

**Pharmacist experience with providing care for patients with chronic pain in  
the community setting: A qualitative study**

by

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**Author's declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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## **Abstract**

**Objectives:** Chronic pain is a condition pharmacists frequently encounter in practice; however, the pharmacist's role in the management of chronic pain is under-investigated. This study examines pharmacist perceptions and experiences in providing care to patients with chronic pain in the community setting.

**Methods:** Practicing primary care pharmacists in Ontario were recruited and interviewed using a semi-structured guide. Interviews were analyzed using modified grounded theory. Sample recruitment continued until saturation was achieved.

**Results:** Twelve pharmacists responded to the email invitation. Two did not meet eligibility criteria and one withdrew. The sample consisted of 6 female and 3 male pharmacists with a mean age of 47 years (range: 27 – 63) and mean of 20 years (range: 2 – 40) of practice. Five themes emerged from the content analysis: (1) perception of chronic pain (2) concern about opioid use (3) lack of support for patients, (4) communication with prescribers, and (5) knowledge gaps.

Participants were comfortable with their knowledge of chronic pain and were empathetic of their patients' suffering. They also felt their role is limited within the current healthcare system. Participants reported that misuse of opioids is the most challenging; issues included high potential for misuse, inadequate monitoring and under-use of other medications and resources for the treatment of chronic pain. Additionally, participants believed that patients suffer from lack of support by their family, employers and the health care system. Furthermore, trust was identified as the most important parameter in building a collaborative relationship with physicians. Finally, participants felt more training on legal issues related to opioids is required.

**Conclusion:** Pharmacists were empathetic towards patients with chronic pain; however, they felt their role is limited in current climate. Deficiencies in the current system of managing chronic pain were identified including opioid use as the most challenging. Future research should investigate expansion of pharmacist roles to optimize chronic pain management.

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## **Introduction**

### ***1. Definition of chronic pain***

Pain is an unpleasant distressful sensation in a particular part of body usually following tissue damage. Pain prompts the individual to avoid further exposure to damaging situations and to protect the damaged part (1). Everybody experiences pain in their life; however, developing an adequate definition is difficult due to the fact that pain is a subjective phenomenon. The International Association for the Study of Pain (IASP) (2) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage.”

Pain is usually transitory, lasting until the stimulus is removed or the underlying damage or pathological condition has healed, but sometimes it lasts for a longer time and may even persist for years. *Acute* pain resolves quickly, but long-lasting pain is called *chronic* pain. The IASP (2) defines chronic pain as "pain that persists beyond normal tissue healing time." In terms of time interval, chronic pain is commonly defined as a pain duration of greater than 3 months (3). Chronic pain may have nociceptive, neuropathic, or mixed etiology. Nociceptive pain is caused by the detection of potentially harmful stimuli by the pain receptors around the body while neuropathic pain is associated with damage to the neurons in the body. Chronic pain is a major public health concern as it affects general health, quality of life, social and economic well-being (4).

### ***2. Prevalence***

Due to differences in populations and modes of data collection, estimates of the prevalence of chronic pain are highly variable, with estimates ranging from 2%-55% (3). Some studies have estimated that 80% of adults have experienced low back pain at some point during their lifetime (5, 6). In a large survey of chronic pain in 15 European countries, 19% of the

study population had suffered from pain for more than six months, had experienced pain within the last month, and several times during the last week, with a last episode pain intensity score exceeding five out of ten in a numeric rating scale (7).

Chronic pain is also a common health complaint among Canadian adults (8). The prevalence of nonspecific chronic pain is estimated at 17% (9). It is more common among older adults and more prevalent among females compared to males. Nearly half of chronic pain patients reported suffering from chronic pain for more than 10 years and one-third reported very severe pain intensity (8).

Back pain, headaches, and diabetic neuropathy are among the most common types of pain reported (7). In a study of a Canadian population, 84% of participants had experienced back pain during their lifetime. Among this study population, 12.3% had experienced high-intensity/low-disability low back pain and 10.7% had experienced high-intensity/high-disability low back pain during the last six months of the study (5). In addition to back pain, three to five percent of the population reported daily headaches (10, 11) and 20 to 30% of diabetic patients suffer from diabetic neuropathy (12, 13).

### ***3. Treatments for chronic pain***

#### ***3.1 Pharmacologic treatments - Non-opioid medications***

Non-opioid medications consist of non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, antidepressants, anticonvulsants, and topical analgesics. The efficacy of NSAIDs has been well-established for several pain disorders such as osteoarthritis, rheumatoid arthritis, and back pain (14); however, NSAIDs have little value in neuropathic pain (15). The use of NSAIDs are complicated by cardiovascular and gastrointestinal side effects. Cardiovascular effects are especially significant in patients with hypertension and coronary diseases. Naproxen is considered the safest among NSAIDs in hypertensive

patients, while selective cyclooxygenase (COX-2) inhibitors such as celecoxib have fewer gastrointestinal side effects, but are associated with higher cardiovascular risk (14).

Antidepressants include tricyclic antidepressants (TCAs), selective serotonin reuptake inhibitors (SSRIs), and selective serotonin and noradrenaline reuptake inhibitors (SNRIs). This group is most effective for neuropathic pain, fibromyalgia, headaches, and back-pain (16, 17). TCAs such as amitriptyline and imipramine inhibit reuptake of serotonin and norepinephrine. While they have a long history of application for management of chronic pain, they are less tolerable and less safe especially for elderly patients due to sedation and important safety concerns such as hypotension and arrhythmias. SSRIs specifically block serotonin reuptake without additional blockade of other receptors, so they have fewer adverse effects than TCAs. There are reports of the effectiveness of SSRIs in treating chronic pain, but they are considered to be less consistent than TCAs (18). Duloxetine has been approved for neuropathic pain and fibromyalgia and its efficacy for diabetic neuropathy has been demonstrated (19, 20).

Among anticonvulsants, gabapentin, pregabalin, and carbamazepine are more successful in treating chronic non-cancer pain (17). Carbamazepine alleviates pain by decreasing conductance in Na<sup>+</sup> channels and inhibiting ectopic discharges (21). Pregabalin is approved for the treatment of neuropathic pain and fibromyalgia (22), while lamotrigine has shown to be effective in treating trigeminal neuralgia and diabetic neuropathy (23, 24). Pregabalin reduce the pain by inhibitory action on Ca<sup>+</sup> channels (21, 25) while Lamotrigine reduces the pain related transmission signals by enhancing the action of and decreasing conductance in Na<sup>+</sup> Channels (21, 25).

Topical agents are recommended for localized non-cancer chronic pain and consequently have the advantage of avoiding systemic adverse effects. Capsaicin is efficacious in treating

neuropathic pain and osteoarthritis (26). Topical lidocaine is useful for the treatment of peripheral localized neuropathic pain.

### ***3.2 Pharmacologic treatments - Opioid medications***

Opioids such as morphine, methadone, tramadol demonstrate significant pain reduction in patients with nociceptive and/or neuropathic pain (27, 28). However, data regarding long term (more than six months) use of opioids in chronic pain management is inconsistent (29, 30). Although opioids can be effective in pain reduction, there are significant concerns regarding the safety and misuse of these medications. Barriers to the optimal prescribing of opioids include lack of knowledge, tolerance, and the potential for misuse (31). Misuse could be using opioids inappropriately to produce pleasure or avoid reality, using opioids in ways other than prescribed or accessing opioids without professional guidance. Addiction to opioids can occur when a person experiences an uncontrollable impulse to use these drugs even when faced with negative consequences (32, 33). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) combines substance abuse along with addiction as a category of substance use disorder. The associated symptoms are categorized into four major levels including: impaired control, social impairment, risky use, and pharmacological criteria (i.e., tolerance and withdrawal) (34). In 2010, two million Americans reported misuse of prescription pain relievers (29). The Center for Disease Control and Prevention reports 46 deaths a day from overdoses of prescription and narcotic pain relievers (31).

### ***3.3 Non-pharmacologic treatments***

Non-pharmacologic interventions in chronic pain management include massage, avoidance of bedrest/staying active, cognitive behavioral therapy, physical exercise, acupuncture and electrical nerve stimulation. Published randomized controlled trials provide good evidence for the effectiveness of cognitive behavioral therapy for chronic pain in adults. Cognitive-

behavioral treatments produced significantly improvements for the domains of pain experience, cognitive coping, and reduced behavioral expression of pain (35). Exercise is a common treatment for patients with chronic pain. Moderate to high intensity aerobic exercise can reduce pain while improving body function and overall health (36). Educational programs for patients are also considered as a therapeutic intervention which improves patients' pain score (37). When education combines with exercise it synergistically improves self-efficacy, physical function and general well-being (38, 39). Massage therapy and acupuncture have been used to reduce pain, but studies are few in number and evidence of their efficacy is not conclusive (38, 40-42). Electrical stimulation therapy had inconsistent evidence for efficacy in chronic pain, however a meta-analysis indicates that electrical nerve stimulation is an effective treatment modality for chronic musculoskeletal pain(43, 44).

Although non-pharmacologic treatments have substantial benefits on patient outcomes, modalities such as behavioral therapy, electrical nerve stimulation are expensive (45).

#### ***4. Optimizing medication-related needs in patients with chronic pain***

Optimal management of chronic pain requires understanding of pain pathophysiology by health care providers (46). Factors that should be considered in the optimal management of chronic pain are pain pathophysiology, type of pain, medical and medication history, cost-effectiveness and evidence of efficacy, and adverse effects of treatment (27, 47). For instance, in selecting from pharmacological options in neuropathic pain, NSAIDs have the lowest efficacy in alleviating pain (15), while TCAs and anticonvulsants such as pregabalin and gabapentin are recommended as first line therapies (17). In treating trigeminal neuralgia, carbamazepine is considered a first line choice while baclofen, oxcarbazepine, and lamotrigine are considered alternative treatment options (47). Moreover, patients with similar pain conditions may have variable response to the medications within the same class (48).

Chronic pain is frequently associated with several comorbidities such as depression, anxiety, and sleep disorders (49). Chronic pain sufferers, especially the elderly, may have concurrent diseases such as diabetes mellitus and cardiovascular diseases that also require medicinal management. Treatment of multiple health conditions necessitates the use of complex drug regimens that increase the risk of drug interactions and side effects. These diverse needs in patients with chronic pain require collaboration amongst health care professionals. Pharmacists, as medication experts, can help patients with individualizing therapy based on their conditions and specific needs.

### ***5. Community pharmacy services***

The profession of pharmacy has significantly developed over the past decades. Historically, pharmacists have been responsible for dispensing physicians' orders to the patients (50). The historical role of pharmacist as compounding and dispensing medications has evolved to include more patient oriented care. As drug therapy, has become the cornerstone of modern healthcare, management of increasingly complex drug therapies is important for patient safety. Rapid developments in medical and pharmaceutical sciences have led to increases in drug therapy that give rise to complex drug interactions and safety issues. A collaborative relationship between pharmacists and physicians is required due to their close relationship with patient health (50, 51). As described by Schellens *et al.* (52) "In view of its increasing complexity, rational and tailored drug therapy cannot be implemented in its full width when the discipline is applied only by physicians."

Pharmacists have a unique position within the healthcare system. They can offer a wide range of services to the patients including consultation, patient education, and therapeutic monitoring and management (53, 54). Pharmacists are currently trying to develop a more patient-oriented professional role for themselves. Pharmacists must be able to interact effectively with patients to be able to offer better pharmaceutical care (55). Although



dispensing the right drug for the right patient in the right dose is considered as the primary responsibility of pharmacists, it no longer defines the professional role of pharmacists (55). Pharmacists have a positive impact on patient outcomes in diverse conditions including hypertension, hyperlipidemia, diabetes intensive care, etc. (56-59). It is estimated that ambulatory pharmaceutical care services can reduce negative therapeutic outcomes by 53% to 63% by reducing the drug-related morbidity, mortality and improving the patient adherence to medications (60, 61).

Many patients may not appreciate the value of this expanded role of pharmacists. Increasing patient awareness about pharmaceutical care services will increase the patient demand for those services, establishing the role of pharmacists as healthcare providers. Patients who are educated about pharmaceutical care services are willing to receive these services and willing to pay for these services (62, 63).

#### ***6. Role of community pharmacists in treatment of chronic pain***

Pharmacists are highly accessible health care providers located in a large number of convenient locales that can give timely advice and consultation without an appointment (64). Patients commonly request advice from pharmacists about their pain (65) and access over the counter (OTC) pain medications through pharmacies. Pharmacists, in addition to giving appropriate advice and information, refer patients to physicians when necessary (64). Community-based pharmacists can assess the type and severity of pain, refer patients to other health care providers, monitor treatment (both safety and effectiveness), and guide medication adjustments to improve the treatment of chronic pain (65). Two types of pain scale instruments are usually being used to assess pain; uni-dimensional and multi-dimensional. Uni-dimensional pain scales such as Numeric Rating Scale (NRS) or Visual Analog Scale (VRS) assess only pain from 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable (66). Multi-dimensional pain scale instruments such as McGill

Pain Questionnaire (MPQ) or Brief Pain Inventory (BPI) allows patients to deliver a more detailed description of their pain including intensity, location, quality, pattern, and behavioral dimensions (67-69). There are also other instruments that assess psychological co-morbidities such as anxiety and depression and general quality of life. Time needed to assess pain through unidimensional instruments can be as short as only a few minutes while assessment by multi-dimensional or quality of life and pain co-morbidity instruments need more time. Pharmacists can also educate patients on the use of their medications and promote adherence (65).

In a three month interventional study, Gammaitoni *et al.* (70) assessed the effects of a telephone-based pharmaceutical care program compared to routine pharmaceutical programs for patients suffering chronic pain. The control group continued to receive regular pharmacy services (as prior to the study), while the intervention group received two components; specialized pain medicine prescription services and telephone monitoring of patient pharmacotherapy for potential drug related issues. When surveyed, the patients in the medication counselling group recognized the benefits of the offered services, endorsed the pharmacists' behaviors associated with the enhanced pharmaceutical service, and reported a significantly higher level of satisfaction. This study indicates that pharmacists can play an important role in chronic pain management, which can lead to a better patient attitude toward pharmaceutical care services.

Several other studies have investigated the impact of pharmacist consultation and intervention on patient health, and pain management (71-76). Pharmacists were able to reduce pain scores (72-75) and misuse of pain medications, particularly in the case of opioids in patients with chronic pain (71, 76). Pharmacists collaboration with physicians in chronic pain management can also lead to pain relief and improved quality of life. In a study of multi-disciplinary management of chronic pain (77), collaboration of clinicians including

internists, psychiatrists and pharmacists, along with alleviating patients' pain, led to improved patients' quality of life. Improvements in quality of life mostly attributed to reduced disability, comorbid disorders and decrease in incidence of medication misuse.

The cost effectiveness of pharmacists' services in pain management also has been demonstrated. In a study of managed approach to opioid therapy in collaboration with pharmacists, significant cost savings through monitoring opioids treatments, reduced misuse and referring the addiction patients is demonstrated (76).

### ***7. Knowledge barrier for pharmaceutical pain management services***

Pain is considered a public health problem in that its management encounters a series of deficiencies. Although pharmacists are expanding their professional skill to offer more patient oriented care including chronic pain management, they may not be sufficiently trained to offer this service. In a study of the knowledge and attitudes of healthcare professionals including pharmacists regarding pain issues such as addiction, the assessment of pain, scheduling and use of analgesics, investigators concluded that although the healthcare professionals were familiar with some aspects of pain management, gaps in knowledge existed (78).

In a study of pharmacists' attitudes and knowledge concerning back pain, Silcock *et al.* (64) sought to understand the nature and variety of advice that patients with back pain were likely to receive in the community pharmacy setting. About one third of pharmacists wrongly advocated rest and limiting normal activity. Notably, 93% of participating pharmacists agreed that they would benefit from education about chronic back pain. Approximately 20% of pharmacists did not feel confident to provide the best advice to patients and had negative feelings about advising patients with back pain. This study showed that pharmacists were

willing and available, yet inadequately educated and not confident to provide evidence based advice to people with low back pain.

