences, expressing concerns or sharing narratives regarding their health and medications.[19,20]

Table 3.1 Medication review policy in Alberta

Type of medication review		**Eligible patients**
Comprehensive Annual Care Plan (CACP)	CACP Initial plan	Two or more of the following chronic conditions: • Hypertension • Diabetes • Chronic obstructive pulmonary disease • Asthma • Heart failure • Angina pectoris • Ischemic heart disease • Mental health disorder OR One of the above chronic conditions plus one of the following risk factors: • Tobacco use • Obesity • Drug or alcohol addiction
	Follow-up	• Must have a completed CACP • Maximum of 12 follow-ups per year
Standard Medication Management Assessment (SMMA)	Initial plan	Taking 3 or more prescription medications
	Diabetes SMMA	Taking insulin or another Schedule 1 drug for diabetes
	SMMA Tobacco cessation	Tobacco cessation
	Follow-up	• Must have a completed SMMA • Up to 4 follow-ups for tobacco cessation • Up to 12 follow-ups per year for other SMMAs

Pharmacists play an important role in facilitating patient participation by taking the lead in offering and reviewing patients' medications.[14] Pharmacists have used several communication techniques to engage patients, including inviting them to share their

perspectives about medications and illness, asking open-ended questions, listening, providing reassurance, and showing empathy.[21] Some studies found that patient participation helps to identify and address patient-related reasons for poor disease control, non-adherence and adverse drug effects.[21,22] Similarly, engaged patients are more likely to have improved health knowledge, satisfaction with care, and individualized care plans to support health needs and goals.[6,22]

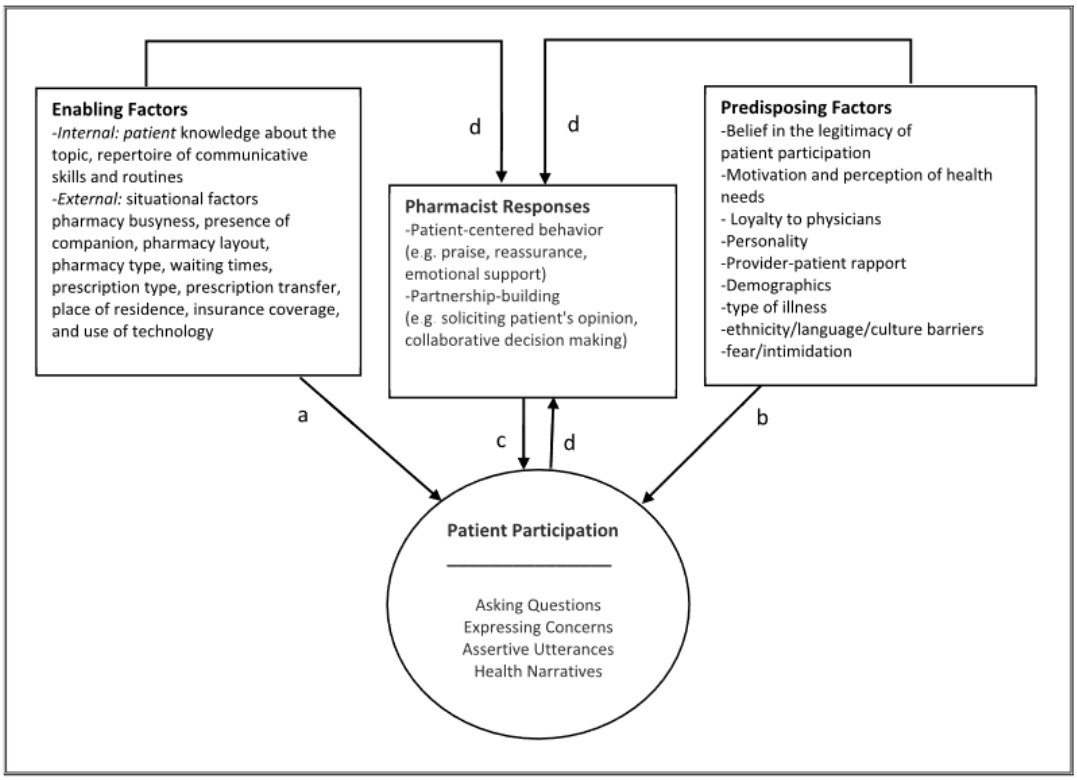
While patient participation is often encouraged, the literature suggests it is limited in pharmacist practice. For example, studies have shown that patients assume a passive role during interactions with pharmacists, only responding to pharmacists' questions about medication use, knowledge, and adherence.[23,24] Pharmacists often directed the conversation, asked closed questions, and rarely probed to learn about patients' feelings about their condition, lifestyle or psychosocial issues.[23,25] Not all patients want to actively engage in the interaction,[26,27] making it difficult for pharmacists to determine a patient's desire to be involved and adapt to individual patient preferences.[27] Some patients prefer to discuss their medical care with their physician and are reluctant to discuss their care with pharmacists.[28,29]

As pharmacists are key providers in medication reviews, gaining insight into pharmacists' views and experiences of patient participation is important. The specific objectives of this study were to (1) explore pharmacists' perceptions of factors influencing patient participation in medication reviews, and (2) describe pharmacists' strategies to support patient participation in medication reviews.

3.3. Methods

3.3.1. Theoretical framework

Street's Linguistic model of patient participation in care (LMOPPC)[30] was expanded to the pharmacy context from a systematic literature review by Qudah et al.[20] The expanded LMOPPC framework informed data analysis and interpretation for this study so that we could understand the influences on patient participation in medication reviews within the current practice in Alberta. See Figure 3.1 for an illustration of the framework. According to the framework, patient participation in healthcare interactions is operationalized as asking questions, expressing concerns, making assertive utterances, and providing health narratives. The expanded LMOPPC categorizes the influences on patient participation into four factors: patient predisposing factors, internal enabling factors, external enabling factors and pharmacist responses or behaviours (Figure 3.1). Patient predisposing factors consist of an individual's personal ideas, perceptions and sociodemographic characteristics. Internal enabling factors relate to the patient's knowledge, skills and resources that impact their participation. External enabling factors include situational and environmental factors. Pharmacist responses or behaviours are patient-centered behaviours supporting patient involvement in the interaction.



(a-c) include factors that impact patient participation, (d) include patient factors impacting pharmacists' counseling behavior

Figure 3.1 An illustration of the expanded Linguistic model of patient participation in care from Qudah et al., 2021[20]

3.3.2. Research design

A qualitative descriptive design was used to explore community pharmacists' experiences of patient participation in medication reviews.[31] This approach prioritizes detailed descriptions of participants' viewpoints by staying close to the data and presenting it in an easily understood language that makes sense to the reader.[32,33] Qualitative description also aligns with pragmatic assumptions, making it relevant for exploring practice-oriented problems.[34] The study was approved by the University of Alberta Research Ethics Board (Study ID Pro00118332). See Appendix D for the study approval

letter. Reporting followed the Standard for Reporting Qualitative Research (SRQR) checklist [35] (See Appendix E).

The research team comprises four researchers. Two researchers, DO and LG, are trained pharmacists, though they do not practice in a clinical setting. DO led the study as part of her dissertation research. LG has extensive experience with qualitative research. KC is an educational researcher focused on measurement and program evaluation. RG has significant expertise in community-based participatory research and mixed methods research. Two participants were known to the interviewer (DO) but never worked together.

3.3.3. Participant sampling and recruitment

Purposeful sampling was used to identify participants based on their experience with the phenomenon under inquiry.[36] The sampling and recruitment strategies ensured we included the views of pharmacists with varying years of experience, in different roles (i.e., owners, managers and staff pharmacists) and those working in different types of pharmacies[37] (e.g. independent, franchise, corporate). Independent pharmacies are typically owned and operated by individuals with the autonomy to make decisions about marketing, buying and professional services.[37] They operate in fewer than five pharmacy locations. Franchise pharmacies are usually affiliated with a national or regional brand that oversees a network of pharmacies.[37] Corporate pharmacies are typically five or more pharmacies owned by a single corporation or individual, including pharmacies within grocery stores, large chains and mass merchandisers. [37] The head office has autonomy and control regarding marketing, purchasing, and professional services.

Community pharmacists who met the following inclusion criteria were recruited: currently work in a community pharmacy in Alberta, practiced for at least one year, and provide medication reviews to patients. Participants were recruited in three ways: an email to the community pharmacy preceptors from the Faculty of Pharmacy and Pharmaceutical Sciences at the University of Alberta, a recruitment ad posted in the Alberta Pharmacists' Association newsletter, and pharmacists were approached through the professional network of the lead author (DO). Information and consent forms describing the study purpose and procedures were emailed to pharmacists. Pharmacists provided verbal consent to participate. See Appendices F, G, H for recruitment materials and consent forms.

3.3.4. Data collection

Semi-structured in-depth interviews were used to collect data from 12 participating pharmacists from August 2022 to June 2023. We developed an interview guide (Appendix I) consisting of questions informed by published literature on medication reviews and patient-pharmacist communication. We conducted data collection and analysis simultaneously to explore new ideas in subsequent interviews, therefore adding to the richness of the data. The lead author conducted all the interviews through Zoom or phone at a time convenient for the pharmacists and recorded the interviews. A $10 gift card was provided to each pharmacist to show appreciation for their participation. Interviews were conducted until no new ideas emerged from two consecutive interviews.

3.3.5. Data analysis

All audio recordings were transcribed verbatim using otter.ai software, de-identified and verified for accuracy. Dedoose software (Sociocultural Research Consultants LLC) was

used to manage the coding and analysis of the interview transcripts. Qualitative content analysis was used to analyze the interview data.[38] The analysis focused on generating a descriptive account of the meanings shared by pharmacists instead of imposing the researcher's perspective on the data.

The lead author initially read each interview transcript to get an overall impression of the data. Sentences or paragraphs representing meaning units were labelled with a code generated from the data (inductive coding). Codes were defined to ensure they were consistently applied. Next, each code was reviewed in the context of the discussion to check and modify the description and interpretation in line with the data and research question. As the analysis proceeded, two researchers (DO and LG) sorted the codes into categories and subcategories from Qudah's LMOPPC framework[20] using a deductive process. Some categories and subcategories from the framework were mapped directly to the data, some were adapted to fit the data, and some were not present in the data. New subcategories were added as necessary based on the data. The details are presented in the results section.

We continuously checked the codes and their definitions against the data excerpts. The codes, subcategories and categories were refined to remove redundancy or duplication. The categories and sub-categories were finalized through discussion between the DO and LG. We used direct quotes from participants to ensure confirmability.

Table 3.2 Characteristics of community pharmacists

ID	Gender	Role	Type of pharmacy	Location	Practice experience (years)	Certifications/ training
P1	Male	Pharmacy Manager	Corporate	Urban	13	APA, CDE, CRE
P2	Female	Staff Pharmacist	Corporate	Rural	3	APA
P3	Female	Owner/ Manager	Franchise	Rural	28	APA
P4	Female	Pharmacy Manager	Franchise	Urban	18	APA
P5	Female	Owner/ Manager	Franchise	Rural	16	APA
P6	Male	Pharmacy Manager	Corporate	Urban	30	APA, CDE
P7	Female	Staff Pharmacist	Independent	Urban	20	APA, ACPR, CDE
P8	Female	Staff Pharmacist	Corporate	Urban	2	APA
P9	Female	Staff Pharmacist	Franchise	Urban	10	CDE
P10	Male	Pharmacy Manager	Corporate	Urban	8	NA
P11	Male	Owner/ Manager	Independent	Urban	10	APA, CDE
P12	Female	Pharmacy Manager	Corporate	Urban	24	APA, CDE

Abbreviations: ACPR, Accredited Canadian Pharmacy Residency; APA, Additional Prescribing Authority; CDE, Certified Diabetes Educator; CRE, Certified Respiratory Educator; NA, Not applicable

3.4. Results

Interviews were conducted with 12 community pharmacists aged 25 to 56 years. Two pharmacists practiced in independent pharmacies, four in franchise pharmacies, and six others worked in corporate pharmacies. Pharmacists had worked in community practice for varying lengths of time (range 2-30 years). Three pharmacy owners, five pharmacy managers, and four staff pharmacists participated. Interviews lasted an average of 54 minutes (34-89 minutes). Community pharmacists from urban and rural areas participated in the study.

All pharmacists, except one, had at least one certification. These certifications included Additional Prescribing Authorization (n=10), Certified Diabetes Educator (n=6), Certified Respiratory Educator (n=1), and completion of an Accredited Canadian Pharmacy Residency (n=1). See Table 3.2 for pharmacist characteristics.

Following qualitative content analysis, five categories were identified: patient predisposing factors, patient internal enabling factors, external enabling factors, pharmacist factors, and pharmacist strategies. Pharmacist responses or behaviours in Qudah's framework were renamed as pharmacist strategies to reflect the various approaches for engaging patients generated from the data. Pharmacist factors were not in Qudah's framework and were identified as a new category. New or adapted subcategories and subcategories are indicated under the relevant factors. See Figure 3.2 for the identified factors and strategies mapped to the expanded LMOPPC framework. Pharmacist strategies to support patient participation were aligned to one or more factors they addressed. See Table 3.3 for definitions of the strategies and related predisposing and enabling factors. The

categories and subcategories of factors and related strategies, alongside participant quotes, are described below.

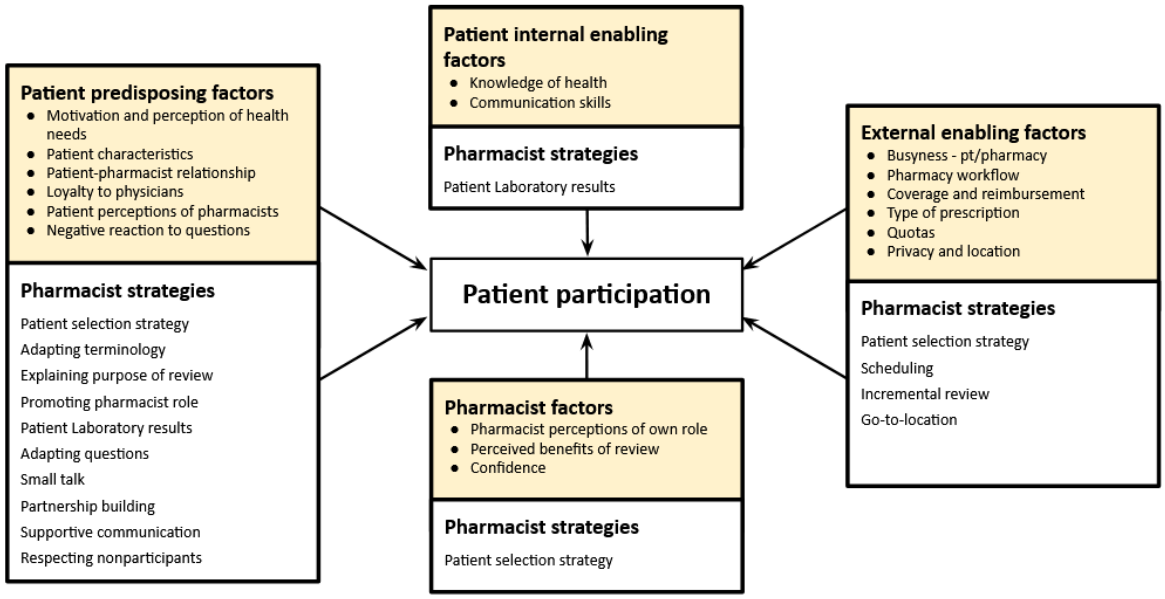


Figure 3.2 Findings from content analysis mapped to Qudah's LMOPPC framework

Table 3.3 Pharmacist strategies to support patient participation aligned with related predisposing or enabling factors

Strategy	**Definition**	**Predisposing or enabling factors linked to the strategy**
Patient selection strategies	Identifying and selecting patients for medication review based on eligibility criteria, dispensing, prescribing activities and perception that patient may benefit	**External enabling factor** Coverage or reimbursement policy Type of prescription **Pharmacist factors** Perceived benefit of review
Adapting terminology for medication reviews	Terms and language used to introduce medication reviews that may be more familiar to patients (e.g. annual check-up, update profile)	**Patient predisposing factor** Patient perceptions of pharmacists

Strategy	Definition	Predisposing or enabling factors linked to the strategy
Explaining the purpose of the review	Explaining why the pharmacist needs to review the patient's medication	**Patient predisposing factor** Patient perception of pharmacists
Promoting the pharmacist's role	Educating patients on the pharmacist's patient care role that extends beyond dispensing	**Patient predisposing factor** Patient perception of pharmacists Loyalty to physicians
Adapting questions	Modifying how pharmacists ask patients questions	**Patient predisposing factor** Negative patient reaction
Small talk	Using small talk, a friendly approach, and showing genuine interest in patients	**Patient predisposing factor** Patient-pharmacist relationship
Partnership building	Listening to patients, working together, requesting patient preferences, involving patients in the decision-making	**Patient predisposing factor** Patient-pharmacist relationship
Supportive communication	Offering encouragement, praise and empathy to patients	**Patient predisposing factor** Patient-pharmacist relationship
Scheduling strategies	Arrangements made to schedule medication reviews in the workflow. Includes walk-in, appointments, virtual, and clinical shifts	**External enabling factor** Busyness Workflow
Go-to location	Location where the medication review interaction is typically conducted in the pharmacy. Includes pharmacy counter, semi-private area, private counselling room	**External enabling factor** Privacy and location
Incremental reviews	Conducting short, targeted medication reviews and follow-ups focused on a portion of the patient's medication history, or specific conditions	**External enabling factor** Busyness (patient/pharmacy) **Pharmacist factor** Pharmacist perception of own role
Patient laboratory results	Laboratory test results accessed from shared electronic health records to support patient knowledge or motivate patient	**Patient predisposing factor** Motivation and perception of health needs **Patient internal enabling factor** Knowledge of health

Strategy	Definition	Predisposing or enabling factors linked to the strategy
Respecting nonparticipants	Showing respect for patients' preference not to participate in the review	**Patient predisposing factors** **Patient internal enabling factors**

3.4.1. Predisposing factors and related pharmacist strategies

Predisposing factors refer to an individual's personal ideas, perceptions and sociodemographic characteristics influencing patient participation. Six subcategories were identified: four of them mapped to Qudah's LMOPPC framework or were adapted - motivation and perception of health needs, patient characteristics, patient-pharmacist relationships, and loyalty to physicians, while the other two subcategories were newly identified - patient perception of pharmacists, and negative reaction to questions (Figure 3.2). Some predisposing factors in Qudah's LMOPPC framework were not present in the interview data, including beliefs about the legitimacy of patient participation, ethnicity, language, cultural barriers, type of illness, and fear or intimidation.

3.4.1.1. Motivation and perception of health needs

Patients' motivation and perception of health needs impact their interactions with pharmacists. Pharmacists felt that motivated patients who asked questions or shared health goals were engaged (i.e., smoking cessation). P3 said, *"If a person has a concern about their health or about the medications, then they're very willing to talk because they want to try find some answers."* By contrast, pharmacists perceived some patients lacked motivation. For example, *"For other patients, I definitely find sometimes it's hard to get a clearer picture. Because they're just like, yeah, everything's fine" (P5).*

Pharmacists used laboratory results to stimulate patients' interest in discussing their health (See Table 3.3 for a definition of this strategy).

> *Some [patients] are not interested whatsoever but bringing lab values can make it a little bit more engaging for them...So they [patient] say, 'Oh, you can look at that' and [I can tell the patient]'We spent some time looking at your A1c [which] was 8, and we'd like it to be below 7' (P2).*

3.4.1.2. Patient characteristics

Patient characteristics, as a subcategory, was adapted from personality and demographics in Qudah's framework. Pharmacists experienced difficulty engaging with people considered as *"private"* or *"not super chatty."* Pharmacists handled these situations by being friendly and building rapport. Conversely, they also described the increased engagement of educated patients who were verbally expressive. Qudah identified the patient's demographics as a predisposing factor, which was not present in this data, as illustrated, *"I wouldn't say there's like a demographic or age or gender or anything that I have more or less success with? Yeah, I think it's more just whether they're interested in their healthcare or not" (P2).*

3.4.1.3. Patient-pharmacist relationships

The LMOPPC framework identifies patient-provider rapport as a predisposing factor. Pharmacists in this study described relationships more than rapport; thus, the subcategory name was changed. Patients with familiar and trusting relationships were perceived to be comfortable engaging, as one pharmacist said, "*One thing we have built with all our clients…they trust us, and they will share. If they came and said, 'Oh yeah, I*

had a slip yesterday and had too much to drink'"(P9). Pharmacists believed the lack of established relationships was a barrier to engaging patients.

Various strategies supported patient participation, including small talk, partnership building and supportive communication. Pharmacists built rapport by being friendly, genuinely showing interest in patients and starting conversations with small talk about personal life experiences. A staff pharmacist described her experience of building rapport:

> *They [patient] would tell me something that was happening in their life. And [I would think] Oh, that's odd. So [I would say] 'We need to really talk about it and maybe talk about the meds more'...Because they felt comfortable sharing what's happening at home...It was just more of a conversation rather than just a question-answer period (P7).*

The second strategy was supportive communication. Pharmacists reported praising patients for positive health outcomes and inviting patients to share health experiences. One pharmacist said, *"It's [HbA1c] 6.5 and they're doing great. We just provide encouragement and say, 'That's fantastic, you're doing a good job. What was working for you? Is there something that's not working?"(P2).*

The third strategy was partnership building. Pharmacists believed listening to the patient's perspective and using an open, non-judgmental and collaborative approach was effective in engaging patients in the interaction. They felt patients were more receptive to treatment recommendations when involved in the decision-making than when instructed to follow pharmacist advice.

