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PHARMACY'S ROLE IN ADDRESSING OPIOID CRISIS: STRATEGIES AND INTERVENTIONS

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Abstract

Background: The opioid crisis poses a serious threat to public health in Canada due to the ongoing rise in opioid-related mortality and the substantial financial burden it places on the country's healthcare system. Strategies for lowering the risk of opioid overdoses and other opioid-related problems brought on by the use of prescription opioids must be developed and put into action. In addition to being one of the most approachable frontline healthcare professionals and experts in medication, pharmacists are well-positioned to provide effective opioid stewardship through a pain management programme that enhances patient pain management, supports appropriate prescription and dispensing of opioids, and promotes the safe and appropriate use of opioids to reduce the risk of opioid misuse, abuse, and harm. Methods: To identify the elements of a successful community pharmacy-based pain management programme, including the facilitators and barriers to be taken into account, a literature search was done in PubMed, Embase, and grey literature. Talk: A good pain treatment programme should include multiple components, treat co-morbid disorders than pain, and include a part for pharmacists to continue their education. Considerations should be made for overcoming implementation obstacles, such as improving pharmacy workflow, addressing stigma, attitudes, and beliefs, as well as pharmacy compensation

and utilising the Controlled Drugs and Substances Act exemption's broader application to ease implementation. Conclusions: To illustrate the influence pharmacists can have on the management of chronic pain and as one potential way to help curb the opioid crisis, future work should involve the development, implementation, and evaluation of a multicomponent, evidence-based intervention strategy in Canadian community pharmacies. Future research ought to calculate the program's associated costs as well as any savings the healthcare system may see.

Keywords: community pharmacy, prescription opioids, pain management, and opioid crisis

Introduction

Overview of the Opioid Crisis in Introduction

In Canada, the opioid crisis is a serious public health issue that gets worse every year [1]. In Canada, there were 30,843 apparent opioid toxicity deaths and 32,319 hospitalizations for opioid-related poisoning between January 2016 and March 2022 [2,3]. The first two years of the COVID-19 pandemic (April 2020 to March 2022) were linked to a 91 percent increase in apparent opioid toxicity deaths and a 24 percent increase in opioid-related poisoning hospitalizations nationally compared to the two years prior (April 2018 to March 2020). This indicates that the pandemic played a significant role in contributing to opioid-related harms and deaths [2,3].

Evidence suggests that an increase in opioid prescriptions may potentially be a significant component in the opioid crisis, even though illicit opioids are a major contributing element [4]. Prescription opioids are a frequently utilised management strategy for pain, which is one of the most common reasons people in North America seek medical attention [5]. One in eight Canadians in 2018 were opioids that are prescribed [5]. Opioids can cause physical dependency and/or tolerance with prolonged usage, necessitating the administration of greater doses to produce the intended effects [5]. The risk of addiction rises with increased dosages used often [5]. Prescription opioids may, under certain circumstances, result in opioid abuse and a higher chance of developing an opioid use disorder (OUD) [4]. Prescription fraud or forgery, theft, street drug markets, Internet purchases, and consultations with several physicians without disclosing other prescriptions are just a few of the ways that people with OUD may obtain prescription opioids [5]. About 37% of Canadians with OUD reported getting their opioids only through regulated (legal) routes, such as prescriptions, and 26% reported getting their opioids through both unregulated (illegal) and regulated (legal) channels [4]. As a result, it is crucial that plans for combating the opioid crisis take into account the potential contribution of prescribed opioids to the epidemic in addition to illegal opioids.

Not only may opioid crisis management strategies enhance patient outcomes, but they can also have a substantial economic impact. CAD $5.9 billion, or around CAD $163 for each Canadian citizen, regardless of age, was the economic impact of opioid drug use in Canada in 2017 (up 20.9 percent from $135 in 2015) [6]. In particular, in terms of healthcare expenses, opioid drug abuse cost the healthcare system CAD $439 million in 2017 [6]. Given that the opioid crisis is getting

worse every year, it is conceivable that the expenses related to opioid substance usage would rise in tandem. Therefore, the creation of alternative methods for managing opioid usage has the potential to save the healthcare system a large amount of money.