## ***8. Satisfaction with pain management***

### ***8.1 Satisfaction and Quality in Healthcare***

Patient satisfaction with treatment has been defined as the extent to which treatment gratifies the wants, wishes, and desires of clients for service (79). Weaver (80) defines treatment satisfaction as the individual's rating of important attributes of the process and outcomes of his/her treatment experience.

The relationship between healthcare quality and patient satisfaction has been a source of debate (81). On the grounds that service quality was wrongly interpreted as patient satisfaction, satisfaction has been investigated and measured widely as the sole parameter of quality of care assessment studies (82). However, there is little work in investigating patient perceptions of general health service quality (83, 84). Gonzalez *et al.* (85) states that satisfaction questionnaires have been used as the most common method to survey patient perceptions of health care for many years without being well validated. A review of literature in patient satisfaction points out that none of the measurement methods could be considered satisfactory and numerous satisfaction studies have been conducted without considering sufficient psychometric evidence (86). To date, no agreement on the definition and conceptualization of satisfaction with healthcare has been developed (84, 86, 87). According to Crow *et al.* (87), satisfaction is a relative concept that only can signify adequate service that could be affected by emotion (84, 87), They considered core determinants of satisfaction as the basis of interpersonal relationships (87). Moreover, several aspects of satisfaction with healthcare provider services should be differentiated (80). For example, in a study of patient satisfaction with treatment for chronic pain (88),

authors emphasized distinguishing between satisfaction with care and satisfaction with improvement. Finally, in pain management, patient satisfaction with treatment may not be inferred as pain relief (88).

### ***8.2 Inadequate Pain Management as Patient Dissatisfaction with Pain Control***

Patient satisfaction with treatment has been investigated extensively in variety of medical illnesses (88). Several studies showed that inadequate pain control can be implied as patient dissatisfaction with pain control. A four year follow up study in patients with chronic pain in the UK reported that two thirds of chronic pain sufferers were not satisfied with their treatment (89). Furthermore, only 21.5% of the patients were pain-free at the 4-year follow-up, resulting in an annual improvement rate of 5.4%. In another follow up study on patients with chronic musculoskeletal pain in the US (90), 34.6% of the study population were pain-free after 8 years. In a Norwegian study (91), 14.3% patients were pain-free at the 5.5 year follow up, showing low recovery rates in chronic pain.

Despite its high prevalence, chronic pain remains misunderstood and poorly managed (92). As Zuccaro (93) noted, “Chronic pain is inadequately treated because of a combination of health care providers knowledge and attitudes toward pain treatment along with cultural, societal, educational, political and religious constraints.” For instance, in some cultures acceptance of pain is normal and attitudes toward pain is summed up to bear the pain. As illustrated in observational studies, in some cultures, despite high prevalence, pain is not perceived as a medical problem and sufferers do not seek medical treatment (94).

Low recovery rates cannot be interpreted as low satisfaction rates since there is a difference between satisfactions with care and satisfaction with improvement. In other words, satisfaction may not be directly correlated with low pain levels. Other factors such as patient-provider relationships can also affect patient satisfaction (88).

## ***9. Investigating Pharmacists and Patients Interactions/Relationship***

### ***9.1 Significance of pharmacists and patient attitudes toward pain management***

Practitioner beliefs and attitudes can influence treatment decisions in chronic pain(95). Beliefs about to the extent to which pain can be controlled is one of the most potent determinants of adjustment to pain (96, 97). According to Main *et al.* (97), patients' attitudes, perceptions, and expectations about pain and the usefulness of offered treatments may influence a patients' decision to pursue complete treatment (88), as well as affect the patients' engagement and adherence to treatment. In a study of chronic pain patients' experience of acupuncture (96), patient's experiences of early treatment sessions influenced their expectations and treatment outcomes. Positive attitudes toward treatment led to 2 to 5 fold greater likelihood of improvement (96) and these patients experienced better outcomes (64).

Researchers emphasized the necessity of qualitative research for the development of tools to measure patient expectations and attitudes.

Moreover, perceived quality of service is associated with a significant reduction in total cost of service results due to the elimination of wasted effort, repetition, and misuse of skilled employees. In controlled studies of diabetes, asthma, hypertension, and rheumatoid arthritis, increases in service quality resulted in improved outcomes (98).

### ***9.2 Pharmacists' attitudes***

Several studies have investigated pharmacists' attitudes toward the pharmaceutical services they offer. In one of the earliest surveys on pharmacists' perception of their consumer demands in 1983 (99), researchers realized that pharmacists perceived little demand for pharmacy services and they usually underestimated demands for these services. A recent systematic review of pharmacists and costumer views (100) shows that the perception of

little demand by patients still existed among pharmacists worldwide. Pharmacists' perception of consumer demand is as important as actual consumer demand in providing pharmacy services. A survey of 708 pharmacists regarding their perceptions of patients' need for counselling (101), showed that patient motivation was ranked as the highest determinant of the amount and type of counseling, followed by type of medication, patient abilities, and time available for counselling.

### ***9.3 Patients' attitudes***

Patients have their own perception of the pharmaceutical services they receive. Several studies have evaluated patient satisfaction with pharmaceutical services in patients with asthma, hyperlipidemia, hypertension, and heart failure (102-104), but the major determinant of patient satisfaction was not the value of the pharmaceutical care provided by the pharmacist (105). While most of those studies showed a high rate of satisfaction signifying that pharmacists are highly respected professionals (87), these studies did not measure all influences of patient perception of pharmaceutical care. For example, increased contact and personal attention from the pharmacists and health care providers affect patients' perception (106, 107). These outcomes to some extent confirms the results of the previous similar study (101) that showed patients who received longer consultations were more likely to report higher satisfaction scores.

According to Raid *et al.* (108) "reports of satisfaction with care do not necessarily mean that the pharmacists are providing a high quality level of pharmaceutical care. They also may mean pharmacists deliver prescriptions in a fast, courteous manner and have good interpersonal relationships with their patients, even though the patient is getting little in the way of education and monitoring". Customers can classify the same pharmacist differently on the grounds that patients use their own interpersonal meta cognitions and stereotypes to interpret a pharmaceutical service. This highlights the importance of an in-depth evaluation

of patients' judgment and perception of the value of the services. In a study of perception of asthmatic patients and their satisfaction of their pharmacists, investigators tried to understand the relationship between patient satisfaction and the level of pharmaceutical care service and patient perception of the personal attention paid to them by the pharmacist and pharmacists' ability to help their asthma related problems through a survey on 250 adult patients with asthma (108). Results of this study showed that although patient satisfaction was associated with the level of pharmaceutical care and pharmacists' capability to help their problems, personal attention to the patient by pharmacist had the most influential effect on patient satisfaction. Authors conclude that patients mostly judged their social interaction with pharmacists rather than the quality of the care they receive.

#### ***10. Significance of studying patient-pharmacist perception of pain control management***

Patients commonly request advice from pharmacists about chronic pain. Practitioner beliefs and attitudes can influence treatment decisions and patient perception of disease. Perceived quality of care can improve adherence, continuity of care and health outcomes (109-111).

Pharmacists' self-perception of their professional role can influence changes toward more patient-centered care (112). They have the potential to take on an enhanced role for a variety of conditions including chronic pain. However, in a study of pharmacists' perception on their professional role (113), only 29% of pharmacists perceived their role as patient centered while 45% of pharmacists perceived their role as product focused, and 26% had an ambiguous perception of their professional role. Lack of time, training compensation, and support from other health care professionals have been reported as common barriers to patient-centered services (113-115).

The investigation of pharmacist and patient attitudes on chronic pain management can address knowledge and skill gaps in pharmacists' profession and potentially translate into



positive health outcomes for patients. Moreover, better understanding of pharmacist's experience and perception of the value of pharmacy services can influence their practice and help pharmacists plan patient-centered services.

The aim of this study is to investigate aspects such as feelings and experiences of pharmacists providing care to patients with chronic pain in the community setting. In medical sociology, qualitative methodologies are accepted and recommended as significant tools to analyze subjective attributes of health services (116, 117). Through the descriptive and interpretive nature of qualitative methods a true and profound understanding of pharmacists' perception of providing care to patients with chronic pain can be investigated.

## **Objectives**

To explore community-based pharmacists' perceptions and experiences of providing care to patients with chronic pain including:

- Pharmacist's role in providing care to patients with chronic pain
- Pharmacist perceptions of patients with chronic pain.
- Pharmacist concerns and barriers for providing care to patients with chronic pain
- Pharmacists' communication with physicians / prescribers in providing care to patients with chronic pain

## **Methodology**

### ***1. Qualitative studies***

Qualitative research, which focuses on the social world rather than the natural world (118), is designed to understand and interpret social interactions rather than testing hypotheses and evaluating cause and effect as occurs in quantitative research. Variables in qualitative research are not specific as they are in quantitative research. Types of data in qualitative studies are words and objects rather than numbers (119). Denzin (120) describes qualitative research as “the word science”. It relies heavily on words and stories that people tell the researchers (121). It is a kind of social inquiry that looks at how individuals understand and explain their experiences and the world in which they live (122). As a consequence, the results of qualitative studies are less generalizable in comparison to those of quantitative studies whose findings have the potential be applied to other populations (123).

The rationale for conducting qualitative research includes (118, 121, 124):

- When the researcher has no knowledge about the phenomenon under investigation.
- When there is a need to understand the context of research participants’ life.
- When it is necessary to “hear people’s voices”. Some details can only be obtained by talking with people directly to hear their stories and experiences. Qualitative research enables researchers to listen to actual voices.
- When there is a need to develop theories that can explain the complexity of an individual or a population’s problem.
- To understand complex issues that need to be explored, especially when describing phenomena from the participants’ point of view is required.

- When causal explanations from qualitative research need to be elaborated, especially when researchers are not able to explain numerical findings logically.

Characteristics of qualitative research described by Liamputtong (118) are listed below:

- It takes place in natural procedures of human life.
- It focuses on context.
- It is fundamentally interpretive; the centerpiece of qualitative study rotates around meanings and interpretation of participants.
- It is mostly emergent rather than strictly predetermined.

Several methods in qualitative research are available including ethnography, narrative studies and grounded theory. Each designed for investigating a specific research questions, but all share a similar goal: to understand a particular phenomenon from the perspective of people experiencing it (125).

## ***2. Popular approaches in qualitative studies***

### ***2.1 Narrative inquiries***

Narrative inquiries is the most appropriate method when the researcher is interested in personal experiences of people, consisting of the collection and development of stories (126). According to Duque (127), core elements of narrative study are attention to sequences of action, choice of language, narrative style, and varying degrees of analytic interest in audience/reader response that can be used to compare and contrast narrative methods with other methods of qualitative studies.

### ***2.2 Ethnography***

In ethnography, the researcher's goal is to understand how a culture works. Lutz (128) points out: "ethnography centers on the participant observation of a society or culture

through a complete cycle of events that regularly occur as that society interacts with its environment.” In ethnography the ethnographer’s goal is to study a society, to be able to describe the meaning, organizations, values, attitudes, and interpretations of a culture (129). In other words ethnography helps researchers to understand people’s behaviors from their own cultural perspectives (130).

### **2.3 Qualitative case study**

Qualitative case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases). This approach facilitates exploring a phenomenon within its context using a variety of data sources. Data collection is detailed and in-depth through multiple sources of information (e.g., observations, interviews, audiovisual material, documents and reports) (131).

In a case study, the researcher reports a case description and case-based themes. For example, several programs (a multi-site study) or a single program (a within-site study) may be selected for study. Case study is a valuable for studying health science research to develop theory, evaluate programs, and develop interventions.

Qualitative case studies are categorized according to the size of the bounded case; one individual, several individuals, a group, an entire program, or an activity. Creswell (132) says “A case study is a good approach when the inquirer has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases.”

Creswell(131) defines three types of case study:

- **Single instrumental case study:** In this method, the researcher focuses on an issue and tries to illustrate this issue by selecting one bounded case.

- **Collective (multiple) case study:** The issue or concern is one but the researcher uses multiple case studies to illustrate several perspectives of the issue. For example, studying several programs at multiple sites or several programs on a single site.

- **Intrinsic case study:** The focus is on the case itself. The case is an unusual or unique situation, such as evaluating a program.

## **2.4 Grounded theory**

Grounded theory is a popular method in qualitative research that provides the opportunity to researchers to generate and construct an explanation based on what researchers have learned from a number of participants (118) and a theory will be generated from the data. Aldiabat (130) defines the aim of grounded theory as “to generate theory that describes basic psychosocial phenomena and to understand how human beings use social interaction to define their reality.” To generate a theory that defines a phenomenon, researcher should recruit a substantial number of participants to reach data saturation. This necessitates spending substantial amount of time and budget. To overcome these limitations and making grounded theory more practical, a modified grounded theory has been developed.

### **2.4.1. Modified Grounded Theory Approach (M-GTA)**

Modified Grounded Theory enhances the practical applicability of grounded theory by adding some modifications, adopting theoretical and content properties of the grounded theory (133). In comparison with Grounded theory, in M-GTA, fewer number of participants are required and data are analyzed according to an analytic theme raised based on analytic target’s viewpoint which is decided on the basis of the research question chosen. This means that in analysis of data, the researcher focuses mostly on the research question and related themes. The data are not broken down into fragments for coding in this method, thus it is possible to find the context meaning at the root of raw data. Since analytic theme

and target are decided on the basis of the research question, a clear research question is of great importance in M-GTA analysis (133).

To understand perception and experience of pharmacists providing care to patients with chronic pain, which can be applied to address gaps and deficiencies in providing care to patients, our research team decided to use a Modified Grounded Theory Approach. Because Modified Grounded Theory investigates the actualities in the real world and analyses the data with no preconceived ideas or hypothesis (134) when we need to explain how people experience a phenomenon (providing care), by using Modified Grounded Theory, researchers will be able to raise a high quality theory that explain such a phenomenon. It allows researchers to develop theoretical frameworks that explain research findings (118).

### ***3. Setting and Participants***

The setting for this study was the province of Ontario.

### ***4. Procedures***

#### ***4.1 Recruitment***

The research question of this study was “What is the experience and perception of pharmacists concerning providing care to patients with chronic pain management?” Ontario-licensed pharmacists who were actively practicing in a community pharmacy or a family health team settings were recruited to address the question under study. Participants were recruited by means of a recruitment poster and invitation letter embedded emails (Appendix 4). The posters and invitation letters included a brief background on the research topic and study purpose and listed all conditions, expectations, and a summary of interview questions from pharmacist volunteers (i.e. what will be asked from study participants in terms of interview and methods of data collection employed). Contact information;

telephone number, and e-mail address were included on the poster to volunteer for the study and/or for further inquiry.

The list of email address of licensed pharmacists who had indicated their interest and willingness to participate in research studies was provided by the Ontario College of Pharmacists (OCP). Those pharmacists who responded and indicated their willingness were emailed a study information letter and consent form.

All volunteers responded by email. Screening of volunteers was carried out to ensure recruitment of only those who qualify for the study; namely, Ontario licensed pharmacists who were actively practicing in community pharmacy or family health team settings. Pharmacists who were not practicing in community pharmacy or family health teams (e.g. those who were working in hospitals, nursing homes or pharmaceutical companies) were excluded from the study. This type of recruiting is known as Purposive Sampling or Purposeful Sampling. This method of sampling, which is frequently used in qualitative studies, is a non-probability method that involves the selection of certain individuals whom the researcher hopes to include in the study based on the study objectives (135). In this method of sampling, the researchers researcher targets are individuals who are wealthy with information required to fulfil the project's purpose of study (136).

#### ***4.2 Data collection***

Data collection took place from July 2016 to August 2016. As expected with Modified Grounded Theory, data collection overlapped with data analysis and was carried out simultaneously. Participants were invited for one-on-one semi-structured interviews at their choice of the interview setting; at the pharmacy, at home, or a mutually agreed upon public site such as a room within a community library. For participants who could not travel, interviews over telephone would be held. Interviews were recorded on a digital voice



recorder while I tried to take notes of important parts of interview that later can be used as a guide for coding the data.