3.4.1.4. Loyalty to physicians

Some pharmacists cited patients' loyalty to physicians as a barrier to participation for people who believed medication reviews were the purview of doctors. However, it was perceived to happen occasionally, *"Every now and then we get people that say, like, just 'no thank you,' or 'my doctor does that'" (P5).*

One pharmacist described addressing this barrier by promoting the pharmacist's role and positioning the pharmacist as a collaborator in the patient's interprofessional healthcare team, *"I just say we're a team, and we report back to each other because sometimes someone picks up on information that the other doesn't" (P12).*

3.4.1.5. Patient perceptions of pharmacists

Pharmacists in this study described patients' perception of pharmacists, thus, a new subcategory was added. Pharmacists perceived patients resisted participating in a medication review due to a lack of awareness and understanding of pharmacists' roles beyond medication dispensing. Many patients did not expect a medication review as they were unclear on its purpose or unfamiliar with the meaning of *"care plans"* or *"medication review."* Three strategies to engage patients were adapting terminology, explaining the purpose of the review, and promoting pharmacists' expanded role.

Pharmacists adapted terminology to refer to the medication review, such as an *"annual check-up" (P1, P12)*, *"review medications" (P2)* or *"update [patient] profile" (P10)*. They believed patients are more likely to associate these terms with their pharmacy or healthcare visits in general.

In an attempt to engage patients, some pharmacists considered it necessary to explain the purpose of the review, as one pharmacist described her strategy:

My spiel was… 'Hey about once a year, we try to go through people's medications with them...We want to know what you're taking….We want to make sure that everything is working for you….make sure that there's no side effects or concerns coming up that we might not have noticed, or you might have brushed off is not important (P8).

Another strategy was promoting the pharmacist's role. Some pharmacists drew on examples of more familiar patient care services (e.g. vaccinations) to increase patient awareness of pharmacist services, as illustrated:

I also explained when I started 29 years ago, I did not do injections…but now I do injections and you come here for injection. She goes 'oh, yes, very true.. times have changed' and then we were good [to do a medication review] (P3).

3.4.1.6. Negative reactions to questions

Negative patient reaction to questions was a new subcategory. Pharmacists in this study explained that pharmacist questions can lead to negative patient responses, *"I've had some people feel like it's almost like we're testing them about their medication. [patient says] 'No, I know about my medication, and I'm fine'" (P5).* Similarly, asking about medication adherence is challenging, as described by Pharmacist 4:

Instead of saying, 'How often do you take this?' [and the patient says] 'Well it says right there twice a day,' [I] say, 'So you take this twice a day? Do you take it at breakfast, at supper'...to lead them just a little bit...And then [patient]is not like, 'Oh, you're dumb' because you [pharmacist] clearly know how [the patient] is supposed to be taking it (P4).

To address this problem, pharmacists adapted how they asked questions. They asked leading questions, fewer questions, and routinely asked questions to normalize it during the interaction. One pharmacist shared her strategy to engage patients:

> *We don't want to make them [patients] feel uncomfortable, sometimes we will just have to ask the questions spread out...if they come in for refills, and just try to focus on one or two of their medications, it's non-threatening manner for them (P3).*

Sometimes, pharmacists explicitly showed respect for patients' preference not to participate, *"just let go,"* and did not push further when patients declined the review *(P8).* They also avoided offering medication reviews to people who appeared annoyed or irritated by pharmacist questions. Pharmacists believed they needed to respect the patient's boundaries and prevent the escalation of negative emotions.

3.4.2. Pharmacist factors and related pharmacist strategies

Three pharmacist factors were identified in the interview data and were not part of Qudah's LMOPPC framework. These subcategories include pharmacists' perceptions of their role, perceived benefits of the review, and confidence (Figure 3.2).

3.4.2.1. Pharmacists' perceptions of their role

All pharmacists expressed positive opinions about the role of pharmacists in engaging patients. They viewed medication reviews as an essential responsibility aligned with their professional identity as medication experts. One pharmacist emphasized:

> *I feel like it's our job and it's our duty to be doing [medication review] for every patient if we can…..for pharmacists to…know that their medications are safe,*

effective and appropriate, sometimes doing a full medication review is necessary (P1).

However, pharmacists' opinions on the thoroughness of medication reviews appeared to differ. Some pharmacists believe they must thoroughly identify and resolve every single drug-related problem to do a *"perfect review,"* making them feel intimidated and reluctant to engage patients. One pharmacist said, "*We've had the College [regulatory body] in, and [they said], 'you have to acknowledge every condition,' and then we have the next pharmacy that says, 'oh, no, you're doing way more than you need to'"(P4).* Yet, some pharmacists recognized they could not achieve perfection in current practice due to patient and workload barriers. These pharmacists conducted incremental or *"mini"* reviews, which will be discussed under external enabling factors (busyness). See Table 3.3 for a definition of incremental reviews.

3.4.2.2. Perceived benefit of review

Several pharmacists referenced that the perceived benefits and value of medication reviews influenced their engagement with patients. Perceived benefits included checking medication adherence, assessing and monitoring patient's conditions, and helping patients understand their medications. A few pharmacists stated the review was an opportunity to reduce physicians' workload, fill gaps in care that may be missed otherwise (e.g. vaccinations), and support patients with complex health needs (e.g. substance use disorders). At the same time, pharmacists expressed concerns about selecting patients that may not benefit, as well as the fact that some pharmacists only identify the drug-related problem without taking responsibility for solving it in collaboration with the patient. The

lack of perceived benefit for the patient made some pharmacists reluctant to engage patients.

3.4.2.3. Confidence

Pharmacists' confidence in their ability to manage specific conditions (e.g. diabetes, hypertension) influenced their level of engagement with patients. Some pharmacists preferred to engage some patients but not others. One experienced pharmacist described:

> *We've learned like the ABCDE of diabetes...what you're asking compared to [patients with] mental health or…arthritis or other types of conditions. Diabetes is very set. We know what the A1c should be…what the blood pressure should be, the cholesterol. So I think we [pharmacists] all gravitate to that because it's structured (P12).*

3.4.3. Patient internal enabling factors and related pharmacist strategies

Patient internal enabling factors affect a patient's ability to actively participate in a healthcare interaction. Two subcategories were identified which align with Qudah's framework: knowledge of health and communicative skills and resources (Figure 3.2). Pharmacists perceived that patients were better able to participate if they were knowledgeable about their medications and understood how to manage their condition. Pharmacists also reported that patients' communication skills made a difference:

> *It's definitely easier to talk to people who are maybe more familiar with their medications. People who [have] better communication skills…or have more of understanding or a good comprehension of the indications of their meds and why they take them (P2)*

Laboratory results accessed through the provincial shared electronic health records were used to increase patient knowledge and engage patients in health discussions (See Table 3.3 for definition of this strategy).

> *[Pharmacist says to patient] 'If it's okay with you, I'll check your last labs and just have a few questions for you,' and usually, they're fine because a lot of them sometimes go for labs and they never hear back and they never really know where they're at (P2)*

3.4.4. External enabling factors and related pharmacist strategies

External enabling factors are the situational and environmental factors in the pharmacy practice context that enable or hinder patient participation (Figure 3.2). Six subcategories were identified: five of them mapped to Qudah's framework or were adapted – busyness of pharmacy and patient, workflow, coverage and reimbursement policies, type of prescription, privacy and location characteristics, while one subcategory was newly identified – quotas. Some external enabling factors in Qudah's framework were not present in the data, including the presence of a companion, pharmacy type, and place of residence.

3.4.4.1. Busyness of pharmacy and patient

Qudah's LMOPPC framework identifies pharmacy busyness and wait times as external enabling factors. Pharmacists in this study described the busyness of pharmacy and patients. A clear barrier to engaging patients in medication reviews was the pharmacy's busyness, characterized by time constraints and heavy workload, as described, *"It is difficult some days to fit it [medication reviews] in…we'll pass opportunities because you have too much other stuff to do" (P10).* Pharmacists also stated that some patients were

busy and concerned that the interaction would take too long, so they refused the medication review.

One of the pharmacist strategies to encourage patient participation when the pharmacy or patient was busy was an incremental approach (Table 3.3), whereby they focused on a portion of the patient's medication history or specific condition, as illustrated:

> *You don't have time, so you might have 20 things and you go 'depression –not evaluated this time'. You don't have to deal with all of them. Doctors don't, right. So you'd say, 'Oh, I'm dealing with diabetes, I'm gonna get to these other things later' (P6).*

At the same time, medication reviews were conceptualized as *"a building"* on previous conversations to minimize redundant questioning. Pharmacists indicated this strategy reduced the pressure to do a long or *"perfect"* review and described a sense of professional autonomy over which conditions to prioritize. One pharmacist said:

> *You need to keep track of…the previous follow-up…hone in on the very specifics of what you're trying to follow up on, so that it's beneficial, and it's continuous care…not just [asking] generic questions...every time just because they have diabetes or…hypertension (P1).*

3.4.4.2. Workflow

Workflow, as an external enabling factor, was adapted from prescription transfer and the use of technology in Qudah's framework. Pharmacy workflow impacts the efficiency of the medication review process and interaction with patients. Positioning a pharmacist to check prescriptions at intake or drop-off enabled the identification of patients

for a medication review. One participant worked in a pharmacist-only practice where the same pharmacist processed the prescription from intake to handoff. She felt this workflow made it easier to engage patients and provide personalized patient care.

Scheduling approaches for medication review interactions may include walk-ins, appointments, telephone reviews and clinical shifts. Most pharmacists conducted medication reviews within the dispensing workflow *"on the fly, right there"* when patients walked in to pick up their medications (*P5*). Three pharmacists used an appointment-based approach to schedule medication reviews and perceived it as efficient and successful. However, many pharmacists found appointments ineffective because of no-shows or cancellations, so they preferred to do medication reviews as walk-ins in the middle of the workflow. Virtual medication reviews by telephone were another strategy to engage patients as it was believed to increase patient comfort and participation, especially for follow-ups:

> *If people are willing to talk in the comfort of their own home, and really sit down, not be rushed…not feel like you have five minutes to talk to the patient at the pickup window. Sometimes those [virtual] care plans, I find, can be a little bit more thorough (P1).*

On the other hand, some pharmacists were concerned about virtual reviews. They shared that the absence of nonverbal cues from both parties reduced the interaction to a question-and-answer session and limited a patient's ability to elaborate on their concerns. One pharmacist limited telephone reviews to patients with whom they had established

relationships. One staff pharmacist felt frustrated with cold-calling patients as she struggled to find engaging topics, sometimes leading to unsuccessful conversations.

Some pharmacists described setting up clinical shifts separate from the dispensing workflow to offer medication reviews and other clinical services. During clinical shifts, pharmacists or student pharmacists engage patients, whether virtual, appointments or walk-in patients. Pharmacist overlap, delegating tasks to technicians and trusting them to perform the job well were cited as ways to increase pharmacists' interaction and engagement with patients. As one pharmacist explained, *"If you're taking advantage of techs, if you have the pharmacist overlap…it means you almost always have somebody to do the [clinical] service, whether it's an injection or a med review, or answering questions" (P8).*

3.4.4.3. Coverage and reimbursement policies

Qudah's framework identifies insurance coverage for medications, while pharmacists described the reimbursement policy for medication review services as an important factor in engaging patients. Provincial coverage or reimbursement policies for medication reviews enabled pharmacists to engage patients. Pharmacists described selecting patients based on the eligibility criteria set out in the policy. *"We just select anybody…we try to get everybody…who qualifies for a CACP or SMMA. He [patient] had no burning issues that I had [noticed]. I just wanted to touch base with him" (P3).* However, the policy also meant that pharmacists could not bill for the service when the patient did not qualify, or follow-up limits were reached. Some pharmacists used pop-up alerts on the pharmacy software to flag eligible patients due for a medication review or

follow-up and notify staff to initiate the process. These prompts helped the pharmacy to establish a consistent method for selecting patients.

3.4.4.4. Type of prescription

The type of prescription was reported to influence patient participation. Pharmacists found it easier to engage patients with new medications than those with refill medications. A common strategy for identifying and selecting patients relied on dispensing and prescribing activities, whereby refills, extensions, and medication changes were turned into a medication review. As one pharmacist described: *"It's more based on when people are arriving, you know, or coming to pick up a prescription or things like that…..when they come, we try to do the interview" (P4)*.

3.4.4.5. Quotas

Quotas for medication reviews (i.e., mandatory targets for a number of medication reviews set generally by pharmacy management) were identified as a new subcategory. Pharmacists viewed quotas as negatively impacting the quality of patient interaction and care plan documentation, referring to quotas as a kind of *"necessary evil."* Although only one pharmacist worked under these conditions, pharmacists resent the increased organizational pressure to maximize medication reviews for commercial profits rather than patient needs. Moreover, pharmacists were expected to fulfil these obligations without additional resources (e.g. staffing). In addition, pharmacists felt quotas devalued medication reviews and undermined pharmacist autonomy, and they must be accompanied by appropriate quality criteria or removed.

3.4.4.6. Privacy and location

Privacy and location had elements similar to pharmacy layout in Qudah's framework. Pharmacists described privacy and location characteristics as influencing patient participation. Patients were described as preferring a private location and shorter interactions. The go-to location for conducting medication reviews was the pharmacy counter. Many pharmacists perceived this strategy fit better into the pharmacy workflow, was familiar to patients and sufficient for short reviews (patients with few medications). One pharmacist described their practice:

> *So a natural process…to talk to them [patients] about medication is at the pickup window. I feel like keeping the process…consistent…and almost incorporating these medication reviews into our regular counselling process just allows for patients to just feel like it's part of the process (P1).*

Three pharmacists reported they typically performed medication reviews in the counselling room (i.e., a small private room mandatory in Alberta pharmacies). However, most pharmacists were flexible and used the counselling room depending on the patient (e.g., elderly or frail people, those with many medications, sensitive topics) or the pharmacy was busy whereby people waiting could potentially overhear conversations. While some patients want privacy, others declined to use the counselling room when it was offered. One pharmacist shared, *"As soon as you say, 'Do you want to go into the counselling room?' They [patients] feel that, 'Oh, that's half an hour of my time,' when it's really not….so they like to do it more at the counter, but also private" (P12).* Nonetheless, pharmacists knew privacy was not guaranteed at the pharmacy counter and expressed concerns about it.

3.5. Discussion

This study explored pharmacists' perspectives and strategies to support patient participation in medication reviews and examined the utility of the expanded LMOPPC framework to structure data analysis. The findings generated from the data build on the expanded LMOPPC (Figure 3.2). As such, factors that facilitate or hinder patient participation were characterized by patient predisposing, patient internal enabling, external enabling and pharmacist factors. Thirteen unique pharmacist strategies were identified that are used to engage patients, including patient selection, adapting terminology for medication reviews, explaining the purpose of review, promoting the pharmacist's role, using a go-to location, incremental reviews, laboratory results, scheduling, adapting questions, small talk, partnership building, supportive communication and respecting nonparticipants. Among these results, some appeared central to participant views on patient participation and will be highlighted in the discussion: laboratory results, incremental reviews, explaining the purpose of the review, patient-pharmacist relationships, adapting questions, and virtual reviews.

Some strategies pharmacists use to engage patients depend on the practice context, such as accessing patient laboratory results and conducting incremental reviews. First, access to laboratory values in community pharmacies in Canada varies. All pharmacists in Alberta can access laboratory values through shared electronic health records (i.e.,Netcare). Previous research cited the lack of access to patient laboratory records as a significant barrier to engaging patients in medication reviews and follow-up assessments.[39,40] In our study, the availability of patient laboratory records in the pharmacy setting facilitated

conversations about disease control and abnormal values that needed to be discussed and addressed. Some pharmacists used laboratory results to support patients' knowledge of their health and motivate them to engage with the information, thereby supporting patient participation. A second context-specific strategy was the incremental approach. In Alberta, the reimbursement policy allows up to 12 follow-ups in a year, which helped pharmacists adapt the review within busy contexts or patients and may reduce the pressure to identify and address all drug therapy problems during the initial (annual) medication review. Previous research has highlighted the need to 'streamline the patient interview process.'[41] It is encouraging that some pharmacists are taking up this practice and demonstrating some autonomy in their work.

Henrich et al. found that pharmacists hesitate to promote medication reviews when patients may not benefit.[42] Studies have also shown that pharmacists found it difficult to explain and frame the purpose of the medication review in terms of individual patient needs.[28,43] Our study alluded to the fact that pharmacists predominantly used a medical or technical approach to explain the reviews' purpose and justify why patients should participate. This is important as clinicians and patients have divergent views on illness and medication-related problems.[44] Past research has shown that presenting technical arguments is ineffective in encouraging patient participation.[45] For example, asthma studies found that pharmacists' technical knowledge is different from what the patient experiences in real life with medications,[45] with patients adopting a personalized common-sense approach to managing their asthma.[46] Other research showed that patients agreed to participate out of courtesy, not because they expected to gain direct health benefits - they assumed the review

was an administrative task needed to keep pharmacy records up to date.[47–49] More research is needed to understand patient perspectives on their participation in medication reviews.

The current study found that trusting relationships with pharmacy staff led to better patient engagement in medication reviews, which is consistent with previous research.[47,50,51] In particular, partnership-based interactions, which involve asking open-ended questions about patients' preferences and needs, listening to patients, and being non-judgemental, support patients in actively participating in services offered by pharmacists.[46,52] Previous studies observed that high-quality relationships contribute to patients' understanding of their treatment goals and feeling supported to improve their health and well-being.[6,46] Building trusting and collaborative patient-pharmacist relationships takes time and effort from both pharmacist and patient.

Asking questions is important for pharmacists to involve patients in sharing information about experiences with taking and managing medications. One crucial aspect was recognizing when to adapt the level of questioning based on the patient's resistance or receptiveness. For example, if the pharmacist perceives that a patient is reluctant to discuss medications, the pharmacist will respect that hesitation and ask only a few questions or avoid asking at all. In this study, pharmacists used leading questions to explore patient's adherence. Facework theory explains that pharmacists routinely use leading questions to minimize threats to competence for themselves and their patients.[53] The theory assumes that individuals seek to maintain a positive self-image and relationships during interactions.[53] This approach ensures patients view pharmacists as competent and

knowledgeable and also reduces the possibility of patients assuming that pharmacists undervalue their understanding of medications.

Some pharmacists in our study perceived virtual care via telephone as a useful strategy for encouraging patient participation. One of the advantages of virtual care cited was that patients could discuss their health concerns in the privacy and comfort of their homes, which may lead to more open and in-depth conversations. Unlike traditional in-person pharmacy visits, where patients might feel rushed, virtual care contributed to patient comfort in asking questions, enhanced patient access and satisfaction with care,[54] and improved clinical outcomes.[55,56] Despite the advantages, pharmacists in our study raised concerns about virtual care due to communication challenges and perceived lack of patient acceptance. These are important findings, given that virtual care is becoming increasingly used in healthcare settings.[57,58] The demand for and delivery of virtual care has also risen since the COVID-19 pandemic,[59] with some jurisdictions expanding the reimbursement policy to cover virtual pharmacy services, including medication reviews.[60] Future research should study patient and pharmacist experiences during virtual care interactions.

3.5.1. Study strengths and limitations

This study has many strengths and limitations that may be addressed in future studies. The pharmacists in this research were mostly preceptors of pharmacy students, and they were good reporters. Most pharmacists were located in urban areas, therefore the perspective of rural practicing pharmacists may not be represented. Pharmacists were interviewed based on whether they were doing medication reviews, not based on whether they were experiencing challenges or were successful. Our pharmacists may have perceived

themselves as successful in engaging patients; however, they still described numerous barriers to patient participation. One concern with interview data is its reliance on participants' recall of events. As this study was limited to pharmacists, it might be insightful to study patients' views on the factors influencing patient participation. Also, data was not collected on actual pharmacists' communication strategies. Researchers could directly observe and record medication reviews, allowing for a more objective analysis of actual communication patterns and behaviours.

3.6. Conclusion

Pharmacists identified mostly patient factors and external factors influencing patient participation in medication reviews. Pharmacists perceived it was their job to engage patients and ensure medications were safe, effective, and appropriate, a view that aligned with a medical or technical approach. Many pharmacists believed that motivated, knowledgeable patients and people who had trusting relationships with pharmacy staff or were taking new medications were best to engage in medication reviews. In this study, pharmacists used various strategies to support patient participation. They often tailored strategies to workplace routines and their perceptions of patients. Pharmacists leveraged Alberta's practice context, including a robust reimbursement model and access to an electronic health record system with patient laboratory results. The results may be useful in promoting awareness and the inclusion of key factors and strategies for patient participation when planning, implementing, and evaluating models of patient care. Future research is

needed to determine how pharmacists' strategies for patient participation impact the uptake of medication reviews, patient experiences and quality of patient care.