Pharmacists' Function as Opioid Stewards

As one of the most approachable frontline healthcare professionals, pharmacists are in a good position to offer and promote effective opioid stewardship, which is defined as "coordinated interventions designed to improve, monitor, and evaluate the use of opioids in order to support and protect human health" [7] by the Institute for Safe Medication Practices (ISMP) Canada. More than 91% of residents in Ontario reside less than five kilometres from a pharmacy, and many community pharmacies offer extended hours or even 24-hour operation, which improves patient accessibility and convenience [4,8]. Those who live in remote locations and may have limited access to other healthcare services should prioritise having access to community pharmacy [8]. About 50% of patients in Canada must wait more than six months for proper care when it comes to managing chronic pain since many Canadian regions lack access to specialised pain treatment services [5]. Since opioids are frequently prescribed to treat chronic pain, pharmacists are essential in ensuring that they are used appropriately [5]. Research has demonstrated that improving clinical outcomes can be achieved by utilising an interdisciplinary strategy that includes pharmacists in order to identify and treat the clinical factors that contribute to the overprescription and overdosing of opioids [4].

Pharmacists are specialists in medications and teachers. In order to provide patient-centered care, they can go over all of the therapeutic alternatives that are available with a patient and suggest evidence-based treatments for both acute and chronic pain [9]. In order to manage prescription dose, including titrations, cross-tapers, and the deprescribing or cessation of opioids, they collaborate with prescribers [9]. Additionally, pharmacists are qualified to evaluate prescription regimens in order to spot and handle problems such polypharmacy and pharmacokinetic and pharmacody- namic drug interactions [9]. Community pharmacists are frequently the first to recognise a problem with an opioid prescription by using their knowledge and experience [10]. In a survey of pharmacists, it was discovered that out of every 10 opioid prescriptions, 1-3 were linked to concerns. These included the prescription of long-acting opioids rather than short-acting (54 percent), the prescription of long-acting opioids to patients who had never used opioids before (38%), the prescription of long-acting opioids to patients who had mild to moderate pain rather than non-opioid options (63%), patients who were intolerant to opioids and were more likely to experience negative effects (63%), and drug interactions (56%). This demonstrates the range of challenges that pharmacists encounter when writing an opioid prescription and highlights the critical function that they play as the last gatekeeper before the prescription is filled for the patient. Pharmacists serve as educators to make sure their patients and/or the patient's agent are aware of potential adverse effects, how to evaluate progress, and continuous management of opioids, after confirming that the medicine is therapeutically appropriate for the patient [9]. For the treatment of chronic illnesses, including pain, patients see their pharmacist ten times more frequently than they

do their primary care physician [9]. Thus, by offering naloxone kits, clean needles, and sharps containers, encouraging harm reduction, monitoring, and education about lowering the risk of an opioid overdose, safe opioid storage, and the safe disposal and destruction of unused opioids to prevent diversion, pharmacists are in a prime position to assist patients in managing chronic pain [9]. According to a study, pharmacists are more likely than prescribers to co-prescribe naloxone for high-risk patients on opioid therapy and to implement and document risk-reduction methods [12]. This highlights the crucial role pharmacists play in making sure patients receive timely and appropriate care. It also shows how pharmacists can be better engaged as opioid stewards to provide pain management interventions and work in tandem with primary care providers to support patients, thereby enabling the health system to function at a higher capacity.

It has been demonstrated that interventions headed by pharmacists are effective in tackling the opioid crisis. According to one study, when pharmacists used an opioid misuse risk screening tool in their work, they found that 30% of patients who were prescribed opioids were at risk of an accidental overdose and 26% of patients were at risk of opioid abuse [13]. Pharmacists can offer more specialised counselling to patients who may require it most on the use of prescribed opioids by identifying patients who are at-risk. Additionally, research has shown that initiatives led by pharmacists are successful in encouraging the safe and efficient prescription and use of opioids for long-term non-cancer pain [12, 14]. One-third of the patients assessed in a research on a pharmacist-led telephone risk assessment clinic had the pharmacist suggest adjustments to their chronic opioid prescriptions, such as lowering the dosage, stopping the medication, or delaying the refill [12]. Additionally, studies have demonstrated that mean morphine equivalent (MME) dosages for individuals with chronic non-cancer pain can be significantly lowered as a consequence of pharmacist-led medication reviews [15]. This is significant because there is a link [15] between the MME and overdose mortality connected to opioids.

Pharmacists have a crucial role to play in solving the opioid problem, and it is best to use this role in the community. But as of right now, community pharmacies in Canada lack a consistent intervention or compensation structure for opioid stewardship. This narrative review aims to outline the necessary qualities of a successful pharmacy-based pain management intervention while taking its enablers and obstacles into account. The purpose of this review is to provide guidance for the creation of a community pharmacist-led intervention in Ontario, Canada in the future that focuses on three key areas: (1) better patient pain management; (2) appropriate prescription and dispensing of opioids; and (3) safe and appropriate opioid use.