Participants' demographic data including age, sex, and pharmacist practice data including age, gender, level of education, practice years, working setup and geographical location, also were collected for further analysis (Appendix 1).

## ***5. Interviews***

Individual face-to-face, semi-structured interviews were chosen as the method of obtaining information from participants. This type of interview provides the interviewer with sufficient flexibility without allowing the respondent to lead the interview and deflect to irrelevant subjects. The major benefits of this type of interview include the ability to develop rapport and gain participants' trust as well as an in-depth understanding of the responses (135). In semi-structured interviews participants have the opportunity to express their opinion in their own words while the interviewer can maintain focus. This allows the researcher to co-facilitate data creation without getting off topic.

Prior to the interviews, interview questions were developed by our research team. Questions were developed to outline participants' experience in pain management. The interview guide covered six main topics for discussion; the introduction (demographic data gathering), feelings and concerns about patients with chronic pain, opioids, communication with health care providers, and training. On the grounds that interviews are semi structured, some questions might be different depending on the participants' response (Appendix 2). The majority of interviews were approximately 50-60 minutes in length.

Before the interviews, through an e-mail, the participants were provided with an information-consent letter of the study that outlined the purpose and objectives of the study,

the participants' ability to withdraw from the study at any time and affirmed clearance from the Office of Research Ethics at the University of Waterloo.

The consent form indicated consent for interview, audio-recording of interviews, and use of anonymous quotations in future research and/or publications. All participants agreed to these conditions and signed the associated documents.

At the beginning of the interview I would remind patients about the audio recording the interview and their ability to quit the study during and after the interview. Interview questions were answered based on each pharmacists' perception of their role and experience of patients with chronic pain.

Sometimes, during my interviews with pharmacists, some participants diverted to a topic that was not listed in my interview guide, but led to derivation of some valuable information for the study. At the end of interviews participants were asked to share any point of view about chronic pain that they think it is important, but were not covered in our interview guide.

Post-interview, audio recordings were labeled using codes (for participants) and transcribed by a member of the research group. Audio recordings and transcriptions were securely stored in an encrypted folder in a computer in my office cabinet. Labels facilitated handling the collected data while maintaining participants' anonymity.

In qualitative research, the point of saturation plays an important role in choosing a suitable number of participants. The sample size in qualitative studies is decided based on thematic or theoretic saturation. Data saturation is the point at which no new data or themes are emerging from the data. Guest and colleagues (137) found that basic elements for meta themes can be present as early as six interviews. Morse et al. (138) reported that 8–12

participants can be an acceptable sample size for detailed description of participants' experience.

I initially targeted a sample size of 8–12 pharmacist participants while acknowledging that this number was subject to change based on the theoretical saturation of categories.

## ***6. Data analysis in qualitative study***

### ***6.1 Constant comparative method***

The constant comparative method is an ongoing procedure that compares newly collected data with previous data. This method of analysis is mainly used in grounded theory and case study approaches.

The basic concept of qualitative analysis is to read the textual database (usually transcribed from audio recordings) and documents, discover data variables that are called categories and meaningful units of participants' experience, to detect their relationships. The ability to distinguish variables and data is called "theoretical sensitivity" (129). In the other word, theoretical sensitivity is a conceptual term which means the ability to give meaning to data by understanding and separating the pertinent from that which is not (139).

After transcribing the recorded interviews, data should be analyzed before proceeding for further interviews. This can help to orient subsequent interviews as data collection and analysis are interrelated processes. According to Corbin and Strauss (130), "in grounded theory, data analysis start as soon as the first bit of data is collected." Thus, the analysis from the start of the study directs the next interview and observations. In order to not miss anything that may be important, the researchers must analyze the first bits of data for cues and all supposedly relevant points should be considered in next interviews. Data analysis in current study started after first two interviews. The analysis procedure is described below.

### ***6.1.1 Transcribing***

In transcribing interviews, all interviews are transcribed verbatim from audio records. All transcripts will be double checked for accuracy. Then, transcripts are imported to qualitative analyzing software for further analysis.

### ***6.1.2 Coding***

Bailey (140) defines coding as “process of organizing a large amount of data into smaller segments that, when needed, can be retrieved easily”. Coding is the core analytic process of qualitative research that is done by the researcher. As interviews progress, the expanding codes will be shared among research team members and the codes will be discussed for categorizations. Labels will be compared to each other and then categorized. This categorization of data allows the generation of a tentative conceptual framework. Each category will be titled by examining common palpable themes and concepts. Several tentative categories will be classified to a core category (141), determined by examining different categories. This list of codes is used to orient further interviews. The process of coding in grounded theory consists of open coding, axial coding and selective coding.

### ***6.1.3 Open coding***

Initial coding is known as open coding. Data are broken down by the researcher to find insights reflected in the data. Corbin (142) says “In open coding, events, actions, and interactions are grouped together for similarities and differences. They are also given conceptual labels. In this way, conceptually similar events/actions/interactions are grouped together to form categories and sub categories.” Using constant comparison in open coding enables investigators to break through subjectivity and bias (142).

In open coding, transcribes are read line by line to understand overall context, notes are taken and coding schemes developed by identifying the data that is relevant to the study

purpose and research question, that can be called “Units of meaning” of participants’ experiences in the data by searching for answers to questions such as “What is this about? What is being referenced here?” Analysis process in open coding rotates around identifying, naming, listing, categorizing, and describing the phenomena found in the textual data. A part of the analytic process is to determine the more general categories for primary categories and listings. For example, for labels such as hospitals, friendship, and social loss, we can use institutions, social relations, and social outcomes (142).

#### ***6.1.4 Axial coding***

Axial coding is also known as focused coding and seeks to identify relationships between open codes. The researcher tries to understand categories in relationship to other categories (143), and relate these codes (categories) to each other to make larger categories. The larger categories should be related to their subcategories and the association tested against data (142).

#### ***6.1.5 Selective coding***

Selective coding is the process of choosing one category to be the main category and trying to relate all other categories to the selected category. Those categories that are poorly categorized, (few properties have been uncovered in the data or subcategory contains only a few explanatory concepts) and/or need to be explained more, are most likely to be identified in axial coding (142). The core category should portray the cardinal phenomenon of the study. If findings of the study are to be summarized in a few sentences, what would the researcher say? What does all action/interactions rotate around (142)?

### ***6.2 Content analysis***

This method helps to understand the data of the study. It mainly consists of coding according to the unit of analysis (what to analyze and to what detail) and checking the reliability of

coding and categorizations. After coding, data can be analyzed using frequency counts, category ranking, multivariate analysis of variance and multiple regression methods (135).

### ***6.3 Memo-writing to capture reflections on the collected data***

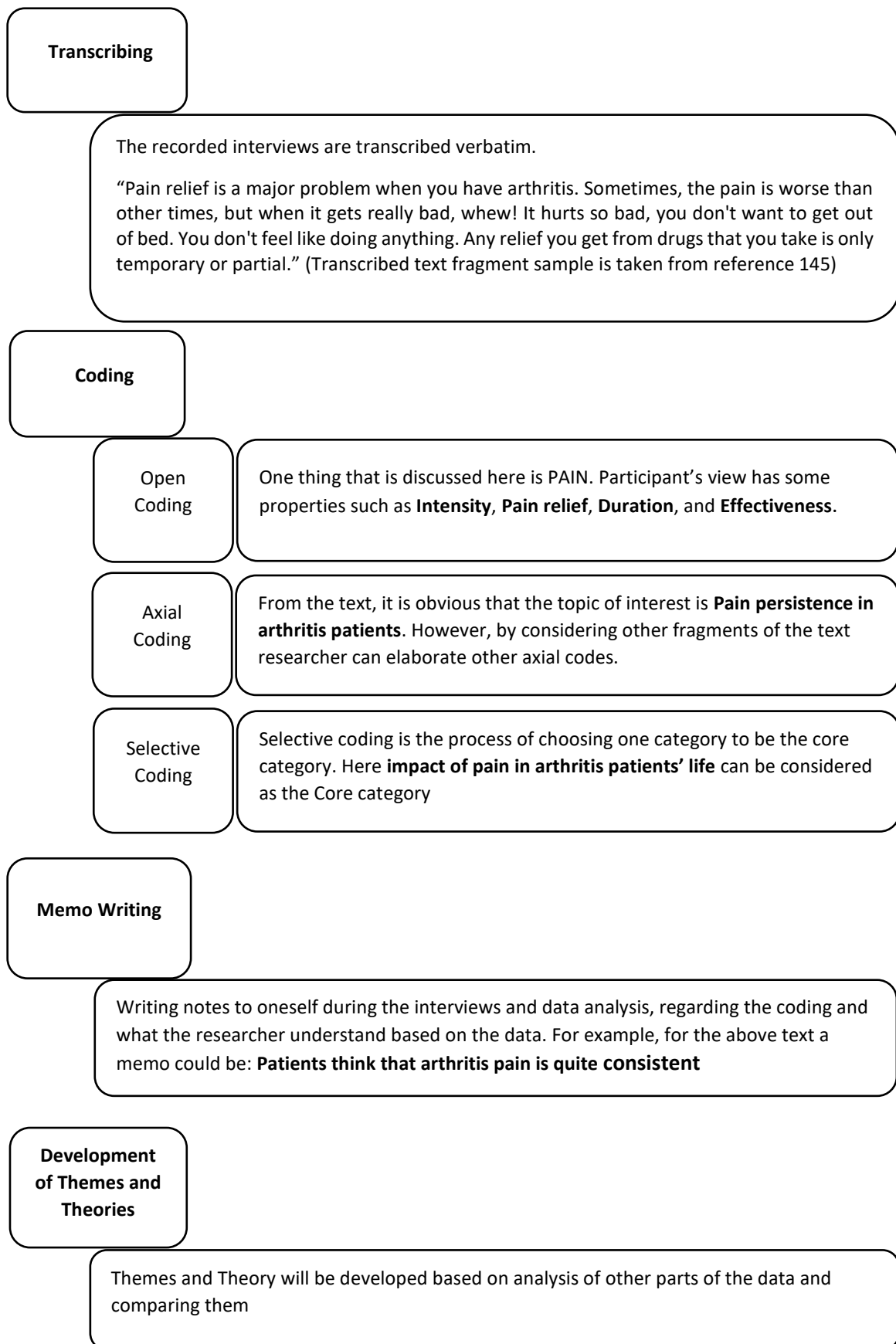
Memos are a type of document that provide the researchers with the ability to record the ideas, insights, interpretations or growing understanding of the material of the project. Memos are considered as mini-analyses about what the researcher is thinking or learning within the analyses process. Memos are short documents that researchers write to themselves as they proceed through the analysis of a body of data. Writing analytic memos is a critical phase of qualitative analysis. It provides the basis of analyses that will end up carrying the final report. Qualitative researchers usually write memos both during (interviews) and after (reading the data and data coding) data collection. Memos should reflect concepts and patterns that are emerging in data and what is or is not evident in data. Memo writing allows researchers to compare and contrast connections within and between datasets (144). Charmaz (145) remarks “Memo-writing forces you to stop other activities; engage a category, let your mind rove freely in, around, and from the category; and write whatever comes to you.” They can be a summary of core findings and comments on specific parts of the data while the researcher faces within the analysis process. Moreover, it can provide a medium for thinking about any additional data that would be helpful to collect in order to complete the analysis. To keep track of hypotheses and categories that have been elaborated during the analysis procedure, researchers must use memos. It should begin from the first coding session and continue through to the end of the study. Data from this process can be used for subsequent analysis. Figure-1 illustrates a schematic process of data analysis of a transcribed text from reference (139).

## ***7. Software***

Numerous software packages are available for analyzing qualitative studies that help researchers to manage, organize, and shape unstructured data. Qualitative research software do not do the thinking for the researcher, but give researchers more time for data analysis of their materials by building research tools that facilitate sorting and categorizing information. Software helps by taking notes in the field, editing, coding, memo-writing, storage, finding sequence locations and frequencies, and building theory (146).

For data analysis of our study we used NVivo<sup>®</sup> (QSR international, version 11, 2016), which has features and tools to facilitate organizing data for coding and memo-writing. It also facilitates theory building from the data.

**Figure 1- Data analysis process in grounded theory**





## **Findings**

This chapter focuses on the themes that emerged from participants' interviews that reinforce the experience and perception of pharmacists about chronic pain management. In the following section, the results will be discussed thematically with common experiences gathered into clusters.

Twelve pharmacists volunteered to participate in the study. Two of these were excluded because of their setting of practice (hospital rather than community pharmacy or family health team), and one opted to quit the study before the interview time due to a death in the family. Two interviews were carried out face-to-face in a private interview room or in the pharmacist's workplace. The remaining interviews were one-on-one telephone interviews. Telephone calls were made from a private interview room at the School of Pharmacy. Data saturation occurred by 7<sup>th</sup> interview. Two additional interviews were conducted which did not identify additional themes.

### ***Demographics information***

A purposive sample of nine pharmacists working in Ontario participated in this study. Of the participants, three were male and six were female. The majority were older than 40 years old, mean age 46. A community pharmacy was the primary place of practice of five pharmacists, two pharmacists were from family health teams and one pharmacist was working in both community and family health team settings. Two pharmacists had residency training, one had a Pharm.D. degree and one had a Ph.D. with an academic background. The remaining five pharmacists had a B.Sc. in pharmacy. Except for two pharmacists, all pharmacists were practicing in urban communities. Regarding the practicing experience, the mean years of experience was 19 years, ranging from 2 to 40 years. Excluding one young pharmacist who had 2 years practicing experience as a community pharmacist, all had at

least 10 years of experience. The average time spent de dealing with patients with chronic pain by pharmacist participants is 30%.

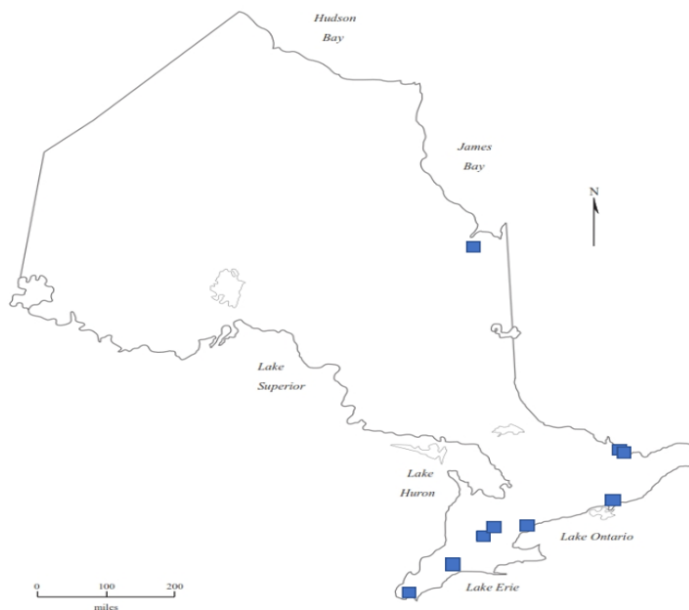
**Table 1- Demographic characteristics of participant pharmacists**

Gender	Age Range (Years)	Degree	Practice setting	Chain vs Independent	Population of the practicing Town/city	Years of Practice	Percentage of time dealing with pain
F	40-49	BSc(Pharm) + Residency	Family Health Team	NA	150,000	22	20%
F	40-49	BSc(Pharm)	Community	Independent	150,000	15	15%
M	40-49	BSc(Pharm) + Ph.D.	Community	Chain	210,000	25	25%-33%
M	20-29	Pharm. D	Community	Independent	360,000	2	50%
F	>60	BSc(Pharm)	Community	Independent	1,000,000	40	30%
F	50-59	BSc(Pharm)	Community	Independent	2,000	18	40%
F	40-49	BSc(Pharm)	Community and Family Health Team	Independent	50,000	10 (21)**	15%
M	50-59	BSc(Pharm)	Community	Chain	5,000	20	50%
F	40-49	BSc(Pharm) + Residency	Family Health Team	NA	1,000,000	22	20%

\* Ph.D. in Medicinal Chemistry.  
 \*\* 10 and 21 years practice in community and industry respectively.