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Chapter 4. A Multimethod Study of Patient Participation in Medication Reviews

Olufemi-Yusuf DT, Gokiert R, Cor K, Guirguis LM. A version of this chapter will be prepared as a manuscript for submission to *Patient Education and Counselling.* The chapter is written in AMA style to maintain a consistent format in this dissertation.

4.1. Abstract

Background: Comprehensive medication reviews involve collaboration and active participation of patients to identify and address the patient's needs and concerns. However, little is known about the nature of patient participation during medication reviews.

Objectives: To characterize active patient participation and pharmacist communication behaviours expressed during medication reviews. Patients' experiences and perceptions of participation were explored.

Methods: A qualitative descriptive multimethod study was conducted. Eleven medication reviews were observed, audio-recorded and transcribed. Semi-structured interviews were conducted with five patients following their medication review.

Results: All patients expressed active participation behaviour in more than one way. Assertive statements were the most common form of active participation in the medication review while expressions of concern, questions and humour were less frequent. Pharmacists used supportive talk three times more frequently compared with partnership building. Pharmacists asked mostly open or closed questions, followed by multiple, then leading questions. Patients described positive experiences and perceptions of participation in medication reviews with pharmacists, reporting the interaction was helpful and informative. Patients viewed their role as giving information, asking questions and making requests when interacting with pharmacists. Trusting relationships facilitated patients' positive

experiences with pharmacists. Patients reported that the pharmacist listened to them, asked about the problems and effects of medications, provided information and explanations using easily understood language, showed genuine concern, and treated them with courtesy and respect.

Conclusion: Patients actively participated in the encounter mainly by making assertive statements, while pharmacists supported patients through encouraging and reassuring talk. Patients shared positive experiences of the medication review and perceived it helpful and relevant to their health needs. Our findings reveal that pharmacists may miss opportunities for partnership building and need to allow room for patients' questions when interacting with patients during medication reviews.

4.2. Introduction

Patient-centered care involves considering the patient's perspectives in the process of care.[1] Encouraging patients to share their opinions, expectations, feelings and concerns and actively participate in healthcare encounters is crucial to effective communication and patient-centered care.[2] Street and Millay defined patient participation as "the extent to which patients produce verbal responses that have the potential to significantly influence the content and structure of the interaction as well as the healthcare provider's beliefs and behaviours."[3(p.62)] The model characterizes three types of active patients' speech acts: asking questions, making assertive statements, and expressing concerns.[3] Clinicians better understood patients' health beliefs and views when patients actively participated in the interaction.[4] Equally important, clinicians' use of partnership building and supportive talk have been found to facilitate patients' expression of their concerns, needs, and questions[3,5]

While patient participation has been extensively studied in health professional-patient encounters in medical specialties,[6,7] the topic is gaining more attention in clinical contexts where medications are frequently discussed.[8–10] Comprehensive medication reviews provided by pharmacists are an important context to study patient participation. One of the reasons is that medication-related problems continue to burden patients and health systems with an estimated one out of every ten hospitalizations are associated with medication-related adverse drug reactions.[11] The annual cost of medication-related errors has been estimated at US$42 billion worldwide.[12] Thus, medication reviews have been introduced as one of the strategies to address these problems in many countries.[13–17] Comprehensive reviews vary in scope and duration, nevertheless, there is evidence that

some reviews include aspects of care planning[18,19] and last longer than routine dispensing interactions, up to 30 minutes in some cases.[17] Thus, observing the communication process and patient involvement is more likely in the context of medication reviews.

Patient participation can improve clinician understanding of patients' beliefs and the provision of more personalized care.[4] However, the effect of patient participation on patient outcomes in the context of medication reviews varies. For example, patient participation has been associated with better identification and resolution of medication-related problems, and more individualized treatment plans,[20,21] whereas a review study found no effect of patient participation on decision-making and patient outcomes.[22]

Observational studies of patient-pharmacist communication using observed or audiotaped encounters have analyzed aspects of patient participation such as emotional communication[23] or patient question-asking behaviours.[24] A systematic review of patient-pharmacist communication reported that pharmacists mostly employed a biomedical approach to engage patients, focusing on their expertise in medications and disease management.[25] In contrast, a patient-centered approach emphasizes two-way communication, where pharmacists acknowledge and address patient needs and concerns, promoting greater patient involvement and control.[25]

It is important to characterize the nature of patient participation and pharmacist communication strategies in medication reviews. The specific objectives of this study are: (1) to identify and characterize active participation behaviours verbally expressed by patients in medication review encounters with pharmacists, (2) to identify pharmacists' verbal communication strategies that promote active participation in medication review

encounters, and (3) to explore patients' perceptions and experiences of participation in medication reviews with pharmacists.

4.3. Methods

4.3.1. Research design

A qualitative descriptive multimethod design,[26,27] based on observations of patient-pharmacist interactions and patient interviews, was used to generate a description of patient participation and their experience of a medication review. This study was approved by the University of Alberta Research Ethics Board (Pro00118332). See Appendix D for the study approval letter.

4.3.2. Recruitment and Data collection

Community pharmacists in Alberta, Canada, were invited by the lead researcher (DO) to participate in this study. A study recruitment poster was also shared with pharmacists on the Faculty of Pharmacy's social media platforms - Facebook, Twitter, and Instagram. Pharmacist owners and/or managers were ultimately identified through professional contacts and approached by phone and in person to consider participating in the project. Interested pharmacists provided written consent to have medication reviews observed and audio-recorded. A study notice was displayed in the pharmacy to inform patients of the ongoing observations. We relied on pharmacists to identify and invite patients who were eligible for a medication review to participate in the study. After the pharmacist introduced the researcher, the researcher explained the study to the patient and obtained verbal consent to observe and record the medication review and conduct a follow-

up interview. See Appendices G, J, K, L, and M for recruitment materials and consent forms.

Data was collected between January and June 2023 in three community pharmacies in Alberta by DO. Medication reviews were observed and audio-recorded, forming the basis for characterizing the patient and pharmacist communication behaviours. DO was present for all the medication reviews. For the home visits, the pharmacist informed the patients ahead of time that a student researcher would accompany her. Additional information about the location of the medication review, prior relationship between patient and pharmacist and presence of companions was also captured. See Appendix N for the observation guide.

Following the medication reviews, patient participants were contacted for a phone interview. A semi-structured interview guide was used to conduct the interviews (See Appendix O for patient interview guide). The guide included questions about patients' views about the medication review encounter, experience with managing medications and health, assessment of the pharmacist's communication behaviours and patient demographics.

4.3.3. Data analysis

4.3.3.1. Coding of patient participation and pharmacist communication behaviours in medication reviews

All audio recordings of medication reviews were transcribed verbatim using Otter.ai, de-identified and verified for accuracy. Three stages of team coding for medication review transcripts were applied. In stage one, two study team members (DO and LG) coded

three transcripts independently (double coding) and met to discuss and resolve discrepancies. In stage two, DO independently coded four transcripts, reviewed by LG. Finally, DO independently coded the remaining four transcripts. The unit of analysis was a meaning unit, which could be a phrase, one sentence (utterance) or multiple sentences. Utterances were grouped together under one code if they all had the same meaning. Dedoose software,[28] was used to facilitate coding and analysis of transcripts.

An initial codebook was created using the Active Patient Participation Coding System (APPC).[3,5,29] See Appendix P for the original coding guide. This coding tool has been used in patient-pharmacist communication studies.[30] To characterize the nature of patient participation in this study, deductive coding was systematically carried out using the pre-defined codes in the APPC (See Appendix Q for the adapted coding guide with codes and definitions). The APPC codes are organized into categories and sub-categories. For example, active patient participation behaviour codes included asking questions, assertive responses, and expressions of concern as categories. The category of pharmacist supportive talk in the APPC had three pre-defined sub-categories: reassurance, empathy and encouragement. Additional categories and subcategories were inductively derived from the data and added to the codebook. Paralinguistics or paraverbal data, such as tone, pitch, and laughter, were also used in conjunction with verbal data to make coding decisions. Memos and group discussions were used to ensure the credibility of the findings.

The APPC coding framework was expanded to include the content of patient-pharmacist communication and the type of pharmacist questions. The analysis of communication content focused on broad topics discussed during the medication review,

such as medications, medical conditions, lifestyle (e.g., diet, exercise, alcohol), and social talk.

4.3.3.2. Coding of patient interviews

Patient interviews were transcribed verbatim using Otter.ai. Transcripts were de-identified and verified for accuracy. All transcripts were analyzed by DO using inductive qualitative content analysis.[31] Dedoose software was used to manage the coding and analysis of the interview transcripts. The transcripts were reviewed to obtain a sense of the whole data. Sentences or paragraphs representing meaning units were labelled with a code. Next, each code was reviewed in context to check and modify the description and interpretation in line with the data and research question. Codes were grouped into sub-categories and categories. The codes, subcategories and categories were refined to remove redundancy or duplication.

4.4. Results

4.4.1. Study sites for pharmacy observations

Three community pharmacies served as the study sites. See Table 4.1 for a summary of the pharmacy study sites. Pharmacy A was a franchise pharmacy located in an established urban neighbourhood. It is accessible by public transportation and close to a busy street. The pharmacy was not co-located with a health clinic, but clinics are nearby. Inside the pharmacy was a moderately sizeable front store that has a waiting area with chairs and a television. There was a semi-private booth with chairs on either side, located near the pharmacy counter. The private counselling room was located beside the

dispensary. There was a computer, desk and chairs in the counselling room. Medication reviews were provided in the pharmacy. Occasionally, the pharmacist owner made home visits to deliver medication reviews alongside other patient services where necessary. While the pharmacy has contracts to provide medications to nearby residential group homes, pharmacists were not observed to provide care on-site at these group homes.

Pharmacy B was a franchise pharmacy also located in a residential neighbourhood along a busy street. There is no health clinic co-located on site. The pharmacy has a small front store, and chairs were placed in front of the raised pharmacy counter that served as a waiting area. Beside the dispensary, was a private counselling room. Medication reviews were provided in the pharmacy, and sometimes the pharmacist owner, along with student pharmacists, visited nearby residential group homes to deliver vaccinations and offer additional services.

Pharmacy C was a medium-sized corporate chain pharmacy located in a residential suburb. The front store occupies most of the square footage and is stocked with a variety of retail items. The pharmacy is at the rear of the store. The private counselling room was located beside the dispensary. There was a computer, desk and chairs in the counselling room. There was a waiting area with chairs in front of the counselling room. Medication reviews were delivered mostly over the phone. Pharmacists designated to provide patient care services for the shift handled the phone medication reviews. Pharmacists were not observed to visit the patient's home to provide pharmacy services.

Table 4.1 Summary of study sites

	Pharmacy A	**Pharmacy B**	**Pharmacy C**
Type of pharmacy	Franchise	Franchise	Corporate chain
Location	Established residential neighbourhood	Established residential neighbourhood	Residential suburb, Stand-alone store in an unenclosed shopping center
Accessibility	Along a busy street	Along a busy street	Slower traffic
Health services	6 pharmacies and clinics with 2 km	4 pharmacies and 6 clinics within 2 km	3 pharmacies and 2 clinics within 2 km
Operating hours	Monday to Saturday	Monday to Friday	Daily
Counselling room	Yes	Yes	Yes
Staff	2 FT pharmacists 2 technicians/ assistants	2 FT pharmacists 1 technician/ assistant	3 FT and 1 PT pharmacists (work in shifts) 1 technician/ assistant
Participating pharmacists/ Certifications	Ph 1 Male (FT, APA) Ph 2 Female (FT, APA)	Ph 3 Female (FT, APA)	Ph 4 Female (FT, APA) Ph 5 Female (PT, APA)
Role and years of practice experience	Ph 1 Staff pharmacist (5-10) Ph 2 Owner/manager (30-40)	Ph 3 Owner/manager (20-30)	Ph 4 Staff pharmacist (5-10) Ph 5 Staff pharmacist (5-10)
New or existing patient study participants	New patient - Pt 1 Existing patients - Pt 2, Pt 3, Pt 4, Pt 5 Pt 6	Existing patients - Pt 7, Pt 8, Pt 9	New patients - Pt 10, 11
Abbreviations: APA, additional prescribing authorization; FT, full-time; Ph n, pharmacist study ID; PT, part-time; Pt n, patient study ID.			

4.4.2. Participants and context of medication reviews

A total of 11 patient-pharmacist dyads were observed and audio-recorded, comprised of 11 patients and five pharmacists from three community pharmacies. Table 4.2

describes the characteristics of the medication review encounters and participants. All 11 patients were adults; seven were male (64%). Two patients were family members and had their medication reviews on the same day. Of 5 pharmacists, four were female. Medication review encounters lasted 19 minutes on average, ranging from 4 minutes to 42 minutes. Pharmacists conducted seven of the 11 medication reviews with the patient in person at the pharmacy. Two medication reviews were conducted over the phone, and two were conducted at the patient's home. Of the seven medication reviews at the pharmacy, five were conducted in a private counselling room, one review was carried out at the pharmacy counter, and one was done at a semi-private booth to the side of the pharmacy counter. Out of 11 patients observed, five participated in the interviews with the researcher following the medication review. Two of the five patients were female. The average duration of the telephone patient interviews was 26 minutes (range, 13-35 minutes).

During the medication reviews observed, pharmacists had a printed medication list obtained from the patient's pharmacy profile and/or a documentation form used to make notes during the review. At the time of the study, signatures were not required for medication reviews as the policy allowed verbal consent. DO observed that pharmacists obtained the patient's signature on the pharmacy's care plan documentation form for medication reviews done at the pharmacy or patient's home.

Table 4.2 Characteristics of observed medication reviews and participants

ID	Patient Gender	Pharmacy[a]	Pharmacist ID	Location of medication review (MR)	Duration of MR (minutes)	Follow up interview	Age	Highest education	Prior relationship with pharmacist
Pt 1	Male	A	Ph 1	Pharmacy/ semi-private booth	18	No	NA	NA	No
Pt 2	Male	A	Ph 2	Pharmacy/ counselling room	42	Yes	55	Some high school	Yes
Pt 3	Male	A	Ph 2	Pharmacy/ counselling room	12	Yes	52	Post- secondary	Yes
Pt 4	Male	A	Ph 2	Pharmacy/ counselling room	11	No	NA	NA	Yes
Pt 5	Female	A	Ph 2	Patient's home	40	No	NA	NA	Yes
Pt 6	Female	A	Ph 2	Patient's home	28	Yes	64	Post- secondary	Yes
Pt 7	Female	B	Ph 3	Phone	13	No	NA	NA	Yes
Pt 8	Male	B	Ph 3	Phone	11	Yes	78	Post- secondary	Yes
Pt 9	Male	B	Ph 3	Pharmacy/ counselling room	10	No	NA	NA	Yes
Pt 10	Male	C	Ph 4	Pharmacy/ pharmacy counter	4	No	NA	NA	No
Pt 11	Female	C	Ph 5	Pharmacy/ counselling room	23	Yes	37	High school	No

Abbreviations: MR, Medication review; NA, Not available; Ph, Pharmacist; Pt, Patient
[a] Pharmacy A and B are franchise pharmacies. Pharmacy C is a corporate chain pharmacy.
Pt 2 and Pt 3 are family members. Pt 10 was picking up prescriptions for his child, who was not present at the medication review.

4.4.3. Findings from medication review analysis

The results from the analysis of 11 medication reviews are presented in Table 4.3. Four patient active participation categories identified were: asking questions, assertive statements, expressions of concern and patient humour. Three pharmacist communication categories were partnership building, supportive talk and question-asking. These categories and **subcategories (in bold typeface)** are described below with example quotes.

Table 4.3 Patient active participation and pharmacist communication in medication review interactions (n=11 interactions)

Behaviour	**Frequency**	**Content of communication**				
		Medication	Medical condition	Other medical	Lifestyle	Social talk
Patient active communication						
Patient questions	39	11	3	6	6	13
Assertive statements	186	56	48	13	58	11
Expressions of concern	53	9	22	8	3	11
Patient humour	10	3	1	1	4	1
Pharmacist communication						
Partnership building	48	26	7	3	11	1
Supportive talk	163	22	58	8	35	40
Pharmacist questions	315	104	71	34	86	20

4.4.3.1. Patient active participation

The patient active participation categories identified were asking questions, assertive responses, expressions of concern, and patient humour. The categories are described below with examples of subcategories. The complete listing of subcategories is available in the codebook in Appendix Q.

4.4.3.1.1. Asking questions

Of 11 encounters, nine contained patient questions. Only two patients, Pt 2 and Pt 5, did not ask questions. Patients asked a median of two questions, a mean of three questions (range, 0-10 questions), and a total of 39 questions. Five patients asked one or two questions. Patients asked about medical topics, including medications, and medical conditions. Medication questions concerned medication refills, dosing, changes and the duration of use. About a third of patients' questions were about social topics indicating that some patients' questions were not medical or lifestyle-related. For example, *"You know where that [seniors home] is?" (Pt 6).*

Across medical or social topics, patients asked questions to clarify the terms used by the pharmacist *"Inhaler? You mean the puffer?" (Pt 10) o*r asked the pharmacist to repeat when the patient did not hear clearly or understand, such as "*Pardon me" (Pt 8).* Patients initiated more questions (59%) than pharmacists (41%). The following excerpt illustrates a patient-initiated question:

> *Ph 2: We've got the Dig-[Digoxin] for your heart and then Citalopram for your mood.*

Pt 6: What was I going to ask you? What about the...the memory- sorry, not memory loss, um- uh....the Ativan?

An example of pharmacist-prompted question

Ph 5: Any other complaints or questions for me?

Pt 11: I do have a question. I'm not sure if you like know this, but uh-

Ph 5: Yeah, go ahead, I'll try my best.

Pt 11: Metformin, like, is it like lifelong?..if you..follow the diet?

4.4.3.1.2. Assertive statements

All patients made at least one assertion (range, 1-38). A median of 14, a mean of 17, and a total of 186 assertions were identified. Assertions accounted for 65% of patients' active participation behaviours, of which the patient initiated 51% and the pharmacist prompted 49%. Patients **explained** their perspectives and experiences 85 times, providing detailed responses during the conversation. They asserted themselves by sharing their beliefs and assumptions about their health, **making requests** (16 instances), and expressing their **preferences** (26 instances), expectations or goals they wanted to meet. One patient said, "*I'm trying to keep myself healthy and looking at a different lifestyle because I've got diabetes, so I have to watch what I eat and how much sugar I intake and substitute a lot of it" (Pt 2).*

Assertive behaviour was also demonstrated when some patients **disagreed** 29 times with the opinion of the pharmacist or other health professionals and insisted on their own views of how to manage their health, which was sometimes shaped by personal experiences. For example, an elderly woman who was a victim of Munchausen syndrome

by proxy as a child illustrates an assertive behaviour: *"They were to operate on my thyroid…I've had so many surgeries…And that was when my mother insisted on it, not me. When I took charge on my own self [I said], you're not coming near me" (Pt 5).* Some patients mentioned **deciding** to stop or delay medical treatment due to reasons such as side effects, lack of benefit, or the perception that timing was inappropriate (6 examples). For example, a patient who decided to postpone smoking cessation therapy because of unhelpful social influences in their current housing environment explained, "*I've tried with Nicoderm. I was gonna think of maybe asking him for a prescription again. But I'm gonna wait a little bit because everybody smokes in [residential group home]" (Pt 1).*

Another way patients provided assertive responses was by showing their knowledge of health. Patients **interrupted** (15 instances) the pharmacists when the pharmacist provided education or advice, interjecting their knowledge into the conversation. One patient brought a health journal to the medication review consultation at the pharmacy. Some patients **introduced a new topic** (6 times) or **deferred to the physician's** advice on managing their health (4 times).

4.4.3.1.3. Expressions of concern

Ten out of 11 patients expressed concerns (negative emotion) at least once during the medication review (range 0-13). Overall, there were 53 expressions of concern. One individual (Pt 10) did not share any concerns during the four-minute medication review. The pharmacist prompted 55% of the concerns, compared to those initiated by the patient (45%).

Patients mostly expressed **worry and anxiety** over their symptoms, potential complications and worsening of their health or social situations that appeared difficult to handle with 16 examples. One patient who was particularly worried said: *"My sleep is okay, but I keep getting up to go to the bathroom." "How come I feel like- um, I look like um a ghost or- and I'm so exhausted that I have naps during the day" (Pt 7)*. Two patients expressed **fear** (6 times) and sought reassurance from the pharmacist. For example, one patient repeatedly expressed fear over her upcoming move and the risk of her pet falling off the high-rise building she was moving to, *"I was afraid that [pet] would climb it. There's no way to climb it?" (Pt 6).*

There were six instances where patients verbalized **anger** about previous healthcare experiences that were not satisfactory. *"I was supposed to do it [blood work] before, but I was hospitalized, and they do they all screwed up my medication" (Pt 1).* Only one patient got angry over a comment made by the pharmacist, which led to an abrupt end to the conversation.:

> *You're saying she's [patient's mom] so nice…Well, so are we! Why do you think she's nice and we're not?...you didn't say and you're nice too. It's like you're putting me down. I'm sorry. I don't feel like talking right now. I really have to go (Pt 7).*

There were 25 instances of **other negative emotions**, with the most common including confusion (6 instances), frustration (5 instances), and disappointment (3 instances). A wide range of negative emotions were also observed, including sadness, sarcasm, embarrassment, discouragement, surprise, irritation, and isolation.