Methods

Our goal in creating this narrative review was to give a summary of the literature that has been published and to highlight a few studies that illustrate the factors that need to be taken into account in order to create a pharmacy-based pain management intervention that works, including certain facilitators and barriers. A search of the PubMed, Embase, and Google Scholar databases for literature was done. These databases were chosen because they have a large index and include

material tailored to pharmacists and other healthcare professionals. Since MEDLINE is already included in searches using PubMed and Embase, other databases like Web of Science and Scopus were not searched [16]. We looked through the grey literature to see whether any other nations, states, organisations, or pharmacies Professional bodies have released preliminary results of pain management strategies conducted by pharmacists.

The databases PubMed, Embase, and Google Scholar were searched using the following terms: "pharmacists," "community pharmacy," "pharmacist service," "intervention," "pain management," "chronic pain/drug therapy," "pain clinic," "pain programme," "professional role," "barrier," and "facilitator." Citations from publications that were included as well as related articles that were suggested by the PubMed, Embase, and Google Scholar databases were assessed for inclusion. Using the same terms as above, a Google search was conducted in addition to a Google Scholar search for pertinent grey literature. Articles that described opioid or pain management programmes led by community pharmacists or those described certain elements, such as obstacles or enablers to pharmacists implementing these interventions, were considered for inclusion. Articles that were not led by pharmacists or that did not involve community pharmacists were not included. Prior to 2013, articles were not included since they might not be as pertinent to the growing opioid issue. Only publications written in English were taken into consideration, although neither the article nor the study type was excluded. Based on the inclusion and exclusion criteria, each author individually assessed potential papers for inclusion.

3. Results

A review of the literature for studies on pharmacist interventions that could mit- igate the opioid crisis by reducing the risk of potential opioid misuse, diversion, and opioid-related harm, revealed certain characteristics that should be incorporated into any pharmacist pain management program to support greater success. A total of 16 articles were selected for inclusion. Descriptions of the included studies are presented below, with an overview of pharmacist-led interventions located in Table 1, and the factors to consider when implementing an intervention in Table 2. Discussion of the articles are presented by theme: multicomponent interventions; management of other comorbidities; continuing education; pharmacy workflow; attitudes, beliefs, and stigma; renumeration; and expanded scope.

3.1. Factors to Consider When Implementing an Intervention

Multicomponent Interventions—The literature review identified several studies de- scribing multicomponent interventions as more effective for managing chronic pain when compared to offering only patient education or standard counselling [15,17,18]. Cochran et al. conducted a small randomized controlled study involving 32 patients using an in- tervention called the Brief Motivational Intervention-Medication Therapy Management (BMI-MTM) strategy combined with standard medication counselling (SMC) compared to only SMC for patients identified as misusing their prescribed opioid medication [17]. They found that BMI-MTM was a feasible misuse intervention and was linked to superior satisfaction and outcomes [17]. BMI-MTM is comprised

of four evidence-based practices: medication therapy management (MTM), brief motivational interviewing (BMI), patient navigation, and naloxone training and referral [17]. Pharmacists in the study provided the MTM component in conjunction with BMI with a goal of improving patient adherence to taking the opioid medication as prescribed [17]. It involved a review of the patient's opioid medications and identifying interactions, if any; a discussion about misuse and any identified misuse behaviours; and the identification of adherence improvement targets as well as providing the patient encouragement to work towards behaviour change [17]. The patient navigation component was conducted by a patient navigator who was a Master's level research interventionist and was comprised of eight telephone sessions dedicated to first establishing a therapeutic alliance/rapport with the patient; setting goals for needed services and identifying barriers and solutions; aiding patients with enrolling in psychoso- cial services, behavioural health, and/or physical healthcare; discussing overdose risk and training/referral to obtain a naloxone kit; and making plans to continue self-care after the study was completed [17]. The SMC component referred to the medication counselling provided by pharmacists to patients upon dispensing a prescription [17]. This study found that at the 3-month assessment, 6.7% of BMI-MTM patients reported continued misuse in comparison to 43.8% of SMC patients, and greater improvements in pain and depres- sion were seen in the BMI-MTM patients [17]. The feasibility and acceptability of the BMI-MTM intervention was demonstrated by the high screening, consent, intervention completion, and follow-up rates in the study, along with the reported high level of patient satisfaction [17]. Due to the small sample size, the study noted that future research should build on this preliminary data within a fully powered clinical trial to potentially support broader application of the intervention [17]. Overall, this study lends preliminary support to the concept that a multicomponent intervention is beneficial to ensuring better pain management as well as reducing opioid-related risks.