<b>Table 2- Comparison of study pharmacists to population of practicing pharmacists in Ontario*</b>		
<b>Characteristics</b>	<b>No of participant pharmacists n=9 (percentage of population)</b>	<b>No of Ontario pharmacists in 2014, n=13207 (percentage of population)</b>
<b>Sex</b>		
Male	3 (33%)	5591 (42.3%)
Female	6 (67%)	7616 (58%)
<b>Age</b>		
<30	1 (11%)	1569 (12%)
30-39	0 (0%)	3455 (26%)
40-49	5 (56%)	3576 (27%)
50-59	2 (22%)	2811 (21%)
≥60	1 (11%)	1796 (14%)
<b>Education</b>		
BSc in Pharmacy	8 (89%)	12468 (94%)
Entry level Pharm.D	1 (11%)	- (-) <b>no data</b>
Pharm.D	0 (0%)	391 (3%)
MSc. Pharm	0 (0%)	233 (2%)
Residency trained	2 (22%)	-(-)
<b>Years of Practice</b>		
0-10	2 (22%)	3662 (28%)
11-20	3 (33%)	3319 (25%)
>20	4 (44%)	6188 (47%)
* Data from Canadian Institute for Health Information		

**Figure 2- Geographical distribution of study participants in Ontario**



### *Major themes and sub-themes*

This chapter presents the data gathered and analyzed and the themes that emerged from participants in this study that illustrates their in-depth individual experiences and the perceptions of participant pharmacists about chronic pain management in their daily practice. From the transcribed interviews, 735 significant quotations were extracted and categorized in 264 cluster codes. These codes were merged into five main themes. Each theme will be presented individually with supporting verbatim quotes from participants' transcripts.

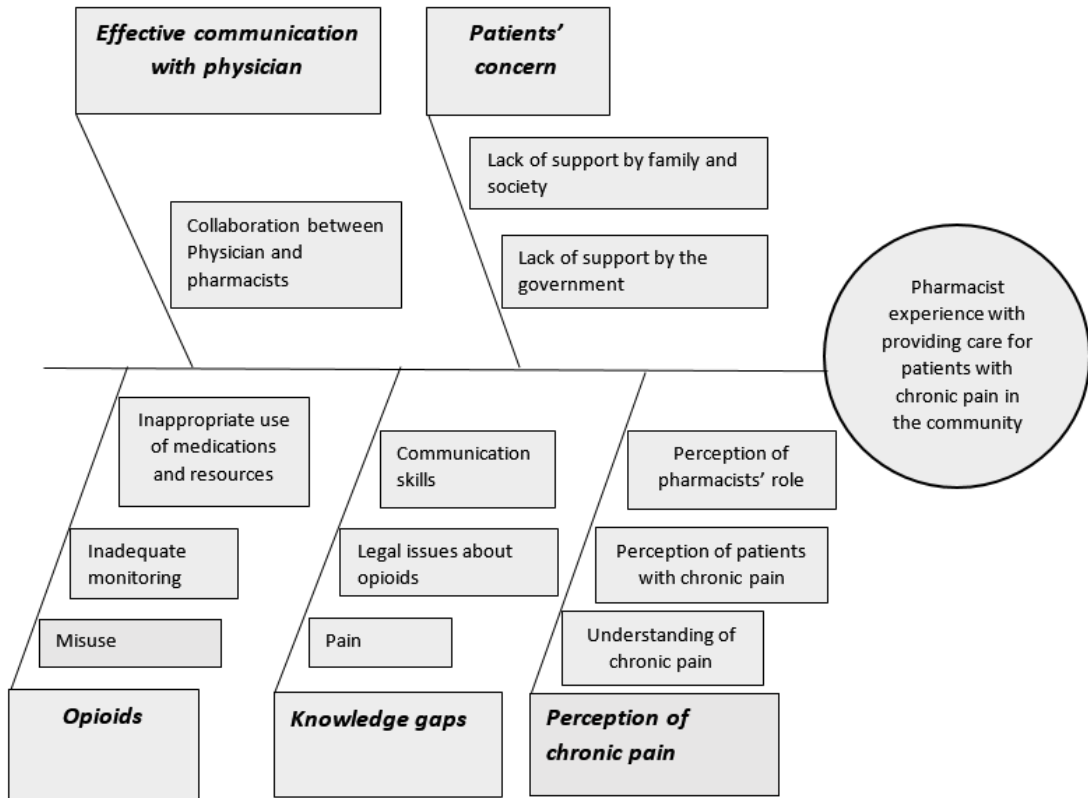
The five major themes were:

- 1) Perception of chronic pain (chronic pain management)
- 2) Opioids
- 3) Patients' concerns
- 4) Communication with prescribers
- 5) Knowledge gaps

These themes portray the significant experience of pharmacists about chronic pain management. Each overarching theme is constituted of subthemes that fall into that category of meaning. These subthemes are shown in Table 3. Each theme will be presented individually with supporting verbatim quotes from participants' transcripts.

<b>Table 3- Major themes and sub-themes</b>	
<b>Themes</b>	<b>Sub- themes</b>
Perception of chronic pain	Understanding of chronic pain
	Perception of patients with chronic pain
	Perceptions of pharmacists' role
Opioids	Misuse (Addiction, Diversion)
	Inadequate monitoring
	Inappropriate use of medications and treatments
Patients' concerns	Inadequate pain control
	Lack of support
	Addiction
Communication with prescribers	How pharmacists think about communication
	Barriers in communication with prescribers
	How to improve the communication
Knowledge (education) gaps	Knowledge about chronic pain
	Knowledge about legal issues
	Communication skills

**Figure 3- Theoretical framework of perceptions and experiences of community pharmacists interacting with patients with chronic pain**



## ***1. Perception of chronic pain management***

As this study focuses on experience and perception of pharmacists in chronic pain management, I tried to provide a brief picture of pharmacists' perception about the major elements in chronic pain management by pharmacists: Chronic pain, patients and their role as pharmacists.

### ***1.1 Understanding of chronic pain***

After asking participants' age, practice setting, and other demographic information, I asked them questions about their understanding of chronic pain and how they define chronic pain based on their experience. Pharmacist participants defined chronic pain in similar perspectives. Almost all pharmacists addressed the core characteristics of chronic pain such as unknown etiology and chronicity (more than 3-6 months) of pain. Some pharmacists also widened their definition of chronic pain by commenting on association of disorders such as anxiety, depression, disability, and impaired quality of life in chronic pain.

*“For me, it’s something that just doesn’t go away, and it’s more than 3 months. It’s just not going away, doesn’t seem to matter what you do, you still have it. It adversely impacts your quality of life.” P5*

*“Pain that lasts more than — well — more than 3 months or past the time when an acute injury has healed and that you would expect the pain to have resulted.” P9*

*“We can do it from a definition if anything. It’s pain that persists beyond the healing of tissue and beyond that 3-6 months, and you know I see 3 months and I see 6 months. So, anything that’s persistent, and especially in the absence of any acute injury. And that is ever present, and that is impacting the level that’s effecting the quality of life in a variety of domains.” P1*

*“chronic” is associated with “long-term”, so we’re dealing with pain that is due to a physical condition that’s lasting — again, depending on who you talk to — maybe lasting for a month, maybe lasting for a couple of months. We’re dealing with a full spectrum of symptoms from anxiety, from depression, from even organic effects on blood pressure and sugar control.” P3*

### ***1.2 Feelings about patients with chronic pain***

Some participants continued the interview by describing their perception of patients with chronic pain. They believed that the suffering of pain and disability are visible in patients' appearance. This perception was associated with a feeling of empathy to patients with chronic pain. However, participants had not noticed any other significant difference in dealing with patients with chronic pain and other patients.

*"Think the people with true chronic pain, to me, always look like they have a black-cloud over their head. They always look sad, they look depressed. They look unhappy. The people with true chronic pain, their quality of life, their joy in life, is not sustained." P5*

*"I keep in mind that this is a chronic disease, it is different from acute pain. You are actually dealing with physiological, organic changes in your nervous system, after months and months of suffering through pain." P3*

*These are patients who have pain and have a lot to say. These patients need help from all their healthcare professionals, because it can be a very debilitating and very painful condition to have. P2*

### ***1.3 Perception of the pharmacists' role***

Pharmacists in this study believed they can play an important role in chronic pain management. Some pharmacists were of the opinion that they are very accessible by patients, which accounts for the decent role of pharmacists among health care providers in pain management.

*"I think that we still have a pretty decent role in terms of those kinds of questions. Like we're more accessible than your family doctor I would say. Like anybody can go into a Shopper's." P4*

*"Oh, it's huge (the role)! So, a pharmacist and a physician together make an excellent team. You know, in terms of — once a physical exam has been done and the imaging is done and you kind of know what you're dealing with in terms of a pain problem, a pharmacist who is experienced, is as good as a physician's experience in terms of suggesting medications, managing side effects, adjusting doses, you know, that sort of thing" P9*



Pharmacists felt that they can help patients with pain when they are looking for over-the-counter medications or when they have a prescription for pain. When asked about non-prescription medications for pain, participant pharmacists would try to assess patients' pain by asking about severity, duration, and possible etiology of pain to offer the best medication for their condition or referring them to a physician. When I asked interviewees about referring patients to other health care providers, all of them mentioned family physician as the sole health care provider they referred their patients.

*"First of all, I ask for the information from the patient. Like what this person knows about their pain, how long is it going, why does that happening, what this person thinks about the pain and how bad it" P7*

When patients have a prescription, participant pharmacists would try to check the prescriptions for appropriateness, identify possible drug interactions, monitor patients for side effects and suggest appropriate alternatives for prescription problems to physicians when needed.

*"I prefer to ask some questions before filling anything, so it depends on what type of, again, disease states that they say they have and what they're using it for." P5*

*"This person has been on another prescription and doctor prescribed something that may cause a problem when it's combined with one of the existing prescriptions." P7*

*"Resolving a lot of drug interactions that pop up all of the time. Screening for what's significant, what's not." P2*

Furthermore, pharmacists felt that they play a significant role in consulting and educating patients about pain management. This includes educating patients face to face about pain, medications and non-drug measures such as keeping a pain diary, lifestyle changes, or by referring them to available public resources for pain management such as websites.

*"We explain to them that their pain levels are not going to be zero, and that you're going to have to live with a little bit of pain." P3*

*“I’ll give people websites such as Headspace and MoodGym, like the app. Headspace has some very interesting things, MoodGym in an Australian website that several, like a psychologist and a psychiatrist, that have recommended it at meetings that I go to for pharmacists.” P5*

While trying to help patients with their pain, pharmacists also try to control opioid abuse. As elaborated by one study participant, pharmacists felt they were considered as gatekeepers for opioid abuse. If they do their job properly, they can protect society against opioid abuse and addiction.

*“We’re being asked to be the gatekeepers and making sure that we’re dispensing properly.” P3*

## **2. Opioids**

To obtain a better understanding of pharmacists’ challenges and concerns about patients with chronic pain, I asked pharmacists about their main concerns and difficulties in dealing with patients with chronic pain and dispensing their medications. All participant pharmacists described opioids as their main concern about patients with chronic pain. In all interviews, pharmacists frequently had experienced difficulties with opioid prescription and in dealing with patient using opioids. Their main concerns about opioid use can be categorized into three sub themes; 1. misuse (addiction, diversion) 2. inadequate monitoring 3. inappropriate use of medications or resources.

### **2.1 Sub-theme: Misuse (addiction and diversion)**

Addiction is defined as compulsive need for and use of a habit-forming substance (such as opioids, nicotine, or alcohol) characterized by tolerance and by well-defined physiological symptoms upon withdrawal (147). Diversion is defined as a medical and legal concept involving the transfer of any legally prescribed controlled substance from the individual for whom it was prescribed to another person for any illicit use (32, 33). Based on the coded

data, risk of misuse (addiction and diversion) were the most frequently stated concerns of pharmacists about opioid use. A participant said:

*“They have two major side effects, which is addiction and diversion. I mean obviously, there is a lot of talk about addiction and opioid misuse and opioid abuse. Which obviously needs to be addressed, I just hope, and often I don’t see that the needs of chronic pain patients are fully addressed at the same time.” P1*

Almost all participants had witnessed situations when their patients had become addicted or abused prescription opioids. Some had observed situations in which their customers sold prescribed opioid medications in the street. This potential for abuse was associated with a huge sense of responsibility to minimize the risk of abuse. In their perspective, as gatekeepers for opioid use, pharmacists are responsible for the health of their customers and society. However, the participants felt that fear of abuse should not leave patients in pain; they were motivated to exercise caution to check the appropriateness of medications to prevent opioid abuse.

*“We’re being asked to be the gatekeepers and making sure that we’re dispensing properly.” P3*

*“We do our due diligence and try to make sure that it’s being used for appropriate reasons.” P4*

*I do have patients who explain to me the process of how other patients extract the fentanyl from the patches.” P3*

*“Addiction doesn’t mean that they should be left in pain you know. I mean obviously, there is a lot of talk about addiction and opioid misuse and opioid abuse. Which obviously needs to be addressed, I just hope, and often I don’t see that the needs of chronic pain patients are fully addressed at the same time.” P1*

Participant pharmacists also had concerns about the potential risk of abuse to the health of society, since these medications could affect patients’ family members or other people in

the society by being sold as street drugs. I found two main dimensions about their concerns about the society, first, the people whose health may be endangered by being exposed to opioids and secondly, the healthcare budget that is being spent on opioids.

*“The biggest concern that I usually have. And just, once again, it ties into the safety of the community — it makes them a target.” P4*

*“Always the potential for abuse or misuse by anyone and if not by the patient, who else is in the home that could abuse.” P1*

*“There’s no black-market for blood pressure medication, but there is a black-market for opioid medication. It’s not that they pay for it out-of-pocket, it’s government-sponsored. And so, for me, that’s the biggest thing that I think about over time.” P4*

*“I don’t know if you’ve read about Smarties-Parties, but kids are stealing the painkillers from the medicine cabinet of their family and friends, and they throw them in a bowl and you take one. And it’s called a Smarties-Party. And that’s extremely dangerous.” P5*

There are two major sources to access opioids, OTC opioids, mainly Tylenol#1 consisting of 325mg acetaminophen, caffeine and 8mg codeine. Many pharmacists believed that this is an easy but not healthy way to access opioids. Addicted patients could use Tylenol#1 as an easy-to-access source of opioids. However, this can be unsafe since the acetaminophen content can be hepato-toxic in doses greater than 4grams per day. Although pharmacists try to limit the sales of OTC opioids, according to some participants, this is not an easy job since the demand for OTC opioids is high and limiting sales can lead to manager dissatisfaction, especially when not all pharmacies have the same motivation and policy for limiting the sales of OTC opioids. This can lead to a loss of revenue when patients go to the other pharmacies that are willing to sell OTC opioids without limitations in quantity.

*“Over-the-counter codeine sales, I have a big problem with it. Because it is pain management, but very often it’s a maintenance of addiction too. You know they can’t get over the narcotic because they are already addicted and they are very uncomfortably not to be taking those medications regularly.” P7*

*“I don’t know why this province does nothing about Tylenol ones. I sent you a note about that. I mean every store has people addicted to Tylenol ones, I’m sure, has people that come in regularly and buy 100 or 200 Tylenol ones. We are not doing well. I think Tylenol one should be monitored on the ONMS, and that way if somebody is getting more than the safe amount of Tylenol, then at least you can do something about it.” P4*

*“I’ve talked to other pharmacists in Ottawa and they give out huge amounts of Tylenol one and often they’re positive that the patient is getting more at another pharmacy.” P5*

Prescriptions are the other source of access to opioids. Participant pharmacists believed that some physicians prescribed opioids in large amounts without concern for abuse.