4.4.3.1.4. Patient humour

Patient humour was not part of the APPC and was newly identified. Five patients expressed humour during the interaction (10 instances). An example is as follows:

Ph 3: Any change in your height and weight?

Pt 9: Maybe, a little bit of gravity, I dunno [laughter]

4.4.3.2. Pharmacist communication

Pharmacist communication categories were partnership building, supportive talk and question asking. Partnership building and supportive talk were the two forms of patient-centered communication analyzed. The three categories are described below.

4.4.3.2.1. Partnership building

Partnership building constituted 23% of pharmacists' patient-centered communication with patients during medication reviews. Pharmacists demonstrated at least one partnership building behaviour in 10 out of 11 medication reviews and a total of 48 times. Most commonly with 14 examples, pharmacists explicitly **granted patients' requests** for medications to be filled or agreed to contact the patient's physician to follow up about a prescription.

Pharmacists verbally encouraged patient involvement by **asking patients about their preferences, and expectations** 10 times. Pharmacists invited patients to consider a treatment, recommendation, or procedure and offered to assist if the patient was interested. For example, patients were asked if they would be interested in smoking cessation, taking a laboratory test, seeing a physician to assess symptoms, and checking body weight. The following quotes illustrate this communication strategy: *"Would you be interested if I can*

give you some tips on how to, you know, treat that [incontinence]" (Ph 3-Pt 7). Do you need any help with that [refers to quitting smoking]? Do you want to talk about any patches, gum, inhalers? (Ph 2-Pt 2). In one medication review, patients' preferences were observed to inform the part of the treatment plan discussed later during the visit. *"Okay, I'm going to talk to him [physician] and see if we have a couple of choices, but we'll stay away from the powder inhalers then [patient earlier reported it made them choke]" (Ph 2-Pt 5).*

Encouraging patient decisions was a way pharmacists demonstrated partnership building in nine instances. For example, a pharmacist answered a patient's question about the safety of concurrent vaccine administration and explained the patient could decide according to their comfort level *"No [need to wait in between], you can do both [vaccines]. It's up to you"* (*Ph 1-Pt 1).* One aspect of partnership building that occurred less frequently (i.e., 5 instances) was pharmacists **soliciting patient's feelings**. One pharmacist explicitly asked about the patient's reaction at the time of diagnosis. "*How did you feel?" (Ph 5-Pt 11).* Another pharmacist asked multiple patients about their mood and if they were experiencing winter blues. We identified 10 examples of other partnership building that did not fit the APPC subcategories.

4.4.3.2.2. Supportive talk

The majority (77%) of patient-centered communication occurred through supportive talk, including **encouragement, reassurance, empathy, humour and other supportive talk**. Supportive talk occurred a total of 163 times in the medication reviews. A common way for pharmacists to support patients was to offer **encouragement** to control chronic conditions with 84 examples. Some pharmacists recognized patients' efforts to stay well

and praised them for medication adherence and lifestyle behaviours self-reported by patients. Examples of pharmacists' statements used to encourage patients are, "*That's pretty good [you quit smoking]. Excellent job on that because smoking and diabetes makes diabetes worse*" *(Ph 5-Pt 11)*, *"I'm so glad you follow instructions. It's really refreshing" (Ph 2-Pt 2).* Aside from being happy with patient-reported information, pharmacists were impressed when laboratory test results were within normal range. One pharmacist commented, "*Your numbers, I looked them up on Netcare, they're looking good. Your sugars are looking really good. It's nice 'cause I don't see your kidneys being cranky about the sugars and stuff. So that's good" (Ph 2-Pt 4).*

Supportive talk was also expressed by **reassuring patients** (35 times) about a medical problem or social situation that caused them to be concerned. One pharmacist said: "*Yeah, so that'll [medication] help you sleep or get you through the day if you're feeling a bit overwhelmed"* (*Ph 2-Pt 6).* Pharmacists supported patients with empathetic statements that explicitly recognized the emotions expressed by the patient, *"Sure it's hard [to quit] when everyone around you smokes." (Ph 1-Pt 1).* **Empathy** was also communicated 21 times using words that validated the patients' feelings. "*I'm here for you to talk to." (Ph 3-Pt 7), "I believe you" (Ph 2-Pt 2).*

Pharmacists used **humour** in nine instances to support patients, and it was identified as a new subcategory. Although humour was used in social talk, pharmacists were found to initiate and respond with humorous remarks to a greater extent within medical topics to lighten the mood of patients who raised concerns.

Pharmacist: "That [pulse] was a little high. Were you mad at somebody?" (Ph 2)

Pt 3: I don't know [giggles]

There were 14 examples of **other supportive talk** that did not fit into the APPC subcategories.

4.4.3.2.3. Pharmacist question-asking

All pharmacists typically approached the medication reviews with questions on various topics, including medications, medical conditions, lifestyle and social talk. A total of 315 questions were identified across 11 medication reviews. Pharmacists used questions to gather information, introduce new topics, prompt more discussion on a topic, seek patients' input, and direct the conversation.

Pharmacist questions were categorized as **open** (33%), **closed** (32%), **multiple** (20%) or **leading questions** (15%).

Open questions were broad and allowed the patient to answer as they wanted. Compared with other question types, pharmacists did not provide a specified range of answers (closed questions) nor lead the person to give a certain answer (leading question) when using open questions.

- How's your sleep? Ph 3-Pt 7

- You've been taking how long? You've been taking this one [medication] like how many years? Ph 5-Pt 11

Sometimes, closed questions were asked in an open way and were coded as open questions.

- Any current health issues giving you grief? Ph 2-Pt 3

Closed questions were typically asked to obtain definite, or one word answer such as “yes/no”, "true/ false."

- *The prescription that he's getting today…he had this before? Ph 4-Pt 10*

- *Do you smoke? Ph 3-Pt 9*

Leading questions asked the patient to confirm the information stated by the pharmacists.

- *You haven't had any more strokes, right? Ph 2-Pt 5*

- *You take your meds regularly? You're not forgetting them very often? Ph 2-Pt 3*

Multiple questions captured moments where pharmacists asked two or more questions consecutively before the patient responded. This category included the pharmacist providing a list of options (multiple choice questions), paraphrasing or restating the question in another way, and asking double-barrelled questions. Pharmacists were observed to combine two different forms of questions (i.e., open, closed, leading questions), following each other without pausing to allow the patient to respond to the first question asked.

- *Caffeine? Coffee? Tea? Colas? Ph 2-Pt 6* (multiple options)

- *How about the pills? everything kind of hunky-dory with those? Ph 2-Pt 3* (open and leading questions combined)

4.4.4. Findings from patient interviews

The analysis of patient interview data revealed three key themes: (1) Initiating and benefiting from the medication review opportunity (2) Perceptions of patient and pharmacist roles, and (3) Relationships and communication within the medical and social

context. See Table 4.4 for the summary of the themes for each patient. The themes are described below.

4.4.4.1. Theme 1: Initiating and benefiting from the medication review opportunity

Medication review opportunities were either pharmacist-initiated or patient-initiated. In pharmacist-initiated reviews, the pharmacist contacted two patients they already knew (Pt 3, Pt 8) for a medication review as a routine part of their care without the patients expressing an immediate need to participate. The other three patients (Pt 2, Pt 6, Pt 11) had approached the pharmacist to help address health-related needs, concerns and requests. This led to an opportunity for the patient to participate in the medication review with the pharmacist, even though none of the patients directly requested the review. The reasons for participating varied among patients. For example, one patient needed a vaccine before moving into senior housing, and another who was recently diagnosed with diabetes was seeking instructions on how to use a glucose monitor. One patient had expressed concerns about low blood sugar readings at home and needed to discuss them with the pharmacist.

Patients highlighted the benefits of participating in medication reviews. Some benefits were linked to patient-specific reasons for seeking pharmacist's care, such as getting a vaccine, and information on device usage. Some patients also described their overall satisfaction with the pharmacist interaction in positive terms, for example, *"it was a blast"* (Pt 2), "*That interaction that we had…that's what [pharmacist] and I always have. It's always positive and it's always good" (Pt 6)*. Patients shared that participating gave them information that was helpful and comprehensive. One patient said, *"[It was] very*

informative. She told me if I had any problems with medications, if it started irritating my stomach or something, just to stop taking it" (Pt 2).

4.4.4.2. Theme 2: Perceptions of patient and pharmacist roles

Patients described patient and pharmacist roles as active or passive. Patients who perceived their role as active described taking responsibility to ask questions, obtain information, self-manage medications and other medical supplies (e.g. glucose meter), and request their needs from appropriate sources, including pharmacies. One patient said: *"I got to be involved 100%...I wouldn't do half that, I would do the full, full work" (Pt 3).* Patients perceived that knowledge of medications and their conditions contributed to being engaged. One patient (Pt 2) explained that maintaining a health journal, which he presented to the pharmacist during the medication review, enabled him to take an active role. He could keep track of everything about his health and share that information with healthcare professionals. However, some patients did not see a need to actively participate by asking the pharmacist questions. They were interested in responding to pharmacist questions in honest, polite and respectful ways, describing a passive patient role.

Patients felt the pharmacist played an active role in the interaction. Patients viewed the pharmacist's role as asking questions, fulfilling patients' needs, giving complete information to patients, such as explaining medication effects and instructions, and ensuring patients have a clear understanding, especially for new prescriptions or devices. One patient had a positive attitude towards the pharmacists prescribing medications (refills), as they had experienced it. Some participants recognized how the pharmacists monitored their condition and supported them on an ongoing basis, not limited to when

doing a medication review. One patient explained: *"She [pharmacist] is always concerned about my health stuff. She always takes my blood pressure, always [measured] my blood sugar...She's always conscientious about what works and what doesn't, [asks] how you are feeling and...she just notices stuff, and she asks"(Pt 8).* Patients believed that pharmacists could initiate the discussions and provided help even without patients having to request it. They viewed pharmacists as potential guides who could direct them to the right resources and care. One patient reported that the pharmacist enabled him to be engaged and start smoking cessation therapy, *"When [pharmacist] gave her suggestion about me quitting smoking and everything else. Well I took her up on her offer and I went and picked up a bunch of stuff" (Pt 3).*

4.4.4.3. Theme 3: Relationships and communication within the medical and social context

Patients highlighted the relationships with pharmacists, other healthcare professionals and individuals in their social circle as important factors influencing participation in their care. Patients felt having a long-term trusting relationship with the pharmacist over time contributed to their involvement. Two patients referred to the pharmacist as *"a good friend" (Pt 8)* or *"like family" (Pt 2).* However, the participants contrasted their relationship with their pharmacists to the relationship with other pharmacists and physicians with whom they had negative experiences. One patient explained that lack of social support was a barrier to participation. It appeared that the patients who did not have social support or trusted healthcare professionals leaned on their community pharmacist to support their care.

Patients commonly described pharmacist communication as affecting their perception of the pharmacist and participation. Patients perceived that the pharmacist's willingness to listen and show concern for the patient facilitated patient participation. One patient said, *"I've never had a pharmacist that showed that much compassion and that much care" (Pt 2)*. Moreover, when asked to evaluate the pharmacist's communication during the medication review encounter, the patients rated different aspects of their pharmacist's communication skills as excellent. They reported that pharmacists gave them an opportunity to talk, listened to what they had to say, used words they could understand, provided all the information they needed, treated patients with courtesy and respect and showed genuine concern for their health.

One out of five patients had mixed views about pharmacist communication. She responded that the pharmacist did not ask about the effectiveness of her medication or any problems or concerns she had. Similarly, the patient stated that they did not have questions or share concerns with the pharmacist as they felt the pharmacist provided sufficient and comprehensive information. The patient was observed to ask a question during the medication review, and it is likely she did not recall her behaviour. Specifically, the patient shared, *"I didn't really ask any questions…I think everything was pretty well like covered" (Pt 11).*

Table 4.4 Patient experiences and views of patient participation in medication reviews

Theme	**Pt 2**	**Pt 3**	**Pt 6**	**Pt 8**	**Pt 11**
Theme 1: Initiating and benefiting from medication review opportunity					
Medication review opportunity was initiated by the patient or pharmacist	Pt	Ph	Pt	Ph	Pt

Theme	Pt 2	Pt 3	Pt 6	Pt 8	Pt 11
Patient specifically requested medication review	No	No	No	No	No
Patient experienced medication review in the past	No	Yes	Yes	Yes	No
Patient described benefits of the medication review interaction	Yes	Yes	Yes	Yes	Yes
Theme 2: Perceptions about patient and pharmacist roles					
Perceptions about patient role	Active	Active Passive	Passive	Active	Active
Perceptions about pharmacist role	Active	Active	Active	Active	Active
Theme 3: Relationships and Communication with the medical and social context					
Experienced a trusting patient-pharmacist relationship	Yes	Yes	Yes	Yes	No
Experienced a negative interaction with other healthcare professionals	Yes	No	No	Yes	No
Experienced social support from family/ friends	Social support	No	Social support	NA	NA
Pharmacist asked if you had problems with your medications	Yes	Yes	Yes	Yes	No
Pharmacist asked how well you think your medications work	Yes	Yes	Yes	Yes	No
Pharmacist used words that you could understand	Yes	Yes	Yes	NA	Yes
Pharmacist provided all the information needed	Yes	Yes	Yes	NA	Yes
Pharmacist treated you with courtesy and respect	Yes	Yes	Yes	Yes	Yes
Pharmacist showed genuine concern for your health	Yes	Yes	Yes	Yes	Yes
Pharmacist gave you an opportunity to talk	Yes	Yes	Yes	Yes	Yes

Theme	Pt 2	Pt 3	Pt 6	Pt 8	Pt 11
Pharmacist listened to what you had to say	Yes	Yes	Yes	Yes	Yes
Abbreviations: NA, not available; Pt, patient; Ph: Pharmacist					

4.5. Discussion

This study examined the characteristics of patient participation and pharmacists' communication using audio-recordings of the medication review interactions and described patient experiences of medication review interaction through interviews. Analysis of the medication review data categorized patients' active participation by how they varied within the content of the conversation, such as when discussing medications, medical conditions, lifestyle or social topics. Patients used mostly assertive statements to actively participate in the medication review. Expressions of concern, questions and humour were demonstrated to a lesser extent. Pharmacists used supportive talk more often than partnership building as a patient-centered communication strategy. Pharmacists in this study added humour as a way to support patient's emotions. Most pharmacist questions were either open-ended or closed questions. Multiple questions and leading questions were less frequent.

Our analysis of patient questions across different topics yielded valuable insights. The topics ranged from medically focused questions about medications and medical conditions to lifestyle and social topics. Surprisingly, our study revealed that about half of the patient questions were about social and lifestyle topics, which was higher than in other studies.[30,32] The higher use of social talk in these interactions could be related to the existing patient-pharmacist relationship. Eight out of 11 patients were familiar with the

pharmacists, which may have influenced their comfort in discussing their personal experiences.

In the interviews, patients reported positive experiences with medication reviews. Patients perceived medication reviews as helpful and informative, which is consistent with previous research.[33,34] Four out of five patients felt that existing relationships facilitated their positive experience with pharmacists. Pharmacists' listening skills, respectful attitudes and ability to show genuine concern towards patients were highly rated, similar to other studies.[35–37] The predominantly positive patient perceptions of pharmacists were similar to the medication review observational data in the current research. In the medication reviews, pharmacists frequently asked questions and showed care in the form of encouraging and reassuring communication.

Patients' assertive statements were the most frequent type of active patient participation in this study. Patients explained their beliefs, opinions and perspectives about their health, disagreed with the health professionals/pharmacist's opinion or advice, and shared their preferences and requests during the conversation, which is in line with previous studies.[30] Some deferring to the physician was noted, though not as prominent as some other studies.[38,39] Patients asserted themselves when responding to pharmacist questions about medical, lifestyle or social topics and also initiated assertive behaviour. Some also shared their knowledge and experience of the topics being discussed, which may be likened to being an expert in managing their own health. It is unclear whether patient assertiveness is due to individual patient beliefs about their role, relationship with the pharmacists, and/or other factors.

The use of questioning techniques in patient-clinician interactions to obtain information has been emphasized, so it is not surprising that all five pharmacists asked questions in the medication reviews. Interestingly, pharmacists asked 315 questions (mean of 28.6 per pharmacist), about eight times more than patients who asked 39 questions (mean of 3.5 per patient). It is possible that pharmacists intended to comprehensively review all the patient's conditions and medications, guided by the care plan documentation form and/or patient medication list, which may have resulted in the patient being unable to voice their questions.

Pharmacists asked patients a range of questions during medication reviews. Research has shown that 8-14% of pharmacist questions were open-ended.[32,40] However, our study demonstrated a substantial proportion of questions (33%) were open, much higher than reported in previous studies.[32,40] In this study, closed questions asked in an open way were defined as open questions which may explain why open questions were higher than other studies. Pharmacists also frequently employed closed questions (32% of pharmacist questions) during the medication reviews. Given that open questions generally help explore and assess patients' needs and concerns, it may be encouraging that pharmacists used open questions. However, studies suggest that open-ended questions may not always result in greater elaboration from the patient.[41] They may, in fact, hinder the flow of the interaction,[41] while closed questions may enhance patient reporting of information in clinical visits.[42] For example, parents reported three times more signs and symptoms of eye problems with closed questions than open-ended questions.[42]

Another finding was that pharmacists asked multiple questions, including providing a list of options, paraphrasing, combining types of questions, or using double-barrelled questions. It appeared that pharmacists attempted to clarify their questions and to make it easier for the patient to respond. Multiple questioning may be a purposeful interview strategy to efficiently carry out the medication review to cover as many components as possible or perhaps guide the patient. Our work extends the existing literature on pharmacist question-asking behaviour by classifying questions as open, closed or leading questions and adding multiple questions to the typology of questions. A broader range of question types could be included in future analyses of patient-clinician communication.

4.5.1. Limitations

This study has several strengths but some limitations that should be addressed in future research. There was a high chance of selection bias as pharmacists selected all the patients for the medication reviews, and these patients may be different from those who were not selected. Sampling participants from a pharmacy where a high number of medication reviews are performed may increase the researcher's choices about which patients to sample and reduce selection bias. Other methods, such as patient self-nomination, can be considered.

Social desirability may have influenced patient reports of their experiences and interaction with the pharmacist described in the five patient interviews. Observer effects or reactivity may have occurred where patients and pharmacists may have modified their behaviour due to being observed or recorded. However, data suggests that people change very little when observed.[43] It is reasonable to assume that participants may communicate

better when they know they are being observed and recorded. To minimize the observer effect, the researcher developed rapport with pharmacy staff and spent time in the pharmacy apart from when recording medication reviews.

This descriptive study focused on characterizing patient and provider communication during the medication review, so we did not examine the effect of patient participation on pharmacist patient-centered communication, such as whether active patients predicted more partnership building or supportive talk from pharmacists or vice versa. This could be an area of further study. We did not select patients with a particular medical condition, so we had a considerably diverse sample. Future studies could focus on a specific condition (e.g. diabetes) for an in-depth analysis of the unique needs of that population.

4.6. Conclusion

This study analyzed patient participation in medication reviews using observational data of patient-pharmacist interactions and explored patient experiences from interviews. Patients actively participated in the encounter, mainly by making assertive statements. These patients shared positive experiences of the medication review and viewed it as helpful and informative. Patients emphasized pharmacists' caring behaviours and trusting relationships as supporting their participation. Nevertheless, we noted that these pharmacists used more supportive talk than partnership building during the interaction. Pharmacists asked mostly open or closed questions, followed by multiple, or leading questions. Our findings reveal that pharmacists may miss opportunities for partnership

building and need to allow room for patients' questions when interacting with patients during medication reviews.

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Chapter 5. Discussion and Conclusion

5.1. Summary of research

The overall purpose of this dissertation is to explore patient participation in pharmacy medication reviews with the ultimate goal of contributing to patient-centered care and health outcomes for people living with chronic health conditions. The research explores patient participation in the context of community pharmacy-delivered medication reviews. This multi-paper dissertation comprises three studies: a scoping review,[1] a qualitative descriptive study, and a multimethod study.

In the first study presented in Chapter 2, I utilized a scoping review methodology to review, synthesize and map the existing peer-reviewed literature regarding community pharmacy medication reviews in Canada published between January 2000 and August 2020. Based on the methodological approach, 29 out of 41 studies were quantitative, 10 used qualitative designs, and two used mixed methods. The review identified key research areas: program uptake, health outcomes, stakeholder beliefs and attitudes towards medication reviews, processes and collaboration, and pharmacy workplace culture. Most research was conducted on program uptake and health outcomes, and there was limited evidence on patient-pharmacist communication processes and patient participation during the interaction (i.e., how patients actively engaged in the medication review), indicating a need for research in this key aspect of patient-centered care. Regarding the explicit use of theory or models, only five studies in the scoping review reported applying a theoretical framework to guide the research, of which three were implementation frameworks. Thus, the scoping study also highlighted the need for research incorporating a relevant and

explicit theoretical framework to enhance our understanding and interpretation of the phenomenon of interest.