A larger randomized controlled trial was recently conducted in Australia [18]. The Chronic Pain MedsCheck (CPMC) intervention was an in-pharmacy, patient-centered, multicomponent service that focused on reviewing patient's medications and providing education and information to improve their self-management of chronic pain [18]. The CPMC trial had two arms; Group A pharmacies offered an initial consultation and a follow- up consultation three months later, and Group B pharmacies offered an initial consultation and two follow-up consultations at 6 weeks and 3 months after the initial consult [18]. This multicomponent intervention included a pharmacist continuing education component, a pharmacist-directed medication review, access to trial resources, and a patient education component [18]. A total of 550 pharmacies had at least one participant start the CPMC Trial and complete their initial consultation, with a total of 8239 participants completing the initial consult, and 4374 participants completing the follow-up(s) [18]. Overall, the CPMC intervention delivered by Group A and Group B pharmacies was effective and statistically significant in improving severity of pain, degree of pain interference, psychological distress, and pain self-efficacy scores [18]. There was no change in the average daily morphine equivalent dose in either group [18]. Most of the participants (81.7%) felt their overall knowledge and understanding of their chronic pain medication had improved as a result of the pharmacist

intervention, and around a fifth reported noticing a definite improvement that has made a real and worthwhile difference [18]. Overall, Group B showed greater improvements in most of the participants' health outcomes at three months compared to Group A [18]. It is important to note that the high dropout rate in this study may potentially increase the risk of bias, and the authors of the CPMC trial noted that a longer trial period would be required to sufficiently measure the long-term effect of the intervention on the average daily morphine amount [18].

Veettil et al. conducted a systematic review of pain management interventions in- volving pharmacists and the impact of these interventions on pain intensity [15]. They found that interventions are more likely to be effective in reducing pain intensity, especially in chronic pain patients, if they are multicomponent interventions, i.e., the intervention includes a medication review or any other pharmaceutical care service (e.g., telephone in- terviews, dosage adjustments, nonprescription drug recommendations, etc.) in addition to a patient educational component [15]. Although this review could not identify which com- ponents would be most effective and under which conditions as part of a multicomponent pharmacist intervention, it does highlight the need to incorporate multiple components in any pharmacist-led intervention strategy to manage patients with chronic pain as patient education alone may not be sufficient [15].

Management of Other Co-morbidities—One study identified that untreated depres- sion, anxiety, and insomnia were often common care gaps identified by pharmacists in patients prescribed opioids [19]. Manzur et al. conducted a pilot study to evaluate care gaps in risk and harm reduction strategies for patients prescribed opioids and to describe the implementation of a pilot pain management program in community pharmacies [19]. Pharmacists involved in the pilot study conducted comprehensive patient assessments prior to their appointment with their primary care provider [19]. Patients were seen over a span of 1 to 2 visits with the pharmacist, with a total of 19 visits documented during the study period [19]. Pharmacists commonly identified unaddressed issues with mood (68%), and addressed these co-morbidities by making recommendations to prescribers to initiate adjuvant medications for concomitant conditions (84%), dose adjustment (58%), and laboratory tests (74%) and by recommending nonpharmacological therapies to improve pain, mood, and sleep [19].

Continuing Education—Studies have found that the inclusion of continuing education for pharmacists is important to increase their ability and confidence to provide pain and opioid management interventions [20–23]. Thakur et al. found that the levels of self-efficacy and confidence of pharmacists to provide pain and opioid management are significant barriers to pharmacists proactively engaging patients who have an opioid prescription and offering their expertise [20]. Thakur et al. also found that pharmacists recognize their role as opioid stewards but express low confidence, time and training as barriers, stating that there is a need for structured training and resources for pharmacists to improve confidence and participation in pain management interventions [20]. Low confidence can affect pharmacist participation in services such as counselling patients on opioid risks, dispensing naloxone, educating on opioid storage and disposal, utilizing prescription drug monitoring programs, offering opioid deprescribing, and

providing resources for addiction treatment [20]. Similarly, Nielson et al. found that pharmacists who have lower confidence in identifying unmanaged pain in patients on opioids are likely to have lower engagement in interventions like screening tools [21]. They found that each additional decade of practice for pharmacists was associated with a 31% reduction in the number of times they undertook screening of patients using the author's screening tool for opioid outcome monitoring [21]. As part of a pilot in Australia to test the implementation of software called Routine Opioid Outcome Monitoring (ROOM), Nielson et al. examined whether the training and support provided to pharmacists to deliver ROOM increased pharmacists' clinical knowl- edge and confidence on opioid safety [22]. Pharmacist training included a 1 h (live or prerecorded) webinar about delivering the ROOM intervention, which included informa- tion on the three-item pain scale to measure pain outcomes by assessing pain intensity and interference; how to screen for opioid use disorder, depression, risky alcohol use, and opioid side effects; and relevant counselling points to be used in the event of a positive screen [22]. To assess pharmacist engagement with the training and to ensure pharmacists could apply the information after the training in practice, knowledge assessment questions were embedded throughout the webinar [22]. Additional professional development re- sources were also available to the pharmacist upon request for self-directed learning after the webinar [22]. The study found that following training and implementation of ROOM, pharmacists' confidence in identifying and responding to most opioid-related problems, such as unmanaged pain, depression, and opioid dependence, significantly increased compared to the baseline, which highlights the importance of incorporating continuing education for pharmacists as part of the implementation of a pain management program.