*“Like when one 3 months of oxycocet and the patient is taking every 6 hours as needed and they’re getting 400 tablets. This is where I’m a little bit more concerned.” P3*

*“If such high quantities are being prescribed. So, that for me is the biggest concern — like they’re so used to getting like 200 Oxycocet. Like I would never know for instance, maybe the patient only takes 100 in real-life and the rest of the 100 is being sold on the street.”*

*P4*

*“A lot of patients are getting 120 or more Tylenol 3s a month! You know, for chronic pain, and I’m thinking.” P5*

*“We even had people where the staff in the pharmacy said “they’re selling them.” P5*

## **2.2 Subtheme: Inadequate monitoring**

Inadequate monitoring is believed by pharmacists to stem from several factors. Participant pharmacists thought that there is inadequate record keeping in physicians’ offices, which makes it more difficult for physicians who are unable or do not spend time to check the prescription records of patients taking opioids. Pharmacists believed that the 5 to 10-minute visit time allocated to patients by most physicians is insufficient for thorough review of the medical records of patients. Second, some pharmacists felt that physicians are pressured by addicted patients to prescribe opioids. These patients persuade prescribers by insisting on

having opioids prescribed for their pain with excuses such as travel or even threatening prescribers. According to one pharmacist, the other issue that may persuade physicians to write opioid prescriptions for addicted patients is that opioids are the only available therapeutic option to manage their pain. Other therapeutic options such as non-opioid medications (Lyrica, topiramate) or non- drug interventions such as physiotherapy are not covered by the government and are expensive for uninsured patients. This topic will be discussed more under the topic of “Inappropriate use of medications and resources.”

*“The biggest problem that I find is the physician’s lack of a proper record about the frequency of the medication.” P7*

*“I had one doctor tell me, he had a patient who was in her 80s and he said “she’s going to fire me, as a doctor! She’s been my patient for over 40 years and she threatened to fire me!” So, you know, I think that doctors do get a problem with their patients and they don’t want to upset them either you know, if you have a nice guy as a doctor.” P5*

Pharmacists believed that physicians should be able or spend time to check records of opioids prescribed to their patients. This becomes critical when patients use walk-in clinics to obtain opioids in addition to those prescribed by their primary physician. This seems to be an effective strategy to get more prescription opioids. When patients use opioids faster than prescribed and the pharmacy refuses early fillings, patients ask physicians at walk-in clinic for prescriptions.

*“We’re trying to make sure that they’re getting the refills on time, but suddenly these patients, either they go to a walk-in clinic and they ask for extra pain meds or they go to their physician and they come up a story about how they want to leave or go away or whatever story, whatever excuse. Whether they lost them, or they got stolen, and there’s really no further due process about dispensing.” P3*

Study participants also thought that patients who are using or are projected to use opioids, should be assessed more accurately for the potential risk of abuse. Some pharmacist interviewees told me that although there are tools to assess the risk of abuse, many family physicians do not use these tools, and even if it is used, the patient may not answer honestly.

For instance, as three participants mentioned, it is probable that patients would conceal that they or a family member have or had a history of addiction.

*“I don’t think we’re very systematic in assessing for addiction. The pain specialist that I work with, she is systematic — she does that with every patient — but family doctors are not.” P9*

*“They could be not telling you the truth. For example, when you say family history of addiction, which has a big scoring component, they could be lying about that or not telling you the truth, right.” P3*

As gatekeepers, pharmacists try to limit the risk of abuse;

*“We do our due diligence and try to make sure that it’s being used for appropriate reasons. We do our due diligence, and we know that if we suspect anything then we’ll contact the appropriate authorities and things like that.” P4*

But participant pharmacists believed that there are several barriers to the prevention of abuse and forgeries. These include lack of a proper communication system between pharmacists and physicians to easily share patient information and the lack of incentives for pharmacists to routinely perform patient assessment, monitoring, and documentation. One pharmacist felt that in comparison to other prescriptions, chronic pain and opioid prescriptions are very labor intensive, and pharmacists are not paid and for the extra time they have to spend for such monitoring and documentations.

*“We have a very poor system of communicating with other pharmacists. Because you hope that they read your red alert note and they don’t always read it.” P5*

*“Why do we expect community pharmacists to work free of charge?” P1*

Another barrier in monitoring is fiscal issues. As two pharmacists mentioned that financial issues are an important problem, since selling medications is the sole source of income in community pharmacies. A pharmacist who had tried to refuse the sale of large amounts of an OTC opioid to a patient, was approached by the pharmacy manager and was told:

*“Now this patient will approach the nearby pharmacy and will buy whatever he wants, but we missed our customer” P10*

On another occasion, a pharmacist who had become suspicious of a doctor prescribing large amounts of opioids for a long time to a patient who was the physician’s family member, approached the pharmacy manager about her intention to report this as misconduct, the manager opposed her explaining that the physician’s prescriptions made up a significant portion of their revenue.

*“I want to report this doctor to the CPSO, this is not right. You’ve been filling this med for a long time for this lady, and it’s her husband! They have the same last name. You know, this is not right.” The manager replied “this doctor gives us 11% of our prescriptions, we’ll lose business if you report him.” P5*

She insisted on reporting this violation and the physician gave up her license. After a short time, she lost her job because she had reported the misconduct.

*“I was told you’re not welcome to stay at this store, not too long later I was fired essentially.” P5*

While most pharmacists in our study were concerned about opioid abuse and inadequate monitoring before prescribing, and were focused on improving the assessment and monitoring measures to reduce the risk of abuse, two pharmacists proposed that access to opioids and/or the number of prescribed opioids should be limited. They believed that limiting access to opioids can reduce the risk of abuse. As examples, only authorize physicians and pharmacists who have extra training in pain management and opioids to prescribe or dispense opioids, limiting prescribing practices to specific medical centers, or limiting the number of opioids that can be prescribed each prescription. Furthermore, walk-in clinics should have a policy which restricts prescribing opioids to short durations only.

*“I mean ultimately; they should be a little stricter on a lot of prescribers. Some products, I feel, should only be available in the hospital - let alone, like you shouldn’t be able to do exceptional access unless there’s like definitive proof.” P4*



*“Walk-in clinics really need to step away from prescribing chronic pain medications, unless they do it for a very, very limited period of time.” P3*

*“The other one is limiting quantities; I think that’s extremely important. Physicians need to be more aware of quantities. Physicians need to be more aware of refill frequency.” P3*

*“I think that two weeks to a month, maximum! I think that’s what these patients should be prescribed. Sometimes I’m more concerned with the actual quantities that’s being given, rather than the dosage. Like when one 3 months of Oxycocet and the patient is taking every 6 hours as needed and they’re getting 400 tablets. This is where I’m a little bit more concerned.” P3*

*“Like don’t get me wrong, we don’t mind releasing the medication early, but there needs to be some documentation on the prescription as to why you’re doing that. This is your job as a prescriber, to document why you’re allowing that. It shouldn’t be my job as a pharmacist to try and chase you for half a day as to why you’re doing this.” P3*

### ***2.3 Sub-theme: Inappropriate use of medications and resources***

Almost all study participants were concerned about the inappropriate use of medications and resources for treatment of chronic pain. By analyzing the data, two parameters emerged that play a role in inappropriate use of medications, particularly opioids; realistic expectations about chronic pain and its management, and the lack of alternatives for opioids.

#### ***2.3.1 Realistic expectations from chronic pain treatment***

As recognized by the pharmacist participants, the main goal of treatment in chronic pain is functionality. Patients should receive education to have realistic expectations about their pain. Based on the participants’ experience, most patients do not achieve complete resolution of their pain, even with opioid medications. Thus, having realistic expectations about chronic pain can lead to more rational use of medications and prevents unnecessary exposure to opioids whose side effects may decrease patient functionality. Furthermore, inappropriate use of opioids may reduce functionality by producing physical and psychological dependence. Hence, one of the aspects of appropriate use of medications in

chronic pain is setting expectation for treatment. Participants believed this can be obtained by educating patients about chronic pain and the goals of treatment.

*“Person who is like “just give me a pill, if I get the magic pill then I’m good”. And it’s going to be harder for that person who is looking for the magic pill and not ready to do the other things.” P1*

*“The ultimate goal here is not to get rid of the pain completely, but to reduce it to a level where functionality on day-to-day activities become possible.” P3*

*“Are you moving more? Are you doing more in your day? No? Do you think this is really giving you much more in your quality of life and you being able to participate? If you’re not improving function, then it’s not worth having.” P1*

*“We explain to them that their pain levels are not going to be zero, and that you’re going to have to live with a little bit of pain.” P3*

However, some study participants thought that there is a huge gap in education for patients about the proper use of medications and opioids.

*“I don’t think that we do a good job of educating patients about, you know, opioids don’t work for everybody, they don’t work for every pain problem, and the goal of treatment is to make them more functional — so if opioids don’t help them reach that goal then we have to stop them because they do have significant side effects.” P9*

### **2.3.2 Lack of alternatives for opioids**

The second reason for improper use of therapeutic options gleaned from the data is that non-opioid medications and interventions are not used prevalently.

*“I think that we’re not doing well in pain management of people with chronic pain who are not on opioids, we’re not doing well at all.” P5*

There are many non-opioid medications that have significant efficacy in alleviating chronic pain with more favorable adverse effects profiles, but are not prescribed effectively or adequately in daily practice. This topic was raised by one of the participants and I tried to investigate this idea in subsequent interviews. Participants had similar ideas and suggested that these medications were less-prescribed because these medications are not covered by

the government or insurances. According to study participants, governments have a large budget for opioids but not for other medicinal or interventional therapeutic options that might be equally effective with a better safety and adverse effects profile.

*“I think, to encourage opioids maybe, was a mistake in people with chronic pain. I mean people that are in pain where it’s not going to go away and it’s not fibromyalgia — don’t get me wrong, I think opioids have to be used for chronic pain — but I no longer believe that they are necessarily the best choice” P5*

*“The government needs to look into covering, for example, medications like Topamax, lamotrigine; they should look into covering other non-opioid treatments that right now they don’t cover. Like Topamax and lamotrigine, they are only covered for epilepsy, but they have a lot of uses in chronic pain.” P3*

It is mentioned that patients generally cannot afford these therapeutic options, particularly when they might be disabled by chronic pain at least to some extent.

*“Somebody who hasn’t worked in five years because of chronic pain, can’t afford to do those things.” P3*

*“Let’s say if we’ve tried Cymbalta or Lyrica, and they’re not anymore functional on it, they’re quite happy to stop it. It is very easy to say “I don’t think this is really helping you that much and you seem to agree so we’re just going to stop it”. And people agree with that. But when you have that same conversation about opioids, for some reason, people are much more resistant to giving up their opioids.” P9*

*“So, a patient is on a fixed dosage and suddenly they’re asking for more and for more. We’ll tend to review the whole condition and see what other type of other medication categories we can introduce, rather than escalating the dose of the opioid.” P3*

*“Government should actually do a little bit of a better job approving or actually covering non-opioid therapy.” P3*

*“Getting massage therapies and things but people can’t afford it! They can’t afford the psychological counselling and cognitive-behavioral therapy that might be useful.” P5*

One pharmacist speculated that in real practice, physicians have very few options aside from opioids. Non-opioid medications such as Lyrica and interventional options such as physiotherapy are not covered by government or insurance.

### ***2.3.3 Sub-theme: The need for comprehensive approach***

Study participants frequently spoke of the physical, psychosocial, vocational, and social aspects of chronic pain. They believed that treatment of chronic pain goes beyond prescribing medications. Chronic pain and its associated health conditions such as depression and anxiety that impact patients' lives should be addressed by variety of healthcare professionals including physiotherapists, psychotherapists, nurses, social workers, and occupational therapists.

*"I think that it's something that needs to be addressed, perhaps holistically — more than just prescribing pain-killers." P8*

*"We're dealing with a full spectrum of symptoms from anxiety, from depression, from even organic effects on blood pressure and sugar control." P9*

*"I think that we need not just pharmacists but other healthcare professionals and patients and society in general to recognize that chronic pain management is not just drugs. There's a huge role for psychological treatment, and physical treatments, not just physiotherapy but things like tai chi, yoga, mindfulness space stress reduction — those sorts of things." P9*

*"You need to be looking at non-drug methods, you need to be looking at cognitive-behavioral therapy, meditation, you need to be looking at a lot of different things that pharmacists are not familiar with." P5*

Although the necessity of a comprehensive approach was clear to participants, they believed that this necessitates the presence of medical centers in which healthcare professionals can work together to serve patients with chronic pain. However, few centers in Ontario offer

specialized and comprehensive services to patients with chronic pain and many patients are on long waiting lists for pain management clinics.

*“Like we don’t have that many pain management clinics — it takes over a year to get into one in Ottawa, and I really, I strongly feel that for good pain management, you need a team approach.” P5*

Responses to my question “when chronic pain is quite prevalent (17%) in Canada, why is there not enough infrastructure to serve patients with chronic pain while other chronic diseases such as diabetes have better treatment facilities?” are as follows;

*“I think if you’re going to set up a chronic pain program, you do need to have dedicated funding. Or you need to say to your healthcare practitioners, for example, if you have a social worker who is — for example we have a social worker here, and she’s wonderful. But she, right now, her next available appointment is in January.” P9*

*“So, I actually am not sure. I’m not sure if it’s because you know, diabetes has the Canadian Diabetes Association and they lobby and they raise money for research and you know, cancer obviously has the Canadian Cancer society and they have huge fundraising things. So, I don’t know. It might be that chronic pain is a very heterogeneous condition — you know it comes from many different.” P9*

*“Treatment is complex and multifactorial and drugs are a small part of a successful treatment plan and the other parts are kind of expensive — things like physio, occupational therapy — you know. And it might, it’s kind of in a way, it’s hard to measure too. So, you know, like it’s easy for the province to look at wait times for hip replacement, although I guess they could look at wait times for chronic pain clinics this is like they do not open a can of worms.” P9*

They believed that while chronic pain as a multi-dimensional health condition needs a multi-modal approach by collaboration of several health care providers, there is insufficient budget allocated by the government to cover multi-modal collaborative care services to patients.

### ***3. Patients' concerns***

This theme describes the main patient concerns from the pharmacists' point of view. From their perspective, patients have three major concerns; lack (inadequate) of pain control, lack of support, and fear of addiction.

#### ***3.1 Sub-theme: Inadequate pain control***

The most distressing part of chronic pain to patients is inadequate pain control, which is intertwined with the chronicity of pain. All people experience episodes of acute pain that disappears over a short period of time, but in chronic pain, the problem stems from long-lasting uncontrollable pain. Uncontrolled pain affects patients' mood. Pharmacists in this study believed that realizing that they will live with a significant level of pain is an unpleasant agitating experience to the patients.

*"If the pain is new, then very often, the patient is concerned about being not normal."*

*P7*

*"I'm anxious, guess what's going to happen to my chronic pain. I'm anxious, I'm worried, my body is tense. I don't sleep as well. Pain is impacted."* P1

*"They want to know what they are; they have an anxiety because having pain is not normal for them. They don't know if it's good or bad. So, that's if it's a new pain. But if it's not a new pain and they have been having pain for a long time, then their first mention — it's inconveniencing them."* P7

Participants felt this experience becomes even worse when long-term uncontrollable pain affects patients' functionality and quality of life. Pain prevents them from working and with lower income, they cannot afford treatment and medication expenses. This keeps them stuck in pain. The quality of life ultimately will be affected.

*The person says "I'm stuck with this for life and it's not doing it."* P8

*They have many concerns, you know, stemming from their pain. Not just that their pain is not controlled, but that they cannot function and you know, have a good quality of life.* P9

*“I believe that the main concern is to be able to be pain-free or at least lessen the pain so that they can go on and do their own daily routine. Once they can manage that one, like they can do their job or life or studies or whatever, I believe that they’re fine with it, as long as they can be pain-free and their quality of life be back to normal.” P6*

Even when the pain can be controlled by medication, the patients’ functionality can be impaired by side effects such as drowsiness and confusion. This emphasizes the importance of using an appropriate strategy for use of medications with the ultimate goal of maintaining the patients’ functionality.