Considering the need for research on patient participation, I explored pharmacists' experiences of patient participation using a qualitative descriptive methodology in the second study presented in Chapter 3. I interviewed 12 community pharmacists in Alberta. The expanded Linguistic model of patient participation guided data analysis.[2] Pharmacists described how patient participation was influenced by patient predisposing, patient internal enabling, external enabling and pharmacist factors. Pharmacists perceived it as their job to engage patients in medication reviews, although they encountered patient-related barriers, including low motivation and perception of health needs, long medication history, and lack of awareness of the pharmacist's expanded role. Enabling factors such as patient knowledge and communication skills facilitated participation. A range of pharmacists' strategies to engage patients were identified, including patient selection strategies, explaining the purpose of the review, promoting the pharmacist's role, adapting terminology for medication reviews, and respecting non-pharmacists. Some pharmacists reported using partnership building and supportive communication to engage patients. Pharmacists stated they adapted questions, used patient laboratory results, performed the review at the pharmacy counter, conducted incremental reviews and used various scheduling strategies to overcome barriers related to the patient and pharmacy context.

The third study presented in Chapter 4 consisted of a qualitative descriptive multimethod study using 11 audio-recorded observations of medication reviews and five patient semi-structured interviews. The objective was to characterize the nature of patient

participation in medication review encounters. Content analysis was based on deductive coding using the Active Patient Participation Coding system (APPC)[3] and inductive analysis of patient interview data. The study found that asking questions, expressing concerns, making assertive statements and using humour characterized patients' active participation behaviour, with assertive statements being the most common. Pharmacists more frequently used supportive talk compared with partnership building. All pharmacists asked questions. Most pharmacist questions were either open-ended or closed questions. Multiple questions and leading questions were less frequent. The study highlighted humour and social talk as important ways to enact and foster patient participation in the interactions. In semi-structured interviews, patients described positive experiences in medication reviews with pharmacists, reporting the interaction was helpful and informative. Patients believed their role encompassed giving information, asking questions and making requests when interacting with pharmacists. Three patients approached the pharmacists with their needs and concerns, which were then turned into a full medication review by the pharmacist. Four out of five patients had trusting patient-pharmacist relationships, which contributed to patients' positive experiences with pharmacists. Patients perceived pharmacist listened to them, provided information and explanations using easily understood language, showed genuine concern, and treated them with courtesy and respect.

5.2. Integration of findings across studies

Findings from the three studies provide a basis to explore similarities and differences. This discussion will focus on question-asking, patient and pharmacist role

perceptions and behaviours, and workplace context and strategies to engage patients, as these were described across at least two of the studies.

5.2.1. Question-asking

Question-asking is an important way for patients and healthcare professionals (HCP) to engage during healthcare encounters,[4–7] Research on question-asking about medications mainly involve: factors influencing the questions asked by HCP or patients,[8] HCP reactions to patient questions,[8] effects of patient questions on pharmacist information provision,[9] frequency and types of questions,[10–12] patient preferences for pharmacist use of three prime questions (3PQs),[13] patients' reactions to pharmacy staff questions.[14]

In this dissertation, the findings in studies two and three add to the literature on question-asking in patient-pharmacist interactions from two perspectives: pharmacist questions and patient questions. In study two, pharmacists shared that they not only asked questions to gather information during medication reviews but also intentionally adapted their questions based on the patient's reaction and interaction context. Pharmacists described using leading questions to ask about medication adherence. Fewer questions were asked if the patient appeared annoyed or disinterested in the medication review. In contrast to perceived negative patient response, patients in the follow-up interviews in study three described positive responses, such as being respectful and open toward the pharmacist asking questions during the medication review. In terms of perceptions of patient questions, pharmacists in study two viewed patients who asked questions as being motivated or interested in engaging and discussing their medications, though pharmacists did not describe their reaction to patient questions.

The observation of patient-pharmacist interactions in study three enabled the characterization of the nature of questions asked in terms of the number and content of questions. Both patients and pharmacists asked questions, but the content varied to some extent. 52% of patient questions were commonly related to medications or medical content, 33% were about social talk and about 15% focused on lifestyle. In a similar way, pharmacists' questions were heavily centred on medical topics, but they asked a higher percentage (27%) of lifestyle questions than patients. The number of questions differed between patients and pharmacists. Patients asked 39 questions. By contrast, pharmacists asked about eight times more questions than patients 315. The fact that pharmacists asked significantly more questions is not surprising, as previous research indicates that pharmacists control the agenda and dominate the conversation. This may have limited the extent to which patients could engage and ask their own questions.

5.2.2. Patient and pharmacist role perceptions and behaviours

It was evident that patients' and pharmacists' perceptions of pharmacists' roles are important factors to consider when engaging patients in medication reviews. Study three found that some patients viewed their role as active and believed they should actively engage, ask questions, request their needs and seek knowledge to better manage their health. These beliefs aligned with the results of the medication review analysis, which showed that patients demonstrated active participation through asserting their opinions and requests, sharing concerns, asking questions and using humour. It is also consistent with some of the study two findings, where pharmacists perceived patients as more interested in participating in medication reviews when they felt overwhelmed about medications or were

seeking answers to their health-related questions. Conversely, some pharmacists in study two perceived that some patients lacked interest or motivation to participate and preferred to take a passive role.

Perceptions about pharmacists' roles were described from patient perspectives. Patients expected pharmacists to actively engage in the interaction. This active role for pharmacists was described as asking questions, granting patients' needs, providing information and supporting patients' understanding of medications. These patients also perceived that the pharmacist's caring behaviours and trusting relationship contributed to them feeling supported in managing their health. For example, patients reported that the pharmacist listened to them, asked about the medication problems, provided information and explanations using easily understood language, showed genuine concern, and treated them with courtesy and respect. These patients' perceptions of pharmacists align with the behaviour of some pharmacists in the medication review observations. In the medication review, pharmacists frequently asked questions and used supportive communication to encourage, reassure or empathize with the patient.

The studies on pharmacists' perspectives in the scoping review showed that pharmacists believed their role was engaging patients in medication reviews. While some pharmacists and student pharmacists described their role in providing medication reviews as limited to creating an updated medication list and checking adherence, others perceived they were expected to identify and resolve patients' drug therapy problems and optimize patient health. The findings of study two, conducted with Albertan pharmacists, appeared similar, except that none mentioned the focus of medication reviews was limited to

reconciliation of medication lists. They viewed medication reviews aligned with their professional identity as medication experts. Pharmacists in Alberta are required to provide a medication list and care plan to the patient as outlined in the provincial funding model.

Role affinity and role orientation may provide additional insight into these findings.[15,16] Role orientation describes pharmacists' individual perceptions of their role identity, expectations associated with the position, and how they perform the role tasks and expectations (e.g., health care professional, business, manager, dispensing role).[15,16] For example, some pharmacists reported high expectations of practicing patient-centered care and addressing patient needs and were motivated to engage patients.[17,18] Role affinity explains that pharmacists' preference to assume a role depends on the alignment between an individual's skills, personal attributes and interests with the expectations of the role.[16] Some pharmacists preferred to engage some types of patients (e.g. diabetes) than others (e.g. mental health). It is possible that higher role affinity and orientation of some pharmacists contributed to their confidence in engaging certain patient populations (e.g., diabetes), not only the perception that those patients may be at higher risk of medication problems and negative health outcomes. However, role affinity and orientation were not directly observed in the study and could be further investigated.

5.2.3. Workplace factors and pharmacist strategies to engage patients

The pharmacist workplace was accounted for in the studies. The studies on workplace culture in the scoping review reported that heavy workload, inadequate staff and resources, lack of time, quotas and poor work environments (no lunch breaks) were barriers to implementing medication reviews in community pharmacies.[19–23] Consistent with the

scoping review results, pharmacists interviewed in study two reported difficulty engaging patients due to time constraints, busyness, quotas and insufficient staff. Pharmacists viewed these work conditions negatively and felt that it was at odds with good patient care.

Strategies to address workplace barriers to engaging patients in medication reviews reported in study one included adequate staffing, designating pharmacists for clinical services, using technology to support patient recruitment and documentation, training and learning from experience. Additionally, study two identified more strategies pharmacists used to support patient participation. These included having incremental reviews, using patient laboratory results, having a separate workflow for clinical services, and telephone medication reviews for initial care plans and follow-ups. Indeed, pharmacists used some strategies to engage patients during the medication reviews, as observed in study three, including patient laboratory results, conducting medication reviews over the phone, and performing medication reviews over the counter to incorporate them into the workflow. The strategies need to be further studied to determine their effectiveness.

5.3. Significance of findings

Considering that little is known about how patients and community pharmacists interact during medication reviews to shape patient participation, this study fills this literature gap. The Linguistic model of patient participation (LMOPPC) and the Active Patient Participation Coding system (APPC), which is based on the LMOPPC, provided valuable frameworks to explain the barriers, facilitators and strategies related to patient participation. The use of humour and social talk in the interaction to enact and foster patient

participation was highlighted. This study adds to the body of knowledge on patient-pharmacist interaction by contributing empirical evidence regarding patient participation.

It is encouraging that pharmacists hold positive beliefs about their engaging patients and are adapting their engagement strategies by considering the perceived patient's motivation, patient's knowledge and taking opportunities to promote pharmacists' roles. The findings may be helpful in increasing awareness of the key factors (barriers, facilitators) and strategies to consider when planning, implementing and evaluating a patient care model. The results from the research could also inform the development of strategies that foster patient participation in medication reviews. Engaging patients when offering and conducting medication reviews may improve the likelihood of positively impacting patient expectations, perceptions, and care experiences.

5.4. Strengths and limitations

This dissertation research has strengths and limitations. The strength of the studies is related to the research design, data collection and analysis. One key strength is that both empirical studies (studies two and three) were informed by an explicit theoretical framework on patient participation,[2,3,24] Using a theory-guided approach sensitized the researchers to data relevant to the research questions[25] and contributed to the quality and transparency of the analysis.[26] Drawing on the expanded LMOPCC in study two, pharmacists' perspectives on the factors and strategies influencing patient participation in the medication review context were mapped into predisposing factors, patient internal enabling factors, external enabling factors, pharmacist factors and pharmacist strategies.

The Active Patient Participation Coding scale was applied to characterize the nature of patient participation and pharmacists' facilitative communication in study three and provided nuanced descriptions of the communication behaviours of both parties. Two researchers double coded 36% of the medication review transcripts.

Despite the strengths of the study design and methods, the research has limitations that should be considered. The pharmacists in study two were mostly preceptors, managers or owners. This group consists of more experienced pharmacists who may have positive patient relationships and confidence built over the years to engage patients. They may have different views from staff pharmacists who are not in a preceptor role, so future studies can capture the experiences of staff pharmacists. While the sample in the observational study included franchise and corporate pharmacies, recruitment challenges limited participation, especially in the corporate pharmacy chain. More than half of the medication reviews (n=6) were recorded in one pharmacy, and five of those were conducted by one pharmacist. The data collected from interviews with pharmacists and patients may be limited by recall and social desirability biases. However, to reduce the bias of recall, pharmacists in the interview study were asked to share about the most recent medication review they conducted with a patient, leading them to share concrete details. In the interviews in multimethod study three, patients were asked specifically about their medication review with the pharmacist. Social desirability was reduced by explaining that the interview was essentially a conversation to help the researcher learn about participant experiences (and practices in the case of pharmacists) and not an interrogation and fault-finding exercise. The participants were also

assured that their responses were confidential, and that identifying information would not be shared with anyone else or affect patient care.

Study two focused on pharmacist views, and it will be important to study patient perspectives of patient participation. Also, the pharmacists interviewed in study two differed from those observed and audio recorded in study three. This was due to the difficulty in recruiting participants for the observations. For this reason, we could not directly compare the participants' accounts in the interview data with the observation data. Future research may benefit from studying the consistent sample of participants across the interview and observation phases of the project, which would enhance data triangulation.

5.5. Conclusions

This dissertation explored patient participation in pharmacy medication reviews using a scoping review, qualitative descriptive methodology and multimethod study based on observations and interviews. The findings provided insight into the factors influencing patient participation and a range of pharmacist strategies to address barriers that arise from the workplace and patient context and support patient participation. An analysis of patient participation during the medication reviews showed that patients demonstrated assertive behaviours in these interactions and less commonly asked questions, expressed concerns, or used humour. Pharmacists asked questions eight times more than patients and expressed supportive communication behaviours in medication reviews. Humour and social talk were highlighted as important ways to enhance patient participation in the interaction and should be encouraged. The results suggest that pharmacists could engage patients better by

building relationships to learn about patient perspectives on their health and preferences for involvement and increase patients' awareness of pharmacists' role in medication reviews and other patient care services.

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Appendix A

PRISMA Scoping review checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON
TITLE			
Title	1	Identify the report as a scoping review.	Title page
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	Abstract page
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	Introduction
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	Introduction - Canadian context
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Not applicable
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	Methods - Stage 3 Study selection
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	Methods - Stage 2 Identify relevant studies
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Appendix B - Database search strategies
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	Methods - Stage 3 Study selection

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	Methods - Stage 4 Charting the data
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Methods - Stage 4 Charting the data
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	Not applicable
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	Methods Stage 5: Collating, summarizing, and reporting the results
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Figure 2.1 Flow diagram
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Appendix C Characteristics of Studies
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	Not applicable
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Appendix C Characteristics of Studies
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Results
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	Discussion
Limitations	20	Discuss the limitations of the scoping review process.	Study limitations

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	Conclusion
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Funding

PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. ;169:467–473. doi: 10.7326/M18-0850

Appendix B

Search Strategy for Scoping review

Database	Search strategy
MEDLINE Ovid MEDLINE(R) ALL 1946 to August 26, 2020	1. ((drug* or medication or medicine) adj3 (manag* or review*)).ti,ab,kf. 2. (medicine management or SMMA).mp. 3. "medicine use review*".mp. 4. best possible medication history.mp. 5. exp Medication Therapy Management/ 6. pharmac* care plan*.mp. 7. "Newfoundland and Labrador Prescription Drug Program".mp. 8. PharmaCheck.mp. 9. (medication assessment or SMAP).mp. 10. (Comprehensive annual care plan or CACP).mp. 11. MedsCheck.mp. 12. or/1-11 13. (pharmacy or pharmacies or pharmacist*).ti,ab,kf. 14. exp Pharmacies/ 15. exp Community Pharmacy Services/ 16. exp Pharmacists/ 17. 13 or 14 or 15 or 16 18. (canad* or british columbia or alberta or saskatchewan or manitoba or ontario or quebec or new brunswick or nouveau brunswick or nova scotia or prince edward island or newfoundland or labrador or nunavut or nwt or northwest territories or yukon).mp,cp,in,jw,nw. 19. 12 and 17 and 18 20. limit 19 to yr="2000 -Current"
Embase (Ovid) Embase 1974 to 2020 August 26	1. ((drug* or medication or medicine) adj3 (manag* or review*)).ti,ab,kw. 2. (medicine management or SMMA).mp. 3. "medicine use review*".mp. 4. best possible medication history.mp. 5. exp *medication therapy management/ 6. pharmac* care plan*.mp. 7. "Newfoundland and Labrador Prescription Drug Program".mp. 8. PharmaCheck.mp. 9. (medication assessment or SMAP).mp.

	10. (Comprehensive annual care plan or CACP).mp. 11. MedsCheck.mp. 12. or/1-11 13. (pharmacy or pharmacies or pharmacist*).ti,ab,kw. 14. exp pharmacy/ 15. community pharmacist/ 16. pharmacist/ 17. 13 or 14 or 15 or 16 18. (canad* or british columbia or alberta or saskatchewan or manitoba or ontario or quebec or new brunswick or nouveau brunswick or nova scotia or prince edward island or newfoundland or labrador or nunavut or nwt or northwest territories or yukon).mp,cp,in,jw,nw. 19. 12 and 17 and 18 20. limit 19 to yr="2000 -Current"
CINAHL	S1 TI (((drug* or medication or medicine) N3 (manag* or review*))) OR AB (((drug* or medication or medicine) N3 (manag* or review*))) S2 "medicine management" or SMMA S3 "medicine use review*" S4 "best possible medication history" S5 (MH "Medication Management") S6 "pharmac* care plan*" S7 "Newfoundland and Labrador Prescription Drug Program" S8 "Newfoundland and Labrador Prescription Drug Program" [SmartText Searching] S9 PharmaCheck S10 "medication assessment" or SMAP S11 "Comprehensive annual care plan" or CACP S12 MedsCheck S13 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 S14 pharmacy or pharmacies or pharmacist* S15 (MH "Pharmacy, Retail") S16 (MH "Pharmacists") S17 S14 OR S15 OR S16 S18 (canad* or british columbia or alberta or saskatchewan or manitoba or ontario or quebec or new brunswick or nouveau brunswick or nova scotia or prince edward island or newfoundland or labrador or nunavut or nwt or northwest territories or yukon S19 S13 AND S17 AND S18

Appendix C

Characteristics of Studies on Community Pharmacist Medication Reviews in Canada

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Ahmed et al, 2020[60]	To examine perceptions of health care providers about the medication review program for complex renal patients	Saskatchewan: Renal pharmacists, nephrologists, and community pharmacists	Qualitative description	Semi-structured interviews	Qualitative content analysis	Community pharmacists had varying levels of comfort delivering medication reviews for renal patients. Renal pharmacists and nephrologists doubted community pharmacists clinical knowledge and skills to manage complex needs of renal patients. Collaboration and removal of age restrictions for patient eligibility could improve the program
Al Hamarneh et al, 2017[47]	To evaluate the effect of pharmacist medication review and interventions (including prescribing and ordering laboratory tests) on cardiovascular risk	Alberta Adults with diabetes and at least 1 uncontrolled cardiovascular risk factor	Quantitative	Prespecified subgroup analysis. Multicenter, randomized controlled trial in a 1:1 ratio to intervention or	Analysis of covariance; Chi-square tests	Intervention reduced the risk of major cardiovascular events by 21% and improved HbA1c, blood pressure and LDL-cholesterol levels, tobacco cessation and exercise frequency

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
	in a subgroup of patients with diabetes (RxEACH-DM trial)			usual care groups.		
Al Hamarneh et al, 2018[48]	To evaluate the effect of pharmacist medication review and interventions (including prescribing and ordering laboratory tests) on cardiovascular risk in a subgroup of patients with chronic kidney disease (RxEACH-CKD trial)	Alberta Adults with chronic kidney disease and at least 1 uncontrolled cardiovascular risk factor	Quantitative	Prespecified subgroup analysis. Multicenter, randomized controlled trial in a 1:1 ratio to intervention or usual care groups.	Analysis of covariance; Chi-square tests	Intervention reduced the risk of major cardiovascular events by 20% and improved control of BP, LDL cholesterol, tobacco cessation (self-reported), and HbA1c in those who also had diabetes. Larger effects for rural versus urban dwelling
Bharadia et al, 2018[49]	To examine the effect of financial remuneration on pharmacists provision of diabetes management activities	Alberta: Community Pharmacists	Quantitative	Online survey	Chi-square for categorical variables and one-way analysis of variance (ANOVA) for continuous variables.	Diabetes management activities were significantly associated with billing for medication reviews

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Currie et al, 2019[61]	To explore the experiences of pharmacists with the medication review program	Saskatchewan: Community Pharmacists	Quantitative	Online survey	Descriptive statistics; Qualitative content analysis for nine free-text survey data	Perceived barriers: lack of time, difficulty having patients come to the pharmacy, excludes high-risk or federally insured patients, managing complex patients. Perceived facilitators: teamwork, support from employer, personal commitment, confidence, motivation, belief that program goals were met.
Deal et al, 2017[63]	To describe the utilization of medication reviews during the first year	Nova Scotia: seniors enrolled in Nova Scotia Seniors Pharmacare program (NSSPP)	Quantitative	Population-based administrative databases	Descriptive statistics; Chi-square; t-tests and ANOVA	Low uptake of medication reviews in seniors and pharmacies; Less than 1% reviews were conducted compared to total Medicare program beneficiaries. Majority of pharmacies were in urban areas
Dolovich et al., 2008[26]	To describe pharmacist initial experiences with a new medication review service	Ontario Pharmacists	Mixed method	Mailed survey and semi-structured telephone interviews	Descriptive statistics for survey data. Qualitative content analysis of interview	Perceived facilitators: overlap of pharmacist coverage, scheduling service during slower times, maximizing the role of pharmacy tech or interns, inviting and

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
					transcripts by 2 researchers	communicating with patients, reducing paperwork. Perceived barriers: lack of time, impact on workload cost of hiring an overlap pharmacist and lack of a private counselling room.
Dolovich et al., 2016[27]	To describe utilization of community pharmacy medication reviews during the first six years	Ontario residents who received a medication review	Quantitative	Population-based administrative databases	Prevalence counts and frequencies	Service utilization was rapid and increased over time for eligible patients who were less complex. Low follow up rates. Pharmacy uptake was 95%.
Graham et al, 2019[28]	To describe the utilization rates and experiences of patients, hospital pharmacy staff with community pharmacy medication reviews after provincial policy changes	Ontario; patients, hospital pharmacists, pharmacy technicians	Qualitative	Focus groups for pharmacy staff; Interviews with patients	Descriptive statistics; Qualitative content analysis of interview and focus group data	The characteristics of patients receiving medication reviews did not change after the program was enhanced. Benefits and barriers related to quality, access and collaboration in the medication review process

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Grindrod et al, 2013[29]	To share the stories of graduating pharmacy students learning to deliver medication reviews to patients	Ontario pharmacy students	Qualitative	Weekly reflection; Blogging; Group discussion	Written reflections	Students experienced successes and challenges in defining medication reviews, recruiting and engaging patients. Peer mentoring was useful in developing innovative ways to overcome barriers.
Grootendorst et al, 2018[30]	To determine the uptake of pharmacy technicians and their impact on medication reviews provided in pharmacies	Ontario Pharmacy technicians and Pharmacies	Quantitative	Database of licensed pharmacy technicians and pharmacists, Pharmacy claims data	Proportions and Regression models	Chain pharmacies and pharmacies with a higher volume of prescriptions are more likely to use technicians. Pharmacies employing 3 or more pharmacy technicians were less likely to provide all types of medication reviews except in long term care settings compared to pharmacies with fewer than 3 technicians.

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Hanna 2013[31]	To assess the feasibility and impact of implementing medication reviews to reduce cardiovascular risks	Ontario Adults	Quantitative	Controlled trial with random assignment of pharmacies to intervention or usual care groups.	Descriptive statistics; Random effects models	Intervention did not have a significant impact on cardiovascular outcomes. Patients had a positive impression and valued pharmacists involvement in their health.
Henrich et al, 2015[55]	To understand the experiences of pharmacists, patients and physicians about the BC medication management program (BCMMP).	British Columbia Patients, Pharmacists and Physicians	Qualitative	Focus groups and interviews	Qualitative content analysis	Patients felt less confused and more informed about medications use. Pharmacists perceived professional satisfaction, a holistic review of medications and a stronger relationship with patients as benefits. Physicians had negative attitudes and concerns about uncompensated time and pharmacists' pay being too high.
Houle et al, 2012[32]	To estimate revenues generated by using blood pressure kiosks to identify patients who are eligible for reimbursable	Ontario: All eligible patients identified from among those using blood pressure kiosks	Quantitative	Usage data from blood pressure kiosk database (Pharmasmart PS-2000)	Sensitivity analysis and Monte Carlo simulations	Blood pressure kiosks at pharmacy were useful to identify patients with elevated readings who may benefit from publicly funded medication reviews and pharmaceutical

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
	medication reviews and pharmaceutical opinions.					opinions, leading to more revenue for the pharmacy
Houle et al, 2017[50]	To assess what pharmacies need to provide more medication reviews and how task-focused facilitation impacts service provision	Alberta Pharmacists, Pharmacy technicians and assistants	Mixed method	Semi-structured interviews; Observations; Alberta Context Tool (survey); Pharmacy dispensing data	Descriptive statistics; Mann-Whitney U tests; Unpaired t tests; Qualitative content analysis for interview data	Barriers: workflow disruptions due to time constraints and staffing issues, cumbersome documentation, tension between quantity vs quality of services and uncertainty about integration into practice. After pharmacists were supported to perform medication reviews more efficiently, the number of medication reviews actually decreased due to overlap with influenza vaccination season
Hughes et al, 2020[51]	To explore experiences with implementation of comprehensive medication reviews or care plans in community pharmacy	Alberta; Pharmacy staff, patients, healthcare providers	Qualitative	Observation; semi-structured interviews with pharmacy staff, patients, health care providers; Document review	Constructivist grounded theory	Delivery of medication reviews was influenced by the level of support in the work environment, patient engagement, professional commitment to learning and development, collaborative relationships.

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Ignacy et al, 2015[33]	To examine the relationship between prescription medication use and receipt of professional pharmacy services including medication reviews	Ontario patients who received prescriptions under the Ontario Public drug (ODB) program	Quantitative	Population-based administrative databases	Descriptive statistics; Cochran-Armitage trend	One-quarter eligible patients received at least one professional pharmacy service and of those patients, two thirds had a medication review. Use of all services was positively associated with the number of medications.
Kolhaktar et al, 2016[56]	To evaluate the effect of medication reviews on medication costs, utilization and persistence	British Columbia: All patients	Quantitative	Population-based administrative database	Interrupted time series analysis (ITS)	No effect on medication costs, utilization, persistence, deprescribing of potentially inappropriate prescriptions or pharmacy loyalty (utilization patterns).
Kosar et al, 2018[62]	To describe the utilization of medication reviews during the first year	Saskatchewan	Quantitative	Population-based administrative databases	Descriptive statistics; Chi-square and t-tests	7.4% of eligible patients received medication reviews. The number of medications was the most sensitive criteria for eligibility.

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Lancaster et al, 2018[66]	To investigate which reimbursed community pharmacy services (including medication reviews) are used after screening for chronic disease risk factors	Ontario and Alberta Seniors	Quantitative	Pharmacy administrative billing data, Case report forms	Descriptive statistics	Annual medication reviews were the most frequently provided service within 3 months post-screening followed by influenza vaccinations.
Lapointe Shaw et al, 2020[34]	To study the effect of medication review after hospital discharge on the rates of readmission or death	Ontario: patients discharged from hospital	Quantitative - retrospective propensity score matched cohort study	Population-based administrative databases	Descriptive statistics; Kaplan-Meier survival curves	Medication review was associated with a small and reduced risk of short-term hospital readmission and death
Leung et al, 2010[35]	To evaluate the feasibility and impact of integrating community-based medication review into perioperative medication reconciliation process at a hospital	Ontario: Community pharmacists and patients	Quantitative	MedsCheck document; Best Possible Medication History; Baseline data; Inpatient medication orders; Satisfaction surveys	Descriptive statistics of patient characteristics and medication Medication discrepancy audit	MedsCheck was feasible to identify and reduce medication discrepancies as part of the hospital reconciliation process. Patients and pharmacists were satisfied. Barriers were time constraints, low patient familiarity with the service, patient ineligible or unable to visit

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
						pharmacy, insufficient quality of MedsCheck documents. Facilitators were pharmacists ease of scheduling appointments
MacCallum et al, 2017[36]	To describe the uptake of medication reviews for diabetes patients	Ontario Diabetes patients	Quantitative	Population-based administrative databases	Prevalence counts and frequencies	Half of Ontario diabetes patients received an initial medication review; follow up was 17.5%. Majority of recipients were male, over 66 years, received an average of 11 prescription medications, urban dwelling and Canadian. More than one-third had previous diabetes-related hospitalizations or emergency department visits
MacCallum et al, 2020[37]	To identify the barriers and facilitators to routine monitoring and follow-up for diabetes patients by	Ontario; pharmacists	Quantitative	Survey with 39-items plus two open-ended questions	Descriptive statistics - mean and standard deviation; Thematic analysis	Perceived barriers: Lack of personal financial reimbursement, recognition and practice environment Perceived facilitators: pharmacist's knowledge, skills and beliefs about

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
	community pharmacists.					their role and responsibility, social influences and optimism
MacKeigan et al, 2017[38]	To describe strategies used by pharmacy decision makers to implement medication review programs	Ontario Pharmacy owners, managers and corporate executives	Qualitative	Semi-structured interviews on strategies generated at corporate level and pharmacy level	Thematic analysis and mapping of themes to CFIR and ERIC implementation science models	Decision makers perceived the reimbursed medication review services as an opportunity to regain lost revenues after reduced generic drug reimbursements and rebates. Strategies were driven by efficiency and volume rather than quality.
Necyk et al, 2020[52]	To evaluate the impact of comprehensive medication reviews or care plans on healthcare utilization	Alberta; patients	Quantitative	Population-based administrative databases	Controlled Interrupted time series analysis (ITS)	Small but significant reductions in total health care use in those patients who received a pharmacist CACP

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Pammett et al, 2014[64]	To review patient eligibility criteria for community pharmacy medication review programs across Canada.	All provincially funded medication review programs	Qualitative	Published provincial and professional documents with email/phone follow up	Document analysis	Patient consent and face-to-face contact was required for all programs. Criteria for deciding patients eligible were explicit but heterogeneous across provinces.
Pammett et al, 2016[65]	To assess if each provinces' eligibility criteria is appropriate for identifying patients who have more serious and higher drug-related problems	All provincially funded medication review programs	Quantitative	Completed medication review documents	T-tests	Eligibility criteria identified those who had a higher number and severity of drug-related problems but excluded some patients with fewer medication issues who might benefit.
Papastergiou et al, 2013[39]	To report on drug therapy problems identified in home medication reviews delivered by community pharmacists	Ontario; homebound patients	Quantitative - cross-sectional	Medication review documentation	Descriptive statistics (frequency and percentages)	Nonadherence, adverse drug reactions and additional therapy were the top 3 drug related problems identified. Majority (58%) of patients had expired, duplicate and unnecessary medication removed from their homes

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Papastergiou et al, 2019[40]	To identify drug therapy problems in high-risk non-homebound patients (ineligible) and demonstrate potential benefits of expanding funding eligibility policy to meet patient's needs	Ontario ambulatory patients	Quantitative cross sectional design	Medication review documentation	Descriptive statistics (frequency and percentages)	Additional therapy, nonadherence, adverse drug reactions were the top 3 drug related problems identified. Majority (67%) of patients had expired or unnecessary medication removed from their homes
Patton et al, 2018[41]	To analyze the experiences of pharmacists and patients in the context of medication review practices	Ontario Pharmacists, patients	Qualitative	Non-participant observation, semi-structured interviews with pharmacy staff, brief unstructured discussions with patients and pharmacy staff.	Ethnography	Patients were more satisfied with in-depth medication reviews that covered health concerns rather than brief interactions at the pharmacy counter without explanation of the purpose or opportunity to consent to the service.
Pechlivanoglou et al, 2016[42]	To identify patient, pharmacy and community factors associated with utilization of medication reviews in seniors	Ontario Seniors	Quantitative	Population-based administrative databases	Chi-square and independent t-test; Generalized Estimating Equations (GEE) model	Older patients and seniors were less likely to receive medication reviews if they used multiple and potentially inappropriate medications, had more comorbidities, visited pharmacies with high

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
						prescription volume or lived in rural areas..
Riley et al, 2013[43]	To evaluate the economic, clinical and humanistic benefits of having a designated pharmacist provide medication reviews and other patient care services	Ontario: Pharmacist, Patients	Quantitative	Business plan; Patient profiles; Documents for medication review; Patient satisfaction survey	Descriptive statistics	Program benefits include generation of designated pharmacists pay, increased revenue, resolution of drug-related problems, discarding expired/discontinued drugs, patient satisfaction
Rosenberg-Yunger et al, 2018[44]	To explore pharmacists perceptions of shared decision making in medication reviews for diabetes patients	Ontario Pharmacists	Qualitative	Telephone semi-structured interviews	Thematic analysis; Constant comparative approach	Pharmacists perceived potential benefits but were not framing patient education through a shared decision making lens. They lacked complete understanding of the concept and how to apply it in patient interactions.
Schindel et al, 2019[53]	To understand the value of pharmacist care planning services to patients, pharmacists and health care providers	Alberta: Patients, Physicians, Nurse, Pharmacists, Pharmacy	Qualitative	Interviews, site-specific documents, and observation	Constant comparative approach and Sociomaterial theory	Patients valued shorter wait times and jointly creating care plans. Physicians benefited from collaboration, information sharing, and different perspectives on patient

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
		students, Pharmacy staff				care while pharmacists increased interactions and responsibility for patients and received compensation.
Shakeri et al, 2019[45]	To examine the impact of additional documentation, and reporting requirements on the delivery of medication review programs	Ontario; patients	Quantitative	Population-based administrative database	Interrupted time series analysis (ITS)	Policy changes resulted in an immediate and sustained decline in the number of community pharmacy and home medication reviews. Impact on reviews in long-term care settings
Tomas et al, 2014[46]	To evaluate the feasibility and impact of incorporating community-based medication review into ambulatory clinic workflow	Ontario; Patients newly referred to an ambulatory internal medicine clinic for complex patients	Quantitative	Program documents; Surveys for patients and medical residents; Medical chart review.	Descriptive statistics	Feasible integration of up-to-date medication list into patient charts. Perceived benefits: shortened time to gather medication history, identified drug-related problems. Perceived barriers; low patient familiarity with medication review and its benefits, higher clerical workload and low response from community pharmacies

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
Tsao et al, 2015[58]	To determine the public's opinions, preferences and willingness to pay for pharmacist medication management services including medication reviews	British Columbia; General adult population	Quantitative	Cross-sectional survey including Best-Worst scaling items	Descriptive statistics. Multinomial logistic regression	Majority of the public were aware and supportive of medication management services. Ranked medication reviews as most important. Preferred same day/walk-in, 15 mins interactions and were willing to pay varying amounts. Previous experience was tied to willingness to pay more.
Tsao et al, 2016[57]	To investigate pharmacist working conditions and their impact on quality and safety of patient care	British Columbia; registered pharmacists	Quantitative	Cross-sectional survey	Descriptive statistics. Logistic regression models	Negative perceptions of work conditions unconducive for safe patient care. Perceived work-related stress due to inadequate staffing support, time for tasks, lunch breaks Worse in chain pharmacies with higher prescription volume, pressure of imposed quotas for medication reviews and immunizations compared with independents or

Author/ year	Research objective	Province/ Participants	Study design	Data collection technique	Data Analysis technique	Key findings
						hospitals/long-term care settings.
Tsao et al, 2017[59]	To describe and compare the opinions and preferences of pharmacists and physicians about pharmacy medication management services including medication reviews	British Columbia; Pharmacists and Family physicians	Quantitative	Cross-sectional survey including Best-Worst scaling items	Descriptive statistics. Logistic regression models	Pharmacists and physicians shared a similar goal of medication reviews in improving health and medication use, reducing healthcare costs and utilization. However, both parties thought their own profession should provide the services.
Tsuyuki et al., 2016[54]	To evaluate the impact of pharmacist medication review and interventions (including prescribing and ordering laboratory tests) in patients at high risk of CVD (RxEACH trial)	Alberta: Adults with high risk of CVD	Quantitative	Multicenter, randomized controlled trial in a 1:1 ratio to intervention or usual care groups	Analysis of covariance; Chi-square tests	21% Significant reduction in estimated cardiovascular risk factors and achievement of recommended targets for cholesterol, BP, glycemic control and smoking.

Appendix D

Research Ethics Board Approval

Approval Form

Date:	July 25, 2022
Study ID:	Pro00118332
Principal Investigator:	Lisa Guirguis
Study Title:	Exploring patient participation in community pharmacy medication reviews
Approval Expiry Date:	July 24, 2023

Thank you for submitting the above study to the Health Research Ethics Board - Health Panel. Your application has been reviewed and approved on behalf of the committee.

Approved Documents:

Recruitment Materials
Appendix A - Recruitment email_Pro00118332 v2.docx
Appendix B - Recruitment telephone script_Pro00118332 v2.docx
Letter of Initial Contact
Appendix C - Pharmacy Manager Agreement_Pro00118332 v2.docx
Consent Forms
Appendix C - Pharmacy Manager Agreement_Pro00118332 v2.docx
Appendix D - Pharmacist Consent form for Observations_Pro00118332 v2.docx
Appendix E - Pharmacist Oral consent script for Telephone interviews_Pro00118332 v2.docx
Appendix F - Printed sign for Pharmacy Observations_Pro00118332 v2.docx
Appendix G - Patient Consent form_Pro00118332 v2.docx
Appendix H - Patient Oral consent script for Virtual medication reviews_Pro00118332 v2.docx
Questionnaires, Cover Letters, Surveys, Tests, Interview Scripts, etc.
Appendix I - Patient Interview Guide_Pro00118332.docx
Appendix J - Pharmacist Interview Guide_Pro00118332.docx
Protocol/Research Proposal
Proposal for Ethics 2022_Pro00118332 v3.docx

Any proposed changes to the study must be submitted to the REB for approval prior to implementation. A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the REB does not constitute authorization to initiate the conduct of this research. The Principal Investigator is responsible for ensuring required approvals from other involved organizations (e.g., Alberta Health Services, Covenant Health, community organizations, school boards) are obtained, before the research begins.

Sincerely,

Anthony S. Joyce, Ph.D.
Chair, Health Research Ethics Board - Health Panel

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix E

Standards for Reporting Qualitative Research (SRQR) Checklist

No.	Item	Description	Section where reported
1.	Title	Concise description of the nature and topic of the study. Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Title page
2.	Abstract	Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Abstract
3.	Problem formulation	Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Introduction
4.	Purpose	Purpose of the study and specific objectives or questions	Introduction
5.	Qualitative approach and research paradigm	Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale	Research design
6.	Researcher characteristics and reflexivity	Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Research design
7.	Context	Setting/site and salient contextual factors; rationale	Introduction Results
8.	Sampling strategy	How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale	Participant sampling and recruitment

No.	Item	Description	Section where reported
9.	Ethics	Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Research design
10.	Data collection methods	Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale	Data collection
11.	Data collection instruments and technologies	Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Data collection
12.	Units of study	Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results).	Results - Participants
13.	Data processing	Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Data collection and analysis
14.	Data analysis	Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale	Data collection and analysis
15.	Techniques to enhance trustworthiness	Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale	Data collection and analysis
16.	Synthesis and interpretation	Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Results
17.	Links to empirical data	Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Results

No.	Item	Description	Section where reported
18.	Integration with prior work, implications, transferability, and contribution(s) to the field	Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Discussion
19.	Limitations	Trustworthiness and limitations of findings	Study limitations
20.	Conflicts of interest	Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	None
21.	Funding	Sources of funding and other support; role of funders in data collection, interpretation, and reporting	None

Appendix F

Recruitment E-mail for Pharmacist Interviews

Subject: Invitation to Participate in research study: Exploring Patient participation in community pharmacy care

Hello,

My name is Damilola Olufemi-Yusuf, I am a PhD student in Pharmacy practice at the University of Alberta under the supervision of Dr. Lisa Guirguis. I am currently completing research for my dissertation on patient-pharmacist communication in medication reviews (CACPs and SMMAs) provided in community pharmacies in Alberta. I am interested in learning about pharmacists' experiences and perspectives on engaging patients in medication reviews. This study has been approved by the University of Alberta Health Research Ethics Board {Pro00118332}.

You are eligible to participate if you meet these criteria:

- Currently work as a community pharmacist in Alberta
- Have practiced for at least one year in a community pharmacy in Alberta
- Provide medication reviews to patients

The activities for this research project will include:

- Interviews at a convenient location and time for about 45-60 minutes that will be audio recorded. You will be asked about your practice, perspectives of medication reviews and your interactions with patients when offering and conducting medication reviews.
- Follow-up interview may be conducted

Your participation in this study is voluntary. All participants will receive a $10 gift card as an appreciation for participating in the study.

If you are interested in participating in the research project, please contact me by email at damiade@ualberta.ca.

Thank you for your consideration.

Warm Regards,

Damilola Olufemi-Yusuf BPharm, MS
PhD Student
Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta
Edmonton Clinic Health Academy, 11405 87 Ave
Edmonton, AB, T6G 1C9

Appendix G

Recruitment Flyer for Study Participants

Appendix H

Information and Verbal Consent for Pharmacist Interviews

You are identified as a possible participant in this study as a community pharmacist providing medication review services in Alberta. The purpose of this study is to learn about patient-pharmacist communication in medication reviews. This study is being conducted by me - Damilola Olufemi-Yusuf, a PhD student. My supervisor is Lisa Guirguis at the Faculty of Pharmacy, University of Alberta.

This call will take about 45 minutes and will be audio-recorded. I will ask you questions about your practice, your interactions with patients and your role in medication reviews. After the interview, the audio recording will be typed out. I may also take notes. A follow-up interview may be conducted.

Taking part in this study is your choice.

- You can choose whether or not you want to take part.
- You are free to change your mind about the interview.
- You are free to end the interview at any time and your comments will not be used.
- You will receive a $10 gift card even if you choose to withdraw during or after the interview

Risks for taking part in this study:

- There are minimal risks to you
- No data will be shared with your manager or colleagues.
- Every pharmacist has a unique approach to interacting with patients. We respect your unique style and will conduct the interview in an open and non judgemental way. We want to learn from your experiences and how to find strategies to improve patient engagement in medication reviews.

Benefits for taking part in this interview:

- There are no direct personal benefits from participating in this study.
- You may help researchers learn about ways to improve patient engagement in medication reviews

All information collected from you will be confidential.

- Only the researchers will have access to your data.
- Your name and pharmacy and/or organization will never be used to identify you.
- Answers provided during the interview will be typed up and copies will be reviewed to erase any personal information (for example, your name and contact details).
- The only likely identifying information will be your voice on the recording.
- The notes taken during the interview will use a coded number.
- Reports may include unnamed quotes from the interviews.

- University of Alberta policy says that we have to keep the data for a minimum of 5 years.

If you have questions or concerns, you may contact

- Damilola Olufemi-Yusuf damiade@ualberta.ca or Lisa Guirguis at 780-492-9693.

If you have questions about your rights in this study, you may contact the

- University of Alberta Research Ethics Office at reoffice@ualberta.ca
- This office is independent of the study investigators.

Do you have any questions or would you like any additional details? {Answer questions.}

By giving verbal consent, you understand:

- That you have listened to the information about the research study and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time up to two weeks after the interview.
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.