*They don’t want to feel drowsy or foggy. Or one lady said that “I feel spacey on these meds, I feel kind of spaced out”. You know, they don’t want to lose their ability to think quickly, you know. So, that seems to worry my patients are legitimate pain med users. P5*

### ***3.2 Sub-theme: Lack of support***

The second topic that emerged under patient concern is the lack of support, particularly emotional support from health care providers, family members and financial support from the government.

#### ***3.2.1 Lack of emotional support***

Participants believed that since pain is a subjective feeling, it may not be well-understood by those who have not experienced pain, and in particular, chronic pain. The subjective characteristic of pain can put patients in an emotional state of being not believed and understood. These patients need to be heard and validated by family members and friends. Aside from expecting their health care providers to do their best to control their pain, they would like their concerns to be heard by them. They expect society to believe and validate their pain. This is of importance especially when functionality is impaired by pain and not understood by others.

*“I think there is something about being seen, being heard, being understood, being validated, and having a place where they are believed. And some days I think that that’s the therapy and that’s therapeutic in and of itself.” P1*

As a pharmacist explained, when patients feel that they are not believed by the society, they may extrapolate this perception to their health care providers.

*Lots of these patients are concerned with how they feel when they approach their healthcare provider or their pharmacist for their prescriptions. P3*

### **3.2.2 Lack of support by health care system**

Pharmacist participants also believed that patients with chronic pain did not have adequate support from the government and to be specific, the health care system. Patients have to wait for a long time before they can visit pain specialists. In several interviews, interviewees mentioned waiting times of about two years that looked unbelievable to me at first, but has long been a reality in the world of patients with chronic pain. Having patients being left by their debilitating pain on long waiting lists makes patients feels abandoned by the government.

*“I feel bad for them, because there’s a lack of services to address their problem.” P9*

*“I guess I’m just glad that I don’t have chronic pain. Because there’s — the wait time for specialist assessment is very long. In Ottawa, on average, a patient in Ottawa can expect to wait at least two years to see a pain specialist.” P9*

In addition to long waiting lists for patients to access chronic pain health services, participants felt that there is a lack of coverage for medications and alternative treatments such as physiotherapy and psychotherapy for chronic pain. As discussed above, many alternative medications for chronic pain -despite better safety and adverse effects profile that can be good substitutes for opioids - are not covered by the government or insurances.

*“So, that’s one thing. And depending on their insurance coverage — drug insurance coverage — they may not have money to pay for pain medications. So, you know, we try to help them with that through, we try and arrange drug coverage — drug insurance —*



*through Trillium drug program, and if that doesn't work then we try to access compassionate drug programs to get medication. But of course, there are no compassionate drug programs for opioids." P9*

*"So, you know, like it's easy for the province to look at wait times for hip replacement, although I guess they could look at wait times for chronic pain clinics this is like they do not open a can of worms." P9*

### **3.3 Sub-theme: Addiction**

Interestingly, study participants believed that many patients have similar concerns about addiction. In the perspective of the participant pharmacists, many patients are worried about addiction and diversion and this fear of taking opioids may play a role in inadequate control of pain. Many patients with opioid prescriptions are concerned about having to take opioids for life mainly due to the fear of addiction. This fear seems to be more significant among older patients. In contrast, there are patients who are so fed up with pain that they just want something to treat it.

*"Some patients don't want to use opioids because they have heard that it is addicting."  
P4*

The other concern is the stigma of addiction. Some patients are concerned about how they would be judged by other people such as their family members and colleagues. According to one participant, for some people, taking opioids for pain relief is equal to addiction and addiction is considered sinful by their community.

*"I don't like people knowing that I'm on these medications." P1*

*"They instantly connect narcotic with addiction and now addiction means behavior for them. Basically, in this situation. And they feel that being a "drug addict" and they will become "drug addicts" and so they treat it like a sin, because being dependent on narcotics is still like a sin for some people still. So, they do not want to be cleaning up by being addicted to narcotics so they will refuse." P7*

In response, participating pharmacists try to address patients' concern about addiction and discuss the possibility of addiction and the benefits of controlling the pain. Furthermore, pharmacists, especially in family health teams, try to propose alternatives for opioid medications. However as discussed before, a significant number of patients cannot afford the alternatives.

*"I don't want to be hooked," "I don't want to be dependent," "I don't want to be addicted to these medications." For those patients, we look at alternatives. So, we'll look at nerve-altering agents, we'll look at anti-inflammatories, we look at newer generation anti-epileptics, we'll look at cortisol injections.*

The other concern worth mentioning is the safety issue, safety in terms of keeping opioids out of reach of potential abusers in the family and the neighborhood.

*"Partially because of safety, like just because maybe their neighborhood is a little rougher — so they have to be careful. Because you know, there is a street value for it. So, people have to worry about that." P4*

*"I don't know if you've read about Smarties-Parties, but kids are stealing the painkillers from the medicine cabinet of their family and friends, and they throw them in a bowl and you take one. And it's called a Smarties-Party. And that's extremely dangerous." P5*

#### **4. Pharmacists communication with physicians**

Almost all pharmacists in this study stated that they had good communications with physicians. Everyone would prefer to communicate with physicians by fax except one family health team pharmacist who preferred face-to-face communication. The main reasons for contacting a physician were errors in prescription, administrative, legal issues (ordering refills for opioids, which is illegal), incorrect amounts of medications, typos, physician signatures, drug interactions, opioid dose conversions, and physicians inquiring for availability of medications and available dosage forms in the market.

*"Physicians and pharmacists, they need to work closely together in terms of chronic pain management, because not only are we dealing with efficacy, but there are safety issues*

*that are not only related to the patient, but to the whole community. I mean these drugs are making it to the streets, and it is just a big problem.” P3*

*“The mechanics of writing a narcotic or an opioid prescription, part-fills.” P8*

*“They haven’t signed the prescription or they haven’t written it properly according to the prescribing rules for narcotics or opioids, then those are the main topics about legal.” P6*

*“What’s the starting dose for this type of medicine” or “what is available in your pharmacy, I want to prescribe something like this but I don’t know what’s available.” P7*

#### **4.1 Sub-theme: Barriers to communication**

Older participants who had more than 20 years of experience believed that communication between pharmacists and physicians has improved over the last 20 years, and all participating pharmacists had positive feedback from their communication with physicians, although they thought that barriers for effective communication with physicians still exist.

*“So, pharmacists are often bound by little picky details that they have to ensure that are done, and physicians may not be aware of that. And with a doctor who is in a high-stress area — and pharmacists are too — they won’t realize why they are getting these messages and why these things need to be changed.” P1*

Many pharmacists believed physicians are not very accessible, particularly those who work in hospitals and whose contact information is unavailable. This is of importance when pharmacists must contact the prescriber because a prescription has some items missing. In my interviews, I realized that some hospitals addressed this problem by having another doctor look at the prescription if the prescribing doctor had gone home.

*“In the hospital, a lot of doctors don’t necessarily work every day of the week — they may only pop-in like twice a week. So, if it’s prescribed, and unfortunately, we can’t get a hold of the doctor, then that’s honestly the biggest issue I would say.” P4*

Some physicians are uncooperative. Although this occurs infrequently, by asking probing questions I discovered several characteristics in common among non-cooperative physicians. It seems that older physicians are less communicative and receptive to

pharmacists' comments. Those physicians who graduated from training programs with a team-focused approach are more communicative and receptive to pharmacists' suggestions. The personality of the physician also has a role; some people are less communicative by nature. According to one of the participating pharmacists, physicians who are empathetic and spend more time for their patients are more likely to be receptive to pharmacists' comments.

*"Some doctors seem to get deeply offended when you make a suggestion and other doctors send you a smiley face and a thank-you." P5*

*"I've found that the majority of the younger physicians, with the new system that they're coming out — like they're graduating and they are used to having teamwork with pharmacists and with other healthcare, so they do actually respect it more." P6*

*"I've sort of learned to figure out, who is this person behind the MD? What do they like? What's going to work for them, and what do I bring that can help and support them." P1*

*"If they are an empathetic doctor who gives each patient more than their 5 or 10 minutes, then usually they're willing to accept suggestions. But if they're a "you get 5 minutes and you're out the door/ one problem doctor", then I usually find that they are not responsive to any suggestions from a pharmacist." P5*

#### **4.2 Sub-theme: How to improve communication with physicians**

Many pharmacists were of the opinion that trust between pharmacists and physicians plays a pivotal role in their communication with physicians. In my interviews with pharmacists, I detected three common elements among pharmacists who had established good communications with physicians; 1- trust develops over time. 2- making physicians familiar with profession of pharmacy and their scope of practice and 3- improving knowledge and skills to provide physicians with appropriate recommendations. As a first step in building trust, pharmacists should make face-to-face and social interactions with physicians. This can be as simple as introducing themselves to physicians or participating in joint career

events with physicians. Some physicians are not familiar with the scope of practice of pharmacists. Such communications make physicians more familiar with pharmacists and their scope of practice.

*“So, pharmacists are often bound by little picky details that they have to ensure that are done, and physicians may not be aware of that. And with a doctor who is in a high-stress area — and pharmacists are too — they won’t realize why they are getting these messages and why these things need to be changed.” P1*

The second element in building trust is improving clinical skills and doing a thorough research of references to provide them with appropriate recommendations when needed. Pharmacists should follow certain criteria to have effective communications with physicians. Suggestions should be made based on references, offering options and alternatives in recommendations for problem. Providing physicians with correct information makes pharmacists credible to collaborating physicians over time.

*“Sometimes when I had done my research before I contacted the physician and those times I noticed that I could get better response than when I had no idea what I was talking about.” P6*

*“So, honestly the big thing is trust. So, the staff docs have all known me for years, and the residents have heard from the staff docs and the nurses that I know what I’m doing, basically. So, there is a trust there. And that does take time to, definitely takes time to develop.” P9*

*“My concern with pharmacists is that they do make recommendations without providing an alternative we can’t just paint the problem in a broad statement and send it to the physician to deal with. I don’t think they appreciate that. They appreciate suggestions, and they appreciate alternatives. So, if you do have a problem with anything that the physician prescribes, don’t just limit it to the problem.” P3*

*“We don’t get our point across, we don’t give the references, we don’t give doctors options frequently. Like I look at other peoples’ faxes and I think my god why didn’t they give the doctor some suggestions at least as to what they can do instead you know.” P5*

In considering the several tasks and responsibilities that both physicians and pharmacists deal with in their daily practice, one pharmacist stated that effective communication can help avoid misunderstandings. This is more important in community pharmacies where most communications are made by fax or short phone calls.

*“I think that there is very little training on how to properly communicate with a doctor by fax. It’s difficult, you know, you cannot get a hold of a doctor by phone ordinarily. And usually they’re in a big hurry — it’s very hard to explain anything in detail over the phone.*

*So, you put it in a fax and hope that they get it, but it’s not an easy situation for pharmacists. I find that I don’t have the skill — because we’re used to typing things “take 1 tablet, 4 times a day, so we’re used to typing things short and sweet. It’s difficult when you have to type something to a doctor and you have to put it in a manner that’s simple, easy to understand and non-threatening.” P5*

## **5. Knowledge gaps**

The final component of interview consisted of participants describing knowledge and educational requirements to improve pharmacists’ skills to provide better service to patients with chronic pain. Improving knowledge and skills in pain management, legal issues, and communication with prescriber and patients were elaborated by participant pharmacists.

### **5.1 Sub-theme: Knowledge about chronic pain**

Adequate knowledge about pain management enables pharmacists to help patients to cope better with their pain and associated health difficulties. Up-to-date knowledge is a cornerstone in pain management, helping pharmacists to offer better recommendations to physicians and patients. However, almost all pharmacist participants believed that they needed more training for pain management. They think pharmacists need training in several areas ranging from pain assessment and pharmacologic treatments to non-pharmacologic treatments and communication skills. From their perspective, practicing pharmacists have varying levels of knowledge about pain management, including knowledge about medical and non-medical treatments. This discrepancy between pharmacists can lead to opposing recommendations to patients, adversely affecting pharmacists’ credibility and patients’ trust

of pharmacists. In the perspective of some participants, this inconsistency might arise from different levels of education about pain in school and the date of graduation from pharmacy school. Pharmacist participants believe there is a difference in knowledge between pharmacists who graduated within the last few years compared to those who graduated 10 or 20 years ago. This knowledge gap can be covered by continuous education programs.

*“We learn it all in school, but some of us graduate 2 years ago, some 10 years ago, some 20, some 30. So, a refresher would be good to boost that confidence and to do that.” P2*

*“Just in case you know, people ask a question, and go to another pharmacy down the street — which often happens — and somebody says to them something completely different. And that doesn’t look as professional.” P4*

*“If you have a very good knowledge of pain and the management, then it will definitely help you to communicate better with physicians in terms of also recommending alternatives or you have a better idea about the dosing and other alternative options as well. So, it’s a combination of both — the knowledge and the communication together.”*

*P6*

*“I feel that we should have a lot more training in pain management. If so many people have pain, we should be getting a lot more education on how to help them with their pain than we are getting.” P5*

*“Also, if they are bringing their situation to you with a better knowledge and with their training and everything, you can also reduce their anxiety, reduce their wait times, their interruptions, and therefore, they would have a better quality of life and better pain management.” P6*

## **5.2 Sub-theme: Knowledge about legal issues**

Pharmacists think they also need more knowledge and training in legal issues associated with narcotics. Many pharmacists are not confident in areas such as how to react to forgeries or how to report misconduct of healthcare professionals to authorities.

*“Pharmacists aren’t taught to recognize suspicious prescribing methods, and we aren’t taught what to do about it.” P5*

*“Like if someone came in, how would you catch it or how would you respond. Because no one taught us, like do I call the police, do I — like even now, to this day I don’t know if I’m legally obliged to call the police if we catch them. I would think yes, but the thing is how would you do so. Like you need to run through some scenarios, because when it actually does happen to you in real-life.” P4*

*“A review of the jurisprudence, and then a review of the clinical aspects of pain management.” P8*

### **5.3 Sub-theme: Communicational skills**

Pharmacists communicate with both physicians and patients. Pharmacist participants believe communicational skills affect their relationship with patients and physicians. Good communication skills help patients to understand consultations and recommendations better. Since both pharmacists and physicians are engaged with multiple duties and responsibilities in their daily practice and have meager time for communication, communication skills play a pivotal role in communicating fast and simple for efficient and timely results.

*“If you communicate better with them (patients), on time, it will help the patient to get their medications on time, to properly use them, and also there won’t be any interruption between the chronic pain management.” P6*

*“We didn’t really learn too much on the empathy.” P4*

*“I think that there is very little training on how to properly communicate with a doctor by fax. It’s difficult, you know, you cannot get a hold of a doctor by phone ordinarily. And usually they’re in a big hurry — it’s very hard to explain anything in detail over the phone. So, you put it in a fax and hope that they get it, but it’s not an easy situation for pharmacists.” P5*

To cover this knowledge gap, some pharmacists suggested short continuing education programs including specialized chronic pain workshops or webinars. As a participant explained, an effective training program should cover several aspects of chronic pain.

*“Specialized courses. I think that I would like for organizations to have pain physicians come and give lectures. I would like to have workshop sessions where you have*



*specialists, you have physicians, you have pharmacists, you have social workers, you have addictions specialists coming in and giving different perspectives on chronic pain management.” P3*

## **Discussion**

The aim of this study was to explore the experience and perceptions of pharmacists about chronic pain. Based on our understandings from participants in this study we built a theoretical framework (Figure 3) of perceptions and experiences of community pharmacists interacting with patients with chronic pain.