Name of Participant **Consent given (Yes/No)**
Date

Signature of Person Obtaining consent **Name (Printed)** **Date**

Appendix I

Interview Guide for Pharmacist Interviews

Interviewer Initials:_____**Mode** (circle)**:** Zoom Phone **Participant ID number**: _____
Interview #: _____**Date**: _____(dd) /_____(mm)/_____(yy)

Welcome - Thank you for agreeing to participate in this interview. It will take about 45min. We are interested in your opinions, so there are no right or wrong answers here. It is more like an informal conversation. I respect your perspective and will interview you in an open and non-judgmental way. I will do everything I can to protect your privacy. All your responses are confidential. Your name or pharmacy name will never be used to identify you in any publication. I will be audio recording the interview so we can transcribe and code the data. Do you consent to be recorded?

Before we start, what questions do you have? {interviewer responds to questions}

<u>About your community pharmacy practice</u> - Think about your experience with the pharmacy

1. Tell me about the pharmacy where you work.

   Probes
   - What is your role? How long have you worked at this pharmacy?
   - Who else works in the pharmacy?
   - What is staffing like during a shift?
   - How many prescriptions are filled daily?_____
   - Apart from dispensing, what clinical services do you commonly provide?

<u>Experience with medication reviews</u>

2. Tell me about medication review practice in your pharmacy. What is it like to do med reviews?
3. How did you accommodate med reviews in your pharmacy workflow

   Probes
   - How do you arrange to provide med reviews?
   - How do you motivate staff to do MR

4. What role do you think patients have when interacting with their pharmacists in med reviews?

5. Can you walk me through the last med review you did? Please describe.

   Probes
   - What medications were the patient on?
   - What was the patient's problem?
   - Did the patient expect/ request the med review? If not, how did you decide that the patient needed one?
   - How did you invite/ ask the patient to do a med review?
   - Where did you conduct the review? Is this typical? What made you select this location?
   - How do you decide what to talk about?
   - What did the patient share about their medications?
   - How long did it take? Is this typical?

- What information did you gather from the patient? What other sources of information did you use?
- Did you give any handouts or documents to the patient? Did you communicate the care plan to anyone else?
- What was your follow-up plan?

6. Which patients do you think benefit the most from med reviews?
    - What about patients who may not benefit? Why do you think so?
    - Ever had a patient decline your invitation? Why do you think they declined?

7. How do you get patients to talk during MR? Please give an example.

    Probes
    - What strategies do you use to get patients to talk in a med review? Any tools? Please give an example.
    - What makes it easy for you to get patients talking during MR?
    - Do you feel you connect more with some patients than others during MR? Why do you think so?

8. Do you feel there are barriers to interacting with the patient during MR?

    Probes
    - What challenges do you see in patients sharing their concerns about their medications? Example of a challenge?
    - Think about the work environment, you as the pharmacist and patient
    - How do you manage patients not appearing interested in discussing their medications?

9. What do you think can be done to make it easier for patients to participate in med reviews?

10. Do you feel that COVID changed how you engage patients in medication reviews?
    Probes - Give an example. I would love to hear more.

11. What else can you tell me about medication reviews in your practice?

About yourself *Demographic questions to help us understand your background*

- How do you identify your gender?
- How old are you this year:
- Highest Level of Education:
- Other credentials/ specializations:
- Year of obtaining pharmacy licence:
- Years of working in community practice:

Appendix J

Pharmacy Manager Research Agreement

Study title: Exploring patient participation in community pharmacy care

Investigators:

Principal Investigator: Lisa Guirguis BScPharm, MSc, PhD
Associate Professor, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, lisa.guirguis@ualberta.ca
780-492-9693

Co-Investigator: Damilola Olufemi-Yusuf BPharm, MS
PhD Student, Faculty of Pharmacy & Pharmaceutical Sciences
University of Alberta, damiade@ualberta.ca

Why is my pharmacy asked to take part in this research study?
Your pharmacy is invited to participate in this study because your community pharmacy provides pharmacy services to patients including medication reviews (CACPs, SMMAs and follow-ups).

What is the reason for doing the study?
We want to learn about patient-pharmacist communication and engagement in community pharmacies. Communication between patients and pharmacists is a key aspect of patient care but very little research has looked at how patients and pharmacists talk about medications within newer models of pharmacist practice. A better understanding of patient-pharmacist interactions can inform strategies to support patient engagement in pharmacy care.

What will happen if my pharmacy decides to take part?
If you agree to have your pharmacy participate in this study, the researcher will spend time in the pharmacy observing your workflow, and interactions between patients and pharmacists.

- Study posters will be displayed in visible areas of the pharmacy to make patients aware of the study
- The researcher will consent pharmacists who are interested in taking part in the study
- The researcher will observe the daily work in the pharmacy to understand the workflow.
- Pharmacists will approach patients to ask if they are interested in taking part in the study.

- The researcher will introduce the study and ask to observe and audio record when pharmacists and patients are talking about medications with permission from the patient
- After the interaction, pharmacists and patients will be asked about their views of the interaction.
- With your consent, you may allow storage of audio recordings on in a secure data repository to facilitate future research. If you do not want your data in the repository, it is absolutely fine. You can still take part in this study

What are the risks and discomforts?
There are minimal risks to you, your pharmacists and patients. No data will be shared with other pharmacies. It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to study participants.

What are the benefits?
The study may not have direct benefits to you. However, this study will help the researchers learn more about pharmacists' and patients' experiences and views of engaging in medication reviews and could inform strategies to support patient engagement in pharmacy care.

Does my pharmacy have to take part in the study?
Being in this study is your choice. Pharmacists and patients can also choose whether or not they want to take part. If you decide for your pharmacy to be in the study, you can change your mind and stop being in the study up to two weeks after the observation.

Who will be paid to be in the research?
We will offer a $10 gift card to pharmacists and patients participating in the study. They will still receive the gift card even if they choose to withdraw midway through or after the observation.

Will the information collected be kept private?
All data collected about you, your pharmacy and patients during the study will be kept confidential. We will remove any information that can identify you such as your name, contact details during data analysis. The only possible identifying information will be voices that have been recorded on the audio file. Only the research team will have access to the data. Any report published as a result of this study will not identify the patient(s), pharmacist(s) or your pharmacy. All data collected from you will be summarized in aggregate form. The study results will be presented at educational meetings and published in professional journals.

After the study is done, de-identified data will be stored in a secure data repository, Social Pharmacy Data Repository, to facilitate the re-use of the data by approved researchers. Any researcher who wants to use this data must have the new project reviewed by an ethics

board and sign an agreement ensuring your confidentiality and restricting data use only to the approved project.

What if I have questions?
If you have any questions about the research now or later, please contact Damilola Olufemi-Yusuf at damiade@ualberta.ca or Lisa Guirguis at lisa.guirguis@ualberta.ca or 780-492-9693.

I the manager of, _____ (Name of Pharmacy), agree to have my pharmacy take part in this study.

_____

Signature of Pharmacy Manager **Name (Printed)**
Date

_____

Signature of Person Obtaining consent **Name (Printed)**
Date

A copy of this agreement has been given to you to keep for your records and reference.

Appendix K

Study Notice for Pharmacy Observations

UNIVERSITY OF ALBERTA

Study Notice

Researchers from the University of Alberta, are partnering with your pharmacy and pharmacy team to improve patient care in pharmacies.

Today, a researcher will be observing how the pharmacy team cares for you. You may be approached to take part. Being in the study is your choice and you do not have to take part.

We are interested in the pharmacy team activities.

Only, your pharmacy team will have access to your personal health care information.

Study title: Exploring patient participation in community pharmacy care
Principal Investigator: Lisa Guirguis, BScPharm, MSc, PhD Associate Professor, Faculty of Pharmacy and Pharmaceutical Sciences, lisa.guirguis@ualberta.ca, 780.492.9693
Ethics ID: Pro00118332
Version: November 24, 2022

College of Health Sciences
Faculty of Pharmacy and Pharmaceutical Sciences

2-35 Medical Sciences Building
8613-114 Street
Edmonton AB Canada T6G 2H7

lisa.guirguis@ualberta.ca
T 780.492.9693
ualberta.ca/pharmacy

Appendix L

Information and Consent for Pharmacy Observations

Study title: Exploring patient participation in community pharmacy care

Investigators:

Principal Investigator: Lisa Guirguis BScPharm, MSc, PhD
Associate Professor, Faculty of Pharmacy and Pharmaceutical Sciences,
University of Alberta, lisa.guirguis@ualberta.ca 780-492-9693

Co-Investigator: Damilola Olufemi-Yusuf BPharm, MS
PhD Student, Faculty of Pharmacy & Pharmaceutical Sciences
University of Alberta, damiade@ualberta.ca

Why am I being asked to take part in this research study?
You are invited to take part in this study because you have experience providing pharmacy services to patients including medication reviews (CACPs, SMMAs and follow-ups).

What is the reason for doing the study?
We want to learn about patient-pharmacist communication and engagement in community pharmacies. Communication between patients and pharmacists is a key aspect of patient care but very little research has looked at how patients and pharmacists talk about medications. A better understanding of patient-pharmacist interactions can inform strategies to enhance patient engagement in pharmacy care.

What will happen if I decide to take part?
If you agree to participate in this study, the researcher will spend time in the pharmacy observing your everyday practice, and interactions between patients and pharmacists.

- Study posters will be displayed in visible areas of the pharmacy to make patients aware of the study
- The researcher will consent pharmacists who are interested in taking part in the study
- The researcher will observe your everyday practice in the pharmacy to understand the workflow.
- Pharmacists will approach patients to ask if they are interested in taking part in the study.
- The researcher will introduce the study and ask to observe and audio record when pharmacists and patients are talking about medications with permission from the patient
- After the interaction, pharmacists and patients will be asked about their views of the interaction

- With your consent, you may allow the storage of audio recordings on in a secure data repository to facilitate future research. If you do not want your data in the repository, it is absolutely fine. You can still take part in this study

How long will I be in this study?
Participation will include observing you during your daily practice and when talking to patients (where you will be observed and audio recorded) The interview after the interaction will take 15 minutes.

What are the risks and discomforts?
There are minimal risks to you. No data will be shared with your manager or colleagues. Every pharmacist has a unique approach to interacting with patients. We respect your unique style and ask questions in an open and non-judgemental way. If you are a student pharmacist, participating in this study will not impact your grades. It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to me?
The study may not have direct benefits to you. However, this study will help the researchers learn more about pharmacists' and patients' experiences and views of engaging in medication reviews and could inform strategies to support patient engagement in pharmacy care.

Do I have to take part in the study?
Being in this study is your choice. If you decide to be in the study, you can change your mind and stop being in the study up to two weeks after the observation. You do not have to answer any questions that you are not comfortable with. Your decision to take part or stop being in the study will not affect your employment.

Will I be paid to be in the research?
We will offer you a $10 gift card for taking part in the study. You will still receive the gift card even if you choose to withdraw midway through or after the observation.

Will my information be kept private?
All data collected about you, your pharmacy and patients during the study will be kept confidential. We will remove any information that can identify you such as your name, contact details during data analysis. The only possible identifying information will be voices that have been recorded on the audio file. Only the research team will have access to the data. Any report published as a result of this study will not identify the patient(s), pharmacist(s) or your pharmacy. All data collected from you will be summarized in aggregate form. The study results will be presented at educational meetings and published in professional journals.

After the study is done, de-identified data will be stored in a secure data repository, Social Pharmacy Data Repository, to facilitate the re-use of the data by approved researchers. Any researcher who wants to use this data must have the new project reviewed by an ethics board and sign an agreement ensuring your confidentiality and restricting data use only to the approved project.

What if I have questions?
If you have any questions about the research now or later, please contact Damilola Olufemi-Yusuf at damiade@ualberta.ca or Lisa Guirguis at lisa.guirguis@ualberta.ca or 780-492-9693. If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca. This office has no affiliation with the study investigators.

How do I indicate my agreement to be in this study?
By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time up to two weeks after data collection.
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.

_____

Signature of Participant **Name (Printed)** **Date**

_____

Signature of Person Obtaining consent **Name (Printed)** **Date**

A copy of this consent form has been given to you to keep for your records and reference.

Appendix M

Information and Verbal Consent for Patients

Study title: Exploring patient participation in community pharmacy care

You are invited to take part in this study because you are receiving care from a community pharmacist. The purpose of this study is to learn about patient-pharmacist communication. This study is being conducted by Damilola Olufemi-Yusuf, a PhD student and her supervisor is Lisa Guirguis at the Faculty of Pharmacy, University of Alberta. This study has been approved by the University of Alberta Health Research Ethics Board (Ethics ID Pro00118332).

If you decide to participate, you will be observed and audio-recorded when the pharmacist talks with you about your health and medications. After the observation, I will ask you about the interaction and your experience with pharmacists in a 10 to 15 minutes interview which will be audio-recorded. It could be done immediately or later over the phone. I may also take notes.

Being in this study is your choice. You can choose whether or not you want to take part

- You are free to stop being in the study up to two weeks after the observation
- You do not have to answer any questions that you are not comfortable with
- Your decision to take part or stop being in the study will not affect the care you get from the pharmacy
- We are creating a library of audio files of patients talking with pharmacists. You are free to decide whether we would add your audio files to this library.
- You can still participate in this project if you do not want to share your audio files with the library
- You will receive a $10 gift card, even if you choose to withdraw during or after the observation

Risks for taking part in this study:

- There are minimal risks to you
- No data from the interview will be shared with your pharmacist. I will remove any information that can identify you such as your name and contact details during data analysis.

Benefits for taking part in this study:

- There are no direct personal benefits from participating in this study.
- You may help researchers learn about patients' experiences and views of engaging in conversations with pharmacists. The results may inform ways to improve patient engagement in pharmacy care

All information collected from you will be confidential.

- The notes taken during the study will use a coded number.
- Reports may include unnamed quotes from the audio recording and interviews
- University of Alberta policy says that we have to keep the data for a minimum of 5 years.

- The only likely identifying information will be your voice on the recording.
- The library of audio files will be stored on a secure digital storage on the University of Alberta campus for future research purposes
- Any personal information (i.e. your name, telephone number) that could identify you will be removed or changed prior to sharing study data in the library with other researchers.
- The only likely identifying information will be your voice on the recording.
- Any researcher who wants to use this data must have the new project reviewed by an ethics board and sign an agreement ensuring your confidentiality and restricting data use only to the approved project.

If you have questions or concerns, please contact

- Damilola Olufemi-Yusuf damiade@ualberta.ca or Lisa Guirguis at 780-492-9693.

If you have questions about your rights in this study, you may contact the

- University of Alberta Research Ethics Office at reoffice@ualberta.ca
- This office is independent of the study investigators.

By giving verbal consent, you understand:

- That you have listened to the information about the research study and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time up to two weeks after the observation
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.

Name of Participant **Consent given (Yes/No)** **Date**

Name of Person obtaining consent **Signature** **Date**

Appendix N

Observation Guide

1. Date of interaction
2. Patient ID
3. Duration of interaction
4. Where did the interaction occur? (Location)
5. Pharmacist conducting the medication review
6. Number of pharmacy staff visible not engaging in the interaction
7. Was the patient new to the pharmacy or had an existing relationship with a pharmacist?
8. Was the patient accompanied? If so, who?
9. Did the pharmacist use resources to obtain patient information (e.g. medical records, laboratory tests)?

Appendix O

Interview Guide for Patient Interviews

I am interested in learning how you perceived your interaction with the pharmacist. The interview should take about 20min. I will audio-record the interview to capture all your comments and help me analyze the data. There are no right or wrong answers, and all your responses will be confidential. You do not have to answer any questions you do not want to.

What questions do you have before we begin? {interviewer responds to questions}

Participant ID:_____ **Interviewer Initials**:_____

Mode (circle)**:** Phone In-Person **Date**: ____(dd) /____ (mmm)/_____(yy)

Part 1: Views about the interaction (Think about the time you spent {insert day} with the pharmacist)

1. How did it go?
2. Have you sat down with a pharmacist before and they went through all of your medications?
    a. How was this similar or different?
    b. What did the pharmacist tell you to expect?
3. How did the pharmacist engage you in discussing your medications?
    a. What was the most important thing you talked about?
    b. What do you think was missed, if any?
4. What did you find helpful about the interaction?
5. How comfortable were you to discuss your concerns and ask questions?
    a. What questions did you ask?
    b. What concerns about your health and medications did you share?
6. How do you feel the pharmacist related to you during the interaction? Out of 5
    1=Poor; 2=Fair; 3= Good; 4=Very Good; 5=Excellent.
    a. Gave you an opportunity to talk
    b. Listened to what you had to say
    c. Asked if you had problems with your medications
    d. Asked how well you think your medications work
    e. Used words that you could understand
    f. Provided all the information needed
    g. Treated you with courtesy and respect
    h. Showed genuine concern for your health

Part 2: Experience with managing medical conditions and medications

1. What matters most to you in managing your medications and medical conditions?
2. In your view, what is the role of the pharmacist during interactions with you. What do you expect the pharmacist to do?
3. In your view, what is your role in the interaction with your pharmacist?
4. Tell me about any previous negative experiences you may have had in a pharmacy or with other pharmacists. Not with the current pharmacy but with other pharmacies.
5. What else can you tell me about your experience in a pharmacy when dealing with pharmacists about your health condition?

Part 3: Demographics

1. How old are you?
2. How do you identify your gender? _____
3. Highest Education: Less than HS, HS, College Certificate, University/College Degree, Post Graduate
4. How many medications do you take every day? _____
5. In general, would you say your health is: Excellent, Very Good, Good, Fair, Poor?
6. How do you pay for your medications? % Insurance, Out of pocket, Govt

Appendix P

Active Patient Participation Coding Guide

Sources for Active Patient Participation coding guide (APPC)[29] (reference from Chapter 4)

Active Patient Participation Coding scale (APPC). EACH. Accessed January 20, 2023. https://each.international/reachresources/active-patient-participation-coding-scale-appc/

UTTERANCES

An "**utterance**" is defined as a simple clause with a subject and verb that can stand on its own as a complete thought.

- A sentence always contains at least one utterance; however they can also have more than one utterance.
    - *Example*: **D:** "One would be a knee scope (1), but in your case you have a grade 4 (2)."
- Conjunctions like "and," and "but" often signify the beginning of a second utterance within a sentence.
- Words used for "backtalk" and one word sentences (e.g. "ok", "I see", "uh-huh", "yeah") are usually NOT considered as separate utterances unless they are in answer to a question.
    - *Example*: **P:** "Ok. I got to go back and finish the silly survey." (one utterance)
    - *Example*: **D:** "Do you want to take this medication?" P: "Uh-huh. Yeah, I think I'm ready." (three utterances)
- If/then sentences are usually considered one utterance because both parts are needed to form a complete thought.
    - *Example*: **D:** "If we find that the arthritis is bad, then we may need to operate on your knee."

ACTIVE PARTICIPATION CODING

Questions: A request by a patient for information or clarification.

- Usually identified by a question mark at the end of an utterance or rising inflection. However some transcripts will often miss implied questions or forget to place a question mark at the end of the appropriate utterance.
    - *Example:* **P:** "So I guess that I should recover in the next couple of days." **D:** "Right, exactly."

- *Example:* **P** "Are there any side effects with using lisinopril?"
- *Example:* **P** "Does this mean I might have a hereditary risks for heart disease?"

- ***Note:*** Assertions" and "expressions of concern" can often be disguised as a question.
  - *Example:* **P:** "So you're saying that I can't go to another doctor for a second opinion?" (Depending on tone this could either be a question or assertive remark-discussed later))
  - *Example:* P "Can they do anything to help us?" (Depending on tone this could be a question or a concern-discussed later

- ***Note*:** Questions that are not relevant to the patient's health care should not be counted as questions. Non- relevant issues include…
  - *Greetings:* "How are you doing?"
  - *Discussions about travel plans or hobbies:* P: "Have you ever been to Disney World?"
  - *Procedural questions:* P: "Is it ok to sit here?"

Assertive Responses: An "assertive" response is defined as a patient trying to interject his or her perspective, needs, and preferences into the consultation. This can happen in several different ways.

- Disagreeing: Anytime that the patient verbally disagrees with the doctor.
  - *Example*: **D:** "So let's go ahead and get this surgery done." P: "But I don't want to do it."
- Interrupting: Anytime a patient stops a doctor in mid-sentence in order to make a point. This is usually identified in the transcript by a dash or set of dots indicating the doctor was unable to finish.
  - *Example*: **D:** "So another thing we could…" P: "I think that treatment is not the best option."
  - ***Note:*** Sometimes a doctor and patient will "talk over each other" or a patient will complete a doctor's sentence resulting in the same dash normally identifying an interruption, however these situations are typically not assertive.
    - *Example*: **D:** "So remember to take your medicine…" P: "Twice a day, right."
- Making a request: Patient asks for something, asks the doctor to do something
  Example: "Can I get a refill on my prescription?
  Example: "Will you please write me a note for work."
- Stating a preference: Patient states preferences or expectations for what they hope will happen or want to do.
  Example: "I'd think the the surgery might be better."
  Example: "What I'd like to happen is to not have pain so that it keeps me up at night."

- Makes a decision:
  Example: "I'll try medication first."
  Example: "Let's wait for a while and then see how much better I feel."
- Introducing a new topic: Whenever a patient brings up a new topic that is not related to the current discussion (can be in the form of a question), or brings up a new topic that the doctor had already left behind.
  - *Example:* P: "I have a friend that went through a lot of the problems I have right now. It all started when…"
  - ***Note:*** When this occurs the patient will often talk for a while, however the only utterance that is considered assertive is the opening statement.

Expressions of Concern: Occur when a patient demonstrates some type of verbal negative affect.

- Most often identified when "signal words" (e.g. fear, worry) are used in an utterance.
  - *Example:* **P:** "I'm afraid that I might not make it out of surgery."
- An expression of concern can sometimes be disguised in the form of a question.
  - *Example:* **P:** "Is there any way that I can alleviate my pain?" (Depending on tone of voice this could either be question of expression of concern.)
- A patient's tone of voice can also be used to identify expressions of concern.
  - *Example:* **P:** "I don't really understand." (Depending on tone of voice this could either be a request for clarification or an angry statement)
  - ***Note:*** Patient vocal intonation will often vary (due to regional accent, ethnic origin, speech problem, etc.) making it difficult to interpret what is meant. On other occasions patients will always speak with a loud/emotional tone or they may always have a quiet reserved tone.

General Rule: Assertive remarks and expressions of concern usually do not occur in the following situations…

- Initial greeting and "small talk" that occur as doctors and patients get to know each other.
- Talk that occurs while a doctor is examining a patient.
  - *Example:* **D:** "Does this hurt?" **P:** "Yeah it hurts right here and there."
- Conversations between a patient and someone else that might be with them (e.g. spouse or child).
  - *Example:* **S:** "I think you should take the medicine Dad." **P:** "No you are wrong son."
  - ***Note:*** All conversation that occurs whenever a doctor leaves the room should not be counted as utterances.

CODED CLINICIAN RESPONSES RELATED TO ACTIVE PARTICIPATION

Partnership Building: Attempt by a doctor to involve the patient in the discussion and in decision making.

- Agreement by doctor to fulfill a patient's request.
    - *Example:* **P:** "Can I get a refill?" **D:** "You sure can."
- Open ended questions that encourage patients to express their feelings.
    - *Example:* **D:** "How do you feel about this?"
- Statements encouraging patient decision making.
    - *Example:* **D:** "You will have to make the final decision because this is your body."
- Requests for the patient's preferences, expectations, or goals
    - *Example*: **D**: "So what would you like to accomplish today?"
    - *Example*: **D**: "What do you think would best fit your needs?"

Supportive Talk: Attempt by doctor to reassure or empathize with the patient.

- Statements trying to discourage patient from feeling nervous.
    - *Example:* **D:** "Don't worry about the surgery. Everything is going to be all right."
- Sympathetic responses to a patient's expression of concern.
    - *Example:* **P:** "I'm so scared." D: "I understand."
- Sincere displays of interpersonal sensitivity.
    - *Example:* **D:** "You're doing great!

DOCTOR INFORMATION GIVING

Diagnosis/Health State: Any information that pertains to the nature of the disease or health of the body.

- All descriptions of disease and how it spreads.
    - *Example*: **D: "**The cartilages sit between the joint…"
- Anything that relates to the patient's current condition (including age, overall health)
    - *Example*: **D:** "You know you are still very active and in good health for your age."
- All test results (e.g. X-ray).
    - *Example*: **D:** "Your test here shows that you have some pretty severe arthritis in the right knee."
- ***Note:*** Diagnosis utterances can sometimes be confused with outlook utterances. This usually occurs when the doctor describes a patient's future state of health following treatment (e.g. surgery). While the utterances in question are still technically diagnostic they fall more clearly into the outlook category.

- *Example*: **D: "**After the operation you will feel very weak." (diagnostic but also more of an outlook utterance)

Description: All information that describes what the doctor will or could do.

- Any description of exams, surgery, or other related procedures
  - *Example*: **D:** "Medial unloader brace, what it does, it prevents the impact, you know, of weight between these two bones."
- Description of medications and how they work.
  - *Example*: **D:** "I'm going to give you some Tylenol 3 which should help reduce some of the pain you are experiencing."
- Descriptions of treatment that has been given in the past to the current patient or other patients the doctor has worked with.
  - *Example*: **D:** "So it looks like we did a knee surgery on you…"
- **Note:** The "description" category is a very general category that can often be confused with the rational, risk, and option categories. If an utterance ever falls into both "description" and one of these categories then the utterance should be classified into the category that is the most specific.
  - *Example*: **D:** "There are several ways that we can treat your knee arthritis. First we could…., We can also…" (Utterances are both "description" and "options," however they should be classified as options)

Rationales: Doctor justification for any medical procedures, test, or recommendation.

- All descriptions that explain why a test or recommendation is necessary.
  - *Example*: **D: "**You need to get his test done so that we can be sure if surgery is even necessary."
- ***Note:*** Rationales are often preceded by a "because." They can often be found in the second half of a sentence that begins with description or recommendation.
  - *Example*: **D:** "I think you should probably get the surgery, because that do the most to alleviate your problem."

Risks: Description that explains possible negative side effects.

- Any mention by the doctor of a negative side effect due to exams, surgical procedures, or use of medicines is considered a risk.
  - *Example*: **D: "**You just need to be careful because this medicine could cause stomach ulcers if taken improperly."
- ***Note:*** The words "risks" and "side effects" are keywords that doctors often use to describe possible risks.

Options: Description of more than one option for treatment.

- Occurs when a doctor describes more than one treatment option for a medical problem.
  - *Example*: **D:** "You have several options in how you could treat this. First we could…Another option would be to…"

- If a doctor extensively describes both options then usually only the first identifying utterance is coded as an option.
    - *Example*: **D:** "The first option consists of medication and exercise. This would involve….The other option is, of course, surgery. You would need to…"
- ***Note:*** When the word "options" is used by a doctor it usually signifies an option in that utterance or one that is about to come up. However the doctor should always describe at least two procedures to treat the same problem before the treatment can be described as an option (the word "options" doesn't always mean that the utterance involved is one).

Outlook: Description of what happens to patient AFTER doctor recommended treatment.

- Provides a timeline of recovery for the patient. This includes description of pain and health problems that are expected to occur.
    - *Example*: **D:** "You will not be able to walk for a couple of days after the surgery. Your knee will be very tender for a couple of weeks."
- Describes short or long-term effectiveness of treatment. Outlook utterances can also often be used in the context of a justification (for or against treatment).
    - *Example*: **D:** "You can get your knee replaced today but it is going to wear out in about 15 years."
- ***Note:*** Whenever a doctor describes a potentially negative outlook as a result of a procedure (e.g. surgery) the utterance will fall into either the "risk" or "outlook" category. A general rule is that if the doctor is describing a negative outcome for a treatment before a decision has been made then the utterance will be a risk. Similarly the description of a negative outcome for a treatment after a medical decision has been made usually signifies an outlook utterance.
    - *Example*: **D:** "You need to understand that you may experience some of the following side effects with this surgery…" (Risk)
    - *Example*: **D:** "After the surgery you may experience some of the following problems…" (Outlook)

Recommendation: Suggestion by a doctor for a patient to take treatment, medication, or perform a task.

- The doctor's words and/or tone usually imply a strong suggestion. Doctors often use key words like "recommend," "suggest," "I think," and "I want."
    - *Example*: **D:** "I think you should probably do this…"
- ***Note:*** **"**Recommendations" can easily be confused with "instructions." However the difference can usually be determined by checking to see if the utterance in question is explaining "what" (recommendation) or if it is explaining "how to" (instruction).
    - *Example*: **D:** "I think you should start running more." (Recommendation).
    - *Example*: **D:** "Whenever you run you need maintain a constant speed for at least ten minutes." (Instruction)

Instructions: Doctor utterances that provide clear "how to" directions.

- Usually relates to how medications should be taken. However it can also involve instructions on patient exercise and diet.
    - *Example*: **D:** "I want you to take your pain medication twice a day."
- ***Note:*** "Instructions" often use some of the same "recommendation" keywords (e.g. "I want you to" or "you need to"). However "instructions" usually tend to be more specific, while "recommendations" are more general in nature.

III. Prompted vs. Self-initiated Patient Participation

A. *Prompted patient participation*—active participation in response to physician partnership-building and supportive talk. Examples:

Dr: We can schedule this procedure at your convenience. Do you have a preference? (partnership-building)

Patient: I'd like to do it next Thursday (prompted assertiveness)

Dr. That must've really upset you? (supportive talk)

Patient: Yes, I was so worried I couldn't sleep (prompted expression of concern)

Dr: Do you have any questions? (partnership-building)

Patient: Yes, does this medication have any side effects? (prompted question)

B. *Self-initiated patient participation*—active participation that was not preceded by physician partnership-building or supportive talk in the previous conversational turn.

IV. Prompted vs. Self-initiated Physician's Partnership-Building

The same process in III can be used to code self-initiated vs. prompted facilitative behavior when partnership-building is preceded by active patient participation behaviors in the previous turn (accommodative partnering) vs. when partnership-building is not preceded by active participation behaviors (facilitative partnering).

Appendix Q

Codebook adapted from Active Patient Participation Coding System

Sources for adapted codebook from Active Patient Participation coding guide (APPC)[3,5,29] (references from Chapter 4)

3. Street RL, Millay B. Analyzing Patient Participation in Medical Encounters. *Health Commun*. 2001;13(1):61-73. doi:10.1207/S15327027HC1301_06

5. Street RL, Gordon HS, Ward M, Krupat E, Kravitz RL. Patient Participation in Medical Consultations: Why Some Patients Are More Involved Than Others. *Med Care.* 2005;43(10):11.

29. Active Patient Participation Coding scale (APPC). EACH. Accessed January 20, 2023. https://each.international/reachresources/active-patient-participation-coding-scale-appc/

General rules

- The unit of analysis was a meaning unit, which could be a phrase, one sentence (utterances) or multiple sentences representing a complete thought. Utterances were grouped together under one code if they all had the same meaning.
- Words used for "backtalk" and one-word sentences (e.g. "ok," "I see," "uh-huh," "yeah," "no") were not coded separately. Instead, they were coded if they formed part of a meaning unit assigned a code.
- Paralinguistics or paraverbal data, such as tone, pitch, and laughter, were also used in conjunction with verbal data to make coding decisions.
- The pre-defined APPC codes were used, and new codes that were not part of the APPC were added as necessary. Some codes in the APPC were not used in the current study. The comment section indicates the pre-defined APPC codes, new codes and unused codes.
- Examples quotes are from the current research

Code	Definition and Examples from Current Research	Comment
Patient active participation Patient active participation behaviours include Questions, Assertive statements, Expressions of concern, Patient humour.		

Code	Definition and Examples from Current Research	Comment
Patient Questions	The patient requests for information or clarification. • Example: "Did you get the other one filled?" • Example: "I have kind of a doctor's prescription for blood tests. You do blood tests here or no?" Notes • All patient questions were coded - health as well non-healthcare topics as long as they were directed to the pharmacist. The current study included another set of codes to identify the content of the questions (e.g. medications, medical conditions, social talk etc), so excerpts were tagged with both question code and content code. See content codes and definitions. o Example: "What is your name?" (question, social talk) • Assertions and concerns may be framed as questions. To identify which behaviour is occurring, listen to the tone of voice and context of the discussion. o Example: "I was afraid that my cat would climb it. There's no way to climb it?" (concern)	APPC code
Assertive statements	The patient is trying to inject his or her perspective, needs, and preferences into the consultation. This can happen in several different ways.	
• Disagreeing	Anytime patient verbally disagrees with the pharmacist. It is sometimes signalled by the word 'but.'	APPC code

Code	Definition and Examples from Current Research	Comment
	• Example: Pharmacist: “We're settling into some good numbers.” Patient: “But it doesn't stay like that for too long, it bounces.” • Example: Pharmacist: “So the cortisone for the knee and for the shoulder” Patient: “No, no the shoulder and hip.”	
• Interrupting	The patient stops a pharmacist in mid-sentence in order to make a point. • Example: Pharmacist: “He needs to rinse his mouth after each use of the inhaler.” Patient: “Which he always does.” Notes • Sometimes a pharmacist and patient will talk over each other, or the patient completes the pharmacist's statement. However, these situations are not identified as assertive. o Example: Pharmacist: “But you came in….” Patient: “March 4”	APPC code
• Introducing a new topic	Whenever a patient brings up a new topic that is not related to the current discussion • Example: Pharmacist: “So again, that has to do with just eating well and exercising and using your medicines well.” Patient: “Our friend is, right now he's in the hospital.”	APPC code
• Making a decision	The patient makes a decision to do something	APPC code

Code	Definition and Examples from Current Research	Comment
	• Example: “I do have to go to the dentist because my tooth in the front finally broke.”	
• Making a request	The patient asks for something, asks the pharmacist to do something. • Example: “I'll need a flu vaccine and I will need the COVID vaccine.” • Example: “Well, I’m here to pick up all my medicine and all that”	APPC code
• Stating a preference	Patient states preferences or expectations for what they hope will happen or want to do. This preference code refers to what the individual wants to do in the future, including their expectations and goals • Example: “I'm trying to keep myself healthy and looking at a different lifestyles because I've got diabetes, so I have to watch what I eat and how much sugar I intake and substitute a lot of it.” • Example: “I take one like every other day, I find it works that way.”	APPC code
• Defer to physician	Patient talks about the physician’s advice or information obtained from physician • Example: “That's the way Dr. Brown wanted me to drop the weight and I had dropped it right down to about 231 pounds.”	New code
• Explaining	The patient tries to explain, justify or defend his condition. This explanation extends beyond responding to a question. • Example: “I don't drink, I've been good.”	New code

Code	Definition and Examples from Current Research	Comment
	• Example: “Well, since I started getting the flu shot, I haven’t had a cold.” • Example: “I read at night before I go to sleep because it makes me more relaxed and, and tired. It takes my mind off from my life and I can feel, read about someone else.”	
Expressions of concern	These occur when a patient demonstrates some type of verbal negative affect. Concerns are commonly identified with signal words such as worry, fear, and anger. The study identified other expressions of concern, including confusion, frustration, disappointment, sadness, sarcasm, embarrassment, discouragement, surprise, irritation, and isolation. • Example: “They screwed up my medication” • Example: “I went for the MRI, but couldn't take the test because I got scared because of everything they had to put on me. That just scared the crap out of me. • Example: “I'm cranky all the time, because I'm not feeling good all the time.” Notes • Concerns may be disguised as questions. To identify which behaviour is occurring, listen to the tone of voice and context of the discussion. o Example: “I was afraid that my cat would climb it. There's no way to climb it?” (concern) • The patient’s tone of voice can be used to identify expressions of concern. For	APPC code

Code	Definition and Examples from Current Research	Comment
	example, the person may sound sad, angry, worried	
Patient humour	The patient uses humour to participate in the interaction. Includes jokes sometimes followed by laughter. • Example: "It made me feel like I was going to be Hannibal Lecter"	New code
Type of patient active participation Pharmacist-prompted or patient-initiated participation		
Pharmacist-prompted patient participation	Patient active participation in response to pharmacist partnership building or supportive talk. • Example: Pharmacist: "Do you want it in a separate package so that you can just take it how you want? Patient: "I don't know, I've never had a blister pack in my life." (prompted concern)	APPC code
Patient-initiated patient participation	Patient active participation was not preceded by pharmacist partnership-building or supportive talk in the previous conversational turn. • Example: Pharmacist: "We've got the Dig-[Digoxin] for your heart and then Citalopram for your mood. Patient: What was I going to ask you? What about the...the memory- sorry, not memory loss, um- uh....the Ativan? (initiated question) • Example: Pharmacist: "Okay, any alcohol?" Patient: "No, I haven't touched alcohol since I've been a diabetic." (initiated assertion)	APPC code

Code	Definition and Examples from Current Research	Comment
Pharmacist communication Pharmacist communication included pharmacist partnership building, supportive talk and question-asking		
Partnership building	An attempt by a pharmacist to involve the patient in the discussion or decision-making.	
• Agrees to fulfill a patient's request	Pharmacist agrees to fulfil a patient request. • Example: Patient: "I ordered some some more Ozempic." Pharmacist: "Yeah, I have that ready, okay" • Example: Patient: "So I take those two at 8am, morning after breakfast, and after that, I want to the second one I want to be able to float it" Pharmacist: "Sure yeah, I will make it work.	APPC code
• Encourage patient decision making	Pharmacist statements that encourage patients to participate by making a decision. • Example: "So next time you come in, I can give the covid shot to you if you want"	APPC code
• Encourage patients to express their feelings	Statements that invite patients explicitly to share their feelings. • Example: "How do you feel about diabetes." • Example: "How is your mood these days"	APPC code
• Requests for the patient's preferences, expectations, or goals	Pharmacist statements that ask for the patient's preference, opinions, expectations or goals. • Example: "Do you want it in a separate package so that you can just take it how you want?"	APPC code

Code	Definition and Examples from Current Research	Comment
	• Example: “Are you happy measuring this much? Eventually, your credit runs out with strips, but you're on insulin. Are you happy still measuring it twice a day? Do you want to reduce that at all?	
• Other partnership building	Partnership building that may not fit into the APPC codes. • Example: “If we need to switch around just let me know and we'll do whatever we need to do to get you breathing”	New code
Supportive talk	An attempt by the pharmacist to reassure or empathize with the patient.	
• Empathy	Sympathetic responses to a patient’s expression of concern. • Example: “When you're in a new place different environment can be a bit hard to tell” • Example: “When you're more anxious, you can find you forget more things because anxiety does that to us, right?”	Relabeled APPC code [3,5,29]
• Encouragement	Sincere displays of interpersonal sensitivity. This includes praise for the patient or giving compliments. • Example: “So you're doing exactly what you need to do. That's fantastic” • Example: “You're doing pretty good. I'm glad that you started doing exercise. That will definitely impact your blood sugar”	Relabeled APPC code[3,5,29]

Code	Definition and Examples from Current Research	Comment
• Reassurance	Statements trying to discourage the patient from feeling nervous. • Example: “So that'll help you sleep or get you through the day if you're feeling a bit overwhelmed.” • Example: “So maybe that after that you will feel better 'cos you were a little low.”	Relabeled APPC code[3,5,29]
• Pharmacist humour	The pharmacist uses humour to support the patient. Includes jokes, sometimes followed by laughter. • Example: “So you just stay up all night and fix the ills of the world, do you?”	New code
• Other supportive talk	Supportive talk that may not fit into APPC codes. • Example: “So you got all the structure for what you need to do. You already know, which most people do. It's not like I'm telling you new information.”	New code
Pharmacist Information giving		Not used in the current study
Prompted vs Self-initiated partnership building		Not used in the current study
Pharmacist question-asking	Pharmacist asks questions to the patient	
• Open questions	Questions that are broad and allow the individual (in this case, patient) to answer as they wish. They do not provide a specified range of answers (closed questions) nor lead the person to give a certain answer (leading question).	New code

Code	Definition and Examples from Current Research	Comment
	• Example: “How often are you measuring your sugars?” • Example: “What did the doctor tell you to expect from this medication?” Notes: Closed questions could also be asked in an open way and were coded as open questions. • Example: “Anything you’re worried about at all right now?”	
• Closed questions	Questions that restrict the response to one word answer, such as “yes/no”, "true/ false." • Example: “Did they tell you to take an iron pill?” • Example: “Any gut issues with Metformin?”	New code
• Leading questions	Questions that lead the patient to answer in a certain direction. Includes questions where pharmacist gives the answer in the same turn either before or after the main question. • Example: “You take your meds regularly? You're not forgetting them very often?” • Example: “You have asthma and insomnia. Is that right?”	New code
• Multiple questions	Two or more questions within a speaker's turn. Different types of multiple questions include combined, double-barreled, options, and paraphrasing	New code
• Combined type of questions	Pharmacists uses two or more types of questioning on the same topic. May ask open question, then closed/ leading question or viceversa.	New code

Code	Definition and Examples from Current Research	Comment
	• Example: “How about the pills? everything kind of hunky-dory with those? • Example: “What’s your diet? Is it like balanced?”	
• Double-barreled question	Question that asks more than one thing but allows the patient to provide one. • Example: “How often and how much do you take medication?”	New code
• Options	Question that allows the patient to choose one or multiple options from a list of possible answers. • Example: “No diabetes, no blood pressure problem, any allergy, anything like that?”	New code
• Paraphrasing	Questions that express the same meaning using a different choice of words. It is basically asking the same thing or topic with a different or new question. • Example: “How about dental? Did you get your teeth checked at some point”	New code
Content of interactions Broad categories of content discussed in the interaction. Includes medications, medical conditions, other medical, social talk		
Medications	Content around medications includes prescription, over-the-counter medications, and vaccines. Talk about indication, dose, instructions, benefits, side effects of medications, allergies	New code
Medical conditions	Medical conditions discussed during the review. Include talk about symptoms, family history, clinical outcomes.	New code

Code	Definition and Examples from Current Research	Comment
Other medical	Discussions about medical procedures, laboratory tests, health care professional visits, non-medication/other treatments, medical devices	New code
Lifestyle	Discussions about lifestyle factors e.g. alcohol, smoking, cannabis, weight, diet, exercise.	New code
Social Talk	Talk about general topics, small talk	New code