Our study sample was largely comparable to the population of practicing pharmacists in Ontario. (Table 2). Targeted interviews were used to investigate the experience of pharmacists in their practice. The findings of the current study demonstrate considerable homogeneity in participant pharmacists' perceptions on the subject.

The overarching themes derived from the in-depth information provided by the participating pharmacists demonstrated their belief that they can play a significant role in providing care to patients with chronic pain. They perceived chronic pain as a chronic health problem that is inadequately managed. While they empathize with their patients, they were concerned about opioid abuse in chronic pain. They propose a comprehensive treatment approach as a possible solution for better pain management and reducing the potential of abuse and addiction to opioids. In this approach, all health care providers including physicians, pharmacists, physiotherapists, psychotherapists and nurses collaborate closely in chronic pain management. They had positive feedback about their communication with physicians and had suggestions for building relationships for better collaboration. However, they drew attention to inadequate communication skills.

In this chapter, findings of this study are evaluated against the available literature. Although there were previous studies that have evaluated some themes of this study separately, in other settings, to my best knowledge, this is the first study which provides a detailed framework of pharmacists' experience providing care to patients with chronic pain. This

framework elucidates gaps and presents suggestions to fill the gaps in providing care to patients with chronic pain from the perspective of pharmacists. Opioids as a matter of utmost concern for pharmacists in providing care to patients with chronic pain

Canada is the world's second-largest per capita consumer of opioids (148). It is estimated that more than 30 million tablets or patches of high-dose opioids are dispensed in Canada annually, despite recommendations to avoid high-dose therapy in most patients (149). Gomes *et al.* (150) reported that rates of opioid-related deaths in Ontario increased by 242% between 1991 and 2010, rising from 12.2 deaths per million in 1991 (127 deaths annually) to 41.6 deaths per million in 2010 (550 deaths annually). She concludes that this results in a number of years lost that exceeds years lost due to alcohol use disorders (18,465 years) and pneumonia (18,987 years), and greatly exceeds that from HIV/AIDS (4,929 years) and influenza (2,548 years) in Ontario.

As gatekeepers, this is of huge concern to pharmacists. As will be discussed below, study participants believed that adequate monitoring, appropriate use of medications and resources and patient education about chronic pain management are of importance in effective, safe and sound management of chronic pain which reduce the risk of misuse of opioids by patients.

### ***1. Misuse of opioids***

Most guidelines mention addiction as a potential problem of opioids for pain management (28, 151). Participating pharmacists in this study were profoundly concerned about the potential for addiction and abuse of these medications. The literature indicates that the prevalence of addiction in chronic non-malignant pain patients varies between 0% to 50% based on different criteria and clinical settings (152). A review of studies conducted in

tertiary care pain clinics reported prevalence between 3% to 19% or more (77, 153). Thus, the risk of addiction must be considered when initiating long-term opioid treatment.

Participant pharmacists also perceived a fear of addiction and its stigma as a major patient concern especially, in the elderly. Many patients with opioid prescriptions are concerned about taking opioids due to the fear of addiction and about how they would be judged by other people like their family members and colleagues. This conforms with other studies that show patients are concerned about the stigma of opioids (154, 155). Health care practitioners can counter this stigma by adopting accurate, nonjudgmental language to describe this concern, those it affects, and its therapy with medications (155). As well, in the current study, participants explained that they would try to address patients' concern about addiction and discuss the possibility of addiction while weighing the benefits of controlling the pain. Furthermore, pharmacists, especially in family health teams, try to propose alternatives to opioid medications.

## ***2. Inadequate monitoring***

The per capita consumption of opioids in Canada is associated with significant numbers of premature deaths due to opioids. In a study on deaths due to prescription opioids (oxycodone), Dhalla *et al.* showed that 66.4% of patients were seen by a physician in an outpatient setting at least once in the 4 weeks before death (156), implying inadequate monitoring for opioids and missed opportunities for the prevention of opioids death. To reduce the number of opioid overdose deaths, the Ontario government decided to remove sustain release oxycodone (OxyContin) from the Ontario Drug Plan, in the belief that this would reduce the number of opioid overdose deaths in the province. While Oxycodone-related overdoses decreased by 30%, the Centre for Addiction and Mental Health reports that overall prescription opioid fatalities increased by 24%. Increases in the number of deaths were attributed to other strong opioids that are not subject to the same restrictions as

oxycodone (157). This failure in reducing opioids-related deaths signifies the necessity of employing comprehensive policies at the level of prescribing and dispensing of these medications. As described by pharmacist participants, more precise monitoring for patients and prescriptions should be employed.

In a study about the impact of discontinuation of OxyContin on pain management (144), both physician and patients suggested tackling the abuse problem by employing effective pain management, monitoring opioid prescribing and individualized pain management practices. Other studies and commentaries also provided evidence that detection and control of opioid misuse can be achieved in primary care by following such recommendations (158-160).

These studies support the results of the present study. In our study, participants championed the prevention of opioid abuse by using patient assessment tools, precise documentation, and monitoring of patients taking opioids. Real-time electronic databases accessible to physicians and pharmacists would make it more difficult for individuals to obtain opioids from multiple prescribers or pharmacies and might reduce the risk of drug interactions between opioids and other central nervous system depressants (161). Addicted patients have access to opioids through OTC medications or at walk-in clinics where secondary physicians can prescribe opioids to them. Real-time electronic databases (161) accessible to physicians and pharmacists can be a practical approach to limit the access of opioids to patients through these methods. A few participants of the current study also believed that limiting the number of prescribed opioids in each prescription and/or limiting prescribing and dispensing of opioids to authorized centers and practitioners might be helpful.

Any signs of aberrant drug behavior should be recognized as soon as possible by pharmacists and steps to bring the drug use in control must be taken (152). Detection of

addiction in opioid-treated patients should result in referral to specialized treatment facilities of pain management. However, patient assessment, precise documentation, and frequent monitoring of opioid use by patients is labor-intensive and time-consuming. Considering the work load of pharmacists in community pharmacies, and knowing that selling the medications is the only source of income in the pharmacies, pharmacists deem this as a barrier for controlling the abuse and diversion of opioids. One suggested solution is reimbursement for extra work of documentation and monitoring of opioid prescriptions as a motive for pharmacists as gatekeepers for opioid medications.

### ***3. Inappropriate use of medications and resources***

This study identified three parameters in inappropriate utilization of medication and resources in chronic pain management: Patient expectations from treatment, inadequate access to alternative treatments for opioids and inadequate comprehensive approach for pain management.

#### ***3.1 Realistic expectations from chronic pain treatment***

Opioids are used increasingly for chronic non-cancer pain, although there is insufficient data to support long-term efficacy and safety of opioids for chronic pain (162). Pharmacists in our study indicated that even with opioid medications, patients often do not experience complete improvement in their chronic pain. As illustrated in a study on patients with chronic pain, because a narrow border exists between pain control and impaired functionality due to opioids side effects, unjustified, long-term opioid therapy can significantly be associated with reporting of poor self-rated health, being unemployed, higher use of the health care system, and a negative influence on the quality of life (163) which is on the contrary to key opioid treatment goals including pain relief, improved quality of life and improved functional capacity (163). Evidence in the literature shows that function focused

expectations about chronic pain management by patients improves their experience of pain while reducing the risk of side effects and addiction (39, 164, 165). Noting the literature and findings of this study, it can be remarked that having realistic expectations about chronic pain by patients can lead to more balanced use of these medications. Realistic patient expectation of treatment can be obtained by educating them about characteristics of chronic pain, its management and defining pain relief along with functionality as the ultimate treatment goal. Employing this approach may prevent overuse of opioids whose side effects may decrease patient functionality and quality of life.

### ***3.2 Lack of insurance coverage for opioid therapeutic alternatives***

A number of non-opioid medications have demonstrated effectiveness in chronic pain disorders and their use individually or in combination in the management of chronic pain can be advantageous (16, 166). Moreover, non-opioid medications for management of chronic pain can produce better functional outcomes than opioids, being outperformed only by strong opioids for pain relief (167). Aside from non-opioid medications, there are non-medication interventions such as physiotherapy whose effectiveness in improving pain and functionality in chronic pain has been proven (168-170).

However, these effective and promising options for opioids are not embraced by physicians. Study participants believed this is mainly due to the reality that these therapeutic options are not covered by health insurance plans. In the literature, lack of insurance coverage has been shown to be one of the core reasons for inappropriate pain management. This issue may prevent patient access to costly long-term pain management with its multiple modalities (171). Noting that chronic pain is a disabling chronic disease, in which up to 25% of patients lose their jobs (172), makes it more urgent for patients to have access to therapeutic options for pain management. In situations where there are clinical trials for effectiveness of other therapeutic options, these options are worth trying before taking opioids and their associated

adverse effects and safety profile. However, this necessitates coverage of these opioids therapeutic alternatives by health insurance or government health plans.

### ***3.3 Comprehensive and multi-disciplinary approach***

Treatment of chronic pain extends beyond prescribing medications. Chronic pain and its associated health conditions such as depression and anxiety negatively impact patients' life and such concerns are best addressed by multiple healthcare professionals, including physiotherapists, psychotherapists, nurses, social workers and occupational therapists. As one participant stated: "The money should go to collaborative work." The value of a team approach to patients with chronic pain has been well-demonstrated (173-176). The beneficial effects of multidisciplinary treatment are not limited to improvements in pain, but extended to behavioral variables such as return to work and reduced use of the health care system (175).

Scascighini *et al.* (177) provide evidence of the higher effectiveness of multidisciplinary interventions and conclude that the standard of multidisciplinary programs should be internationally established to guarantee good outcomes in the treatment of chronic pain.

In our study, although the necessity of a comprehensive approach was clear to many participants, they believed that there are not enough health centers that can provide such comprehensive service to patients with chronic pain.

Family Health Teams (FHT) are primary health care organizations that include a team of family physicians, nurse practitioners, registered nurses, social workers, dietitians, and other professionals who work together to provide primary health care for their community (178). As discussed by two study participants, FHTs in Ontario have the potential to provide such multi-disciplinary services to patients, but this will necessitate higher financial supports from the government to implement provincially wide chronic pain services.



#### ***4. Patients concerns***

This study investigated concerns of patients as perceived by pharmacists. The main concerns identified were inadequate pain control, lack of emotional support and inadequate support by the government or health care providers.

##### ***4.1 Inadequate pain control***

A four-year follow-up study reports that two third of patients do not receive adequate pain management (89). In another study, after 8 years follow-up, only 34.6% of patients were pain free (90).

Inadequate pain management can be attributed in part to the unknown etiology of chronic pain. Study participants of the current study pointed out the fear of addiction, the lack of multi-disciplinary approaches, and lack of insurance coverage for some treatment options as reasons accounting for inadequate pain management. These findings are supported by a body of literature indicating inappropriate pain management by physicians, lack of multidisciplinary approach for pain management, fear of addiction to opioids and lack of coverage of treatment expenses by insurance as reasons for inadequate pain control (179).

Uncontrolled pain, triggers a cascade of adversities to patients. Long lasting uncontrollable pain makes patients anxious, and affects their sleep, their ability to concentrate, their ability to work and their functionality. Debilitating uncontrollable chronic pain reduces income, which results in reduced ability to pay for treatment and medication expenses.

##### ***4.2 Lack of support***

Findings of this study show that along with uncontrolled distressing pain, patients suffer from lack of support which can be another source of distress to patients with chronic pain. The support was categorized as support by family members and support by the government or health care system. Since pain is a subjective feeling, suffering of pain may not be

understood by other people. This places patients in an emotional state, in which the patient feels a need to be listened to and accredited. Literature shows that support by family and society can influence pain processing at the subjective–behavioral level as well as in the central nervous system level which may shield patients from the effect of pain distress (180-182). The influence of social support on chronic pain, stress, and anxiety highlights the importance of cognitive behavioral therapy along with educating family members about the nature of chronic pain and the role of their support in patient experience of pain.

The other sort of support is attributed to the shortage of facilities and lack of coverage for chronic pain treatments. As discussed by two participants, patients stay in long waiting lists to visit a pain specialist, lasting as long as two years, and multidisciplinary approaches for pain management are inadequate. This denies patients having access to ample health services that can improve their experience of pain and recover their functionality.

##### ***5. Communication with prescribers***

Collaboration between health care providers is a requirement for better chronic pain management. Effective collaboration is based on good communication between health professions. Pharmacist participants were of the opinion that they had good communications with physicians, despite some obstacles. These barriers include: physicians are not accessible and occasionally, some physicians are not receptive to pharmacists' comments. Some study participants stipulated that this is associated with the age, presence of a collaborative setting in the medical school they graduated from, previous experience working with pharmacists and their personality. Reportedly, physicians are unaware of the training and activities of community pharmacists and pharmacists feel that physicians have no appreciation of their role in health care (183-185). It is articulated that trustworthiness, role specification, and relationship initiation, identification of a more efficient way to deliver recommendations, and development of an appropriate compensation mechanism are

positively associated with pharmacist-physician collaboration (184-186), which are similar to current study findings.

In our study, although participant pharmacists believed that they had good communication with physicians, they did not comment on whether this communication led to better collaboration with physicians toward improved patient care or not. When they mentioned errors in prescriptions, typos and legal issue of prescriptions as main reasons for communicating with prescribers, it appears that they mostly interpreted their communications with physicians for routine administrative work as the basis for a good relationship rather than collaborative communication with physicians for patient care.

#### ***6. Knowledge gaps***

By having adequate knowledge about pain management, pharmacists can help patients to cope better with their pain and associated health difficulties. Up-to-date knowledge is a cornerstone of pain management, enabling pharmacists to offer better recommendations to physicians and patients. Most participants believed that they need more training in chronic pain management. The demand for training among our participants can be classified in three main categories: Knowledge about chronic pain, legal issues about opioids, and communication skills. Participants believe that since community pharmacists graduated from different schools and in different years, they have different levels or outdated knowledge about chronic pain management that can lead to disparate recommendations to patients and inappropriate pain management. Pharmacist participants were of the opinion that this incongruity produces a lack of trust of pharmacists. However, they believe that this knowledge gap can be filled by short-term continuous educational programs such as workshops or webinars. Some participants also commented that they need more education

about legal issues concerning opioids, particularly on how to react to forgery and report misconduct to the authorities.

Some of our pharmacist participants were of the opinion that pharmacists need to learn skills for effective communication, especially when they are engaged in several duties in their daily practice.

## **Conclusion**

The current research study was primarily geared to exploring the experience of pharmacists in providing care to patients with chronic pain in the community setting. Expansions in pharmacists' scope of practice and the emergence of pharmaceutical care have changed the role of pharmacists, moving from medication-oriented dispensing role toward a patient-centered model of practice which pharmacists use their medication-related knowledge to assist patients. However, pharmacists are at early stages of this transition and still a lot to improve. To make patient care service better, understanding the current experience of pharmacists from patient care is critical. This experience can address gaps and deficiencies in providing care to patients. Little research has focused on pharmacists' experience providing care to patients with chronic pain in community setting. This study is a step to discern, describe and document the experience of pharmacists in every day practice. By this means it enhances our knowledge about pharmacists' care of patients with chronic pain.

This qualitative study describes the practice experiences of 9 pharmacists from community settings in Ontario who provide care to patients with chronic pain. Five major themes formed the basis of the outcomes: perception of chronic pain, opioids, patients concerns, communication with prescribers, and knowledge gaps. Pharmacists described challenges and concerns regarding chronic pain care based on their knowledge and experience. The most important concern all participants agreed upon, was misuse of opioids. They emphasized patient monitoring, appropriate utilization of medications and treatments to limit the potential of misuse of opioids. In caring for patients with chronic pain, study pharmacists felt these patients suffered not only from pain, but also suffered from not being seen, heard and understood by the society. From the perspective of participant pharmacists, patients with chronic pain do not get adequate support from the health care system. The Ontario government tried to control the increasing rates of opioid misuse and opioid-related

deaths by employing strategies such as discontinuing specific opioid products or not paying for high strength opioids, which can disproportionately impact patients with chronic pain. As experienced in case of oxycodone removal from the market in 2012, to reduce the amount of opioid overdose deaths, while oxycodone-related deaths decreased, the overall opioid fatalities increased. This conveys a message that governments need to reconsider the strategies to reducing opioid misuse. Rather than just simply removing a product from the market, policy makers may need to consider a more comprehensive and systematic approaches to regulate opioids use by patients and lessen opioid misuse and related deaths. Our study participants emphasize on the role of patient education, appropriate utilization of therapies through a comprehensive team approach, healthcare funding of non-opioid treatment of chronic pain and better patient monitoring as practical systematic tactics to improve chronic pain management and lessen the rate of opioid misuse and deaths.

As gatekeepers, pharmacists can play a substantial role in patient education and patient monitoring to decrease misuse of opioids. However, bearing in mind the work load of pharmacists and time consuming procedure of patient education and monitoring, there should be motives such as incentives to encourage pharmacists to perform these tasks efficiently.

Further research by means of focused group studies or mixed methods with participation of pharmacist, physicians and decision makers to investigate applicable forms of pharmacists' collaboration in educating and monitoring of patients on opioids is recommended.

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## Appendices

### 1. Pharmacists' demographic data questionnaire

<b>Gender</b>	<b>Volume at pharmacy</b> ..... Rx/day	
<b>Age</b>	..... N/A	
<b>Level Of education</b>	<b>Practice years</b>	<b>Geographical location</b>
<input type="checkbox"/> BSc. in Pharmacy <input type="checkbox"/> Entry-Level Pharm.D <input type="checkbox"/> Post-Baccalaureate <input type="checkbox"/> Pharm.D <input type="checkbox"/> Residency trained <input type="checkbox"/> Fellowship trained <input type="checkbox"/> Other- please specify	<input type="checkbox"/> < 5 years <input type="checkbox"/> 5 - 10 years <input type="checkbox"/> 11 - 15 years <input type="checkbox"/> 16 - 20 years <input type="checkbox"/> > 20 years	<input type="checkbox"/> Rural (< 10,000) <input type="checkbox"/> Small urban (10,000 - 100,000) <input type="checkbox"/> Medium urban (100,001 - 250,000) <input type="checkbox"/> Large urban (250,001 - 750,000) <input type="checkbox"/> Metropolitan (> 750,000)
<b>Working setup</b>		
<input type="checkbox"/> Community pharmacy <input type="checkbox"/> Independent pharmacy <input type="checkbox"/> Banner pharmacy <input type="checkbox"/> Franchise pharmacy	<input type="checkbox"/> Chain pharmacy <input type="checkbox"/> Grocery/Department store <input type="checkbox"/> Family health team/Community health center <input type="checkbox"/> Other .....	



## 2. Pharmacist interview guide

<b>Chronic Pain Management (CPM) Semi-Structured Interview Guide</b>		
Pharmacist interview guide		
<ul style="list-style-type: none"> <li>- Introduction, reiterate data collection method (audio equipment)/use and security.</li> <li>- Opportunity for clarification</li> </ul>		
Thank you to participate in this study “Pharmacists experience with chronic pain management: A qualitative study.” To start:		
<b>Introductory</b>	1-a	Please tell me about yourself. (For example, how long have you been working as a pharmacist...)
	1-b	What is your understanding of chronic pain? For example, how do you define it?
	1-c	Approximately, what percentages of your patients have chronic pain disorders?  (e.g. Headache, low back pain, diabetic neuropathy, etc.)
<b>Feelings</b>	2	Generally speaking, how do you feel when you are <i>approached by patients</i> with chronic pain disorders? (what is different with other patients if any)  <ul style="list-style-type: none"> <li>- Asking for OTC (over the counter medications that do not need prescription)</li> <li>- Have a prescription for pain (including opioid medications)</li> </ul>
<b>Concerns of patients about pain and opioids</b>	3	In your experience, what are the main <i>concerns of patients</i> with chronic pain?  pain intensity (disability), difficulty in communication with health providers, medications, perception of other people)  <ul style="list-style-type: none"> <li>- How do you address these concerns?</li> </ul>
<b>Opioids</b>	4-a	What are your concerns about <i>dispensing opioids</i> ? (for example, intoxication safety, adverse effects, dependence and addiction)  -How do you address these concerns with patients and prescribers?
	4-b	How do you respond when you are approached by an <i>opioid seeking patient</i> ?  (what is your reaction)
	4-c	What <i>concerns</i> have patients expressed about <i>use of opioids</i> ? (For example, stigma, cost, addiction, side effects)
	4-d	Do you see <i>resistance to use or over use</i> for opioids in your patients?  <ul style="list-style-type: none"> <li>- How do you discuss these issues with patients?</li> <li>- Are you aware about tools that guides these discussions?</li> </ul>

<b>Communication</b>	5-a	<p>What is your experience with communicating your <i>recommendations to the prescribers</i>?</p> <ul style="list-style-type: none"> <li>- In your opinion, how <i>effectively can a pharmacist</i> with other health professionals (prescribers) in improving patients with chronic pain?</li> <li>- How do you <i>communicate with prescribers or other health professionals</i> about your patients with chronic pain?</li> </ul>
	5-b	<ul style="list-style-type: none"> <li>- How does a <i>prescriber communicate with you</i> about their concerns related to their chronic pain patients?</li> <li>- What <i>concerns are usually discussed</i> with other health professionals about patients with chronic pain?</li> </ul> <p>(for example: about prescribers' opioid prescribing practices, safety issue (type of opioids), efficacy, legal or financial issues) (coverage)</p> <ul style="list-style-type: none"> <li>- What are the <i>barriers</i> to communicating your concerns with prescribers?</li> </ul> <p>(Prescriber is difficult to reach, not receptive, they do not communicate the treatment plan)</p> <ul style="list-style-type: none"> <li>- How do you feel (what is your experience) about <i>communication with prescribers</i> in this concern?</li> </ul>
	5-c	<p>When do you <i>refer patients</i> to other health care professionals?</p> <ul style="list-style-type: none"> <li>- How do you refer patients to other health care professionals?</li> </ul>
<b>Challenges</b>	6-a	<p>What are the main (<i>complexities</i>) in dealing with/ dispensing a prescription for patients with chronic pain?</p> <ul style="list-style-type: none"> <li>- In comparison to other patients, what barriers do you encounter in patients with chronic pain?</li> </ul> <p>(for example, fear of dispensing opioids, safety and legal issues)</p> <ul style="list-style-type: none"> <li>- In <i>comparison to other patients</i>, what differences do you encounter in patients with chronic pain?</li> </ul>
	6-b	<p>In your opinion, to what extent can you <i>help patients with chronic pain</i> improve (relieve) their pain? In your opinion, what role should pharmacists play in helping patients with chronic pain?</p>
<b>Education</b>	7-a	<p>In your opinion, do pharmacists need (<i>more</i>) <i>training</i> regarding chronic pain in order to fully address patients' needs?</p> <ul style="list-style-type: none"> <li>- <i>What kind of training</i> do you think you would need?</li> </ul> <p>(e.g. scientific issues [knowledge, patient assessment], communication skills, legal issues, pharmacy practice model)</p> <ul style="list-style-type: none"> <li>- Why?</li> </ul>
	7-b	<p>Do you think (What are your ideas about) the <i>educational material</i> (in theory and practice) that are (were) taught in school about chronic pain, can address the skills required for the practice of chronic pain management?</p>

	7-c	What are your <i>suggestions for improving</i> (advance) pharmacists' skill (proficiency) in providing (dealing with) chronic pain management?  - In school  - In practice
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### 3. Invitation poster



## Study: Pharmacists' experience with chronic pain management

We are a team of pharmacy practice researchers at the University of Waterloo's School of Pharmacy.

We are very interested in learning about your experiences with patients who have chronic pain, issues you may have encountered with opioid prescriptions, and interactions you've had with prescribers and other healthcare professionals.

We hope to use information from this study to inform the care pharmacists provide to their patients with chronic pain. If you agree to participate, a study researcher will interview you at a place and time of mutual convenience.

The interview will take about an hour. Any information you provide will be kept completely confidential.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

*To learn more about this study please contact...*

**Hamed Tabeeфар**, PharmD, MSc candidate  
School of Pharmacy, University of Waterloo  
htabeeфар@uwaterloo.ca  
(519) 888-4567, ext. 21371

#### ***4. Invitation letter for pharmacists***

##### **Email Script for Invitation**

##### **Pharmacist experience with providing care for patients with chronic pain in the community setting: A qualitative study**

Dear (pharmacist),

##### **Our profession is evolving and we want to hear from you!**

We are a team of pharmacy practice researchers at the University of Waterloo School of Pharmacy. We are very interested in learning about your experiences with patients who have chronic pain, issues you may have encountered with opioid prescriptions, and interactions you've had with prescribers and other healthcare professionals. We are contacting you to invite you to participate in a study called *Pharmacists' experience with chronic pain management*. The study aims to explore the perceptions, expectations and experiences of pharmacists who assist their patients manage chronic pain. We hope to use information from this study to inform the care provided by a pharmacist to patients with chronic pain.

We are contacting you because you indicated your willingness to be contacted for future studies by providing your name and contact details when participated in one of our previous studies, titled, "Chronic Pain Management by Pharmacists Providing Care in the Community Setting in Ontario". The principle investigators for this study were Dr. Feng Chang and Dr. Tejal Patel.

If you agree to participate, a study researcher will interview you at a place and time of mutual convenience. The interview will take about an hour and be audio recorded for accuracy. The interviewer will ask you about your perceptions and experience with patients who have chronic pain, legal and other issues you may have encountered with opioid prescriptions, and your role in providing care to patients with chronic pain. The interview will be semi-structured so you will not be limited in your responses. Before the interview is over you will be provided with a summary of the key ideas you presented along with an opportunity to refine your thoughts and provide clarifications.

If you are interested in participating or have any questions about the study, please contact Hamed Tabeefer (Pharm.D, MSc Candidate), School of Pharmacy, University of Waterloo, at [htabeefer@uwaterloo.ca](mailto:htabeefer@uwaterloo.ca) or telephone: (519)-888-4567 x21371.

We would like to assure you that all information obtained in the study will be kept confidential. This study has been reviewed by, and received ethics clearance through a University of Waterloo

Research Ethics Committee and any publications resulting from the study will use only de-identified data.

Sincerely,

Hamed Tabeeфар, PharmD, MSc Candidate  
University of Waterloo School of Pharmacy  
Email: [htabeeфар@uwaterloo.ca](mailto:htabeeфар@uwaterloo.ca)  
Tel #: (519) 888-4567 x 21371

## ***5. Information letter for pharmacist participants***

**Project:** Pharmacists' experience with chronic pain management: A qualitative study

**Study investigators:** Dr. Feng Chang and Dr. Tejal Patel and Hamed Tabeeфар

### **INFORMATION LETTER**

**Date:**

**Dear Potential Participant:**

We are a team of pharmacy practice researchers at the University of Waterloo's School of Pharmacy. We are very interested in learning about your experiences with patients who have chronic pain, issues you may have encountered with opioid prescriptions, and interactions you've had with prescribers and other healthcare professionals

We would like to invite you to share your experience about patients with chronic pain with us in a study we are conducting titled as "*Pharmacists experience with chronic pain management: A qualitative study*". This study is being led by Feng Chang (Pharm.D), Tejal Patel (Pharm.D) and Hamed Tabeeфар (MSc Candidate) as part of Hamed's MSc thesis, at the University of Waterloo, School of Pharmacy. We invite you to participate in a semi-structured interview. The objective of the study is to explore pharmacists' perception and their experience with chronic pain management service.

**Procedures:**

Participation in this study is voluntary. If you agree to participate, we would like to have a semi-structured interview with you. The interview will take place at a time and location of mutual convenience. The interview will take about 60 minutes of your time. With your permission, the interview will be audio recorded to facilitate collection of information, and later transcribed for analysis. The interviewer will ask questions about your perception and experience about patients with chronic pain in your practice; legal issues about opioid prescriptions, your self-perceived role in the treatment of patients with chronic pain; and closely related supporting questions. No direct identifiers will be collected for this study, but only brief demographic questions about level of education, geographical location (urban/rural), working set-up (independent pharmacy, branded/chain pharmacy or family health team) will be asked in our interview. You may decline to answer any of the interview questions if you so wish. Further, you may decide to withdraw from this study at any time without any negative consequences by advising the researcher. Before the interview is over, you will be given a brief summary of key ideas presented during the interview, in order to allow for any final clarifications. All information you provide is considered completely

confidential. Your name will not appear in any thesis or report resulting from this study; however, with your permission, anonymous quotations may be used. Data collected during this study will be retained for 7 years in a locked office in my supervisor's office. Only researchers associated with this project will have access.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me on (519)-888-4567 Ext. 21371) or by email at [hatabeefar@uwaterloo.ca](mailto:hatabeefar@uwaterloo.ca). You can also contact my supervisors, Dr. Feng Chang on (519)-888-4567 Ext. 21321 or email at [feng.chang@uwaterloo.ca](mailto:feng.chang@uwaterloo.ca) and Dr. Tejal Patel on (519)-888-4567 Ext. 21337 or email at [t5patel@uwaterloo.ca](mailto:t5patel@uwaterloo.ca).

**Your participation is voluntary.** Participation in this study is voluntary. You may decide to withdraw from this study at any time by advising the researcher, without any consequences.

**Possible risks or discomfort:** There are no known or anticipated risks from participating in the semi-structured interview session.

**Possible benefits:** There are no direct benefits for the study of participants attending these interviews. As a pharmacist, your views and experiences are extremely valuable in helping pharmacist researchers understand your perception and experience in chronic pain management.

**Eligibility requirements for participation:** All participants must be licensed community pharmacist, who presents chronic pain management in previously approved study "*An Evaluation of the Effect of Community-based Pharmacist Intervention on Patients with Chronic Pain*".

**Confidentiality and data retention:** All information you provide will be considered confidential. No direct identifiers will be collected for this study, but only brief demographic information about level of education, geographical location (urban/rural), working set up (independent pharmacy, branded/chain pharmacy or family health team) will be collected in our interview with your permission. The interviews will be audio-recorded to ensure accurate data transcription and analysis. No name or direct identifier of demographic data will be included in reports or publications; data will be coded using an alphanumeric system – no names will be included. Data collected during this study will be encrypted and retained for seven years in a secure location at our research offices at the University of Waterloo's School of Pharmacy in Kitchener, Ontario.

**Remuneration.** No monetary payment will be provided for participation in this study.

**Ethics review and clearance.** I would like to assure you that this study has been reviewed and has received ethics clearance through a University of Waterloo Research Ethics Committee. However,



the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Maureen Nummelin in the Office of Research Ethics at 1-519-888-4567, Ext. 36005 or [maureen.nummelin@uwaterloo.ca](mailto:maureen.nummelin@uwaterloo.ca).

I very much look forward to speaking with you and thank you in advance for your assistance in this project.

Yours Faithfully,

## ***6. Consent form***

By signing this consent form, you are not waiving your legal rights or releasing the investigator(s) or involved institution from their legal and professional responsibilities.

I have read the information presented in the information letter about a study being conducted by Dr. Feng Chang, Dr. Tejal Patel and Hamed Tabeefer (MSc candidate) from the School of Pharmacy at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that I have the option of allowing the interview to be audio recorded to ensure an accurate recording of my responses, and that audio-recording will not begin until I have consented.

I am also aware that excerpts from the interview may be included in any reports and/or publications to come from this research, with the understanding that the quotations will be anonymous.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

This project has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee. If you have any comments or concerns resulting from your participation in this study. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at 519-888-4567 ext. 36005.

**With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.**

YES  NO

**I agree to the audio recording of the interview discussion.**

YES  NO

**I agree to the use of anonymous quotations in any report and/or publication that comes of this research.**

YES  NO

Participant Name: \_\_\_\_\_ (Please print)

Participant Signature: \_\_\_\_\_

Date: \_\_\_\_\_