3.2. Barriers for Implementation

Several barriers have been identified in the literature that impact community pharma- cists' abilities to consistently provide specific pain and opioid management interventions. Pharmacy Workflow—Concerns about pharmacy workflow or time availability have been cited as a potential barrier to the implementation of new interventions [20,23,24]. Frenzel et al. used the theory of planned behaviour in a mixed-methods study to determine what contributes to the unsuccessful implementation of opioid risk screening [23]. Seventeen pharmacists completed the survey and 35% of pharmacists reported that the workflow of the pharmacy does not allow for additional time spent for opioid risk screening [23]. Similarly, Fleming et al. conducted a qualitative study to determine the beliefs of pharma- cists on their willingness to engage patients (i.e., provide interventional counselling) with suspected substance misuse [24]. Thirty-one community pharmacists participated, and the most prevalent barrier to engagement was the additional time required for counseling,

which may have a negative impact on normal pharmacy workflow and other dispensing tasks [24].

Attitudes, Beliefs, and Stigma—Pharmacists' stigma and beliefs or attitudes about opioids may prevent uptake of opioid stewardship interventions [24,25]. For example, in the study conducted

by Fleming et al., pharmacists reported that in some instances, they may not implement opioid risk screening because they believe that patients do not understand nor appreciate the importance and benefit of gathering a comprehensive history to guide patient care [24]. Furthermore, Cid et al. conducted a scoping review of community pharmacy-based naloxone programs and specific program interventions, and found that stigma from both the pharmacist and patient perspectives exists [25]. For example, patients may not be willing to approach pharmacists to discuss issues such as the need for a naloxone kit due to feelings of judgement [25]. While pharmacists are less comfortable forming therapeutic relationships with patients who misuse opioids and do not proactively approach patients to offer overdose prevention education [25]. Werremeyer et al. conducted a survey study where they examined the degree to which pharmacists prefer social distance from patients with opioid misuse and OUD using a social distance scale (SDS) [26]. Of the 187 pharmacists who completed the survey, the mean SDS score was 16.32 (range 9–23), where higher scores represented greater preference for social distance [26]. More than 59% of pharmacists had a SDS score greater than 15, which demonstrated an overall lack of willingness to interact with and stigmatization towards patients who misuse opioids or who have OUD [26]. Studies have found that incorporating continuing education, and resources for pharmacists to decrease stigma and support effective communication are solutions for mitigating these barriers [27,28]. Werremeyer et al. conducted an additional study where they implemented a training program for pharmacists to reduce stigma towards people who misuse opioids and measured social distance scores and negative attitudes through a survey pre- and post-program (immediate and after 12 months) [27]. This training program resulted in significantly lower social distance scores immediately post-program when compared to the baseline score (14.75 vs. 16.57, $p = 0.000$). The 12-months mean SDS score was also significantly lower than the baseline SDS score (15.32 vs. 16.57, $p = 0.017$) [27]. Significant changes in negative attitudes from baseline to post-survey and from baseline to 12 months were also demonstrated [27]. Similarly, Eukel et al. investigated the changes in pharmacists' perceptions following a training program on opioid misuse and overdose prevention and found that the training improved knowledge and stigma [28]. Statistically significant changes to perceptions were noted after the training program in the following areas: opioid addiction being outside the control of the patient, the role of family history in prescription drug abuse, the value of screening and counselling to support patients at risk of prescription opioid abuse, and the importance of seeing things from the patient's perspective [27].

Remuneration—Studies involving additional clinical services in pharmacies often report that pharmacists are likely to continue to provide the service if there is compen- sation for it [21]. In the study by Nielson et al., pharmacists were compensated AUD

$20 for completing baseline and follow-up surveys for the research study, AUD $40 for completing the training webinar, and AUD $20 for each ROOM intervention completed with a patient [21]. Just under half of the participating pharmacists (44%) indicated that they were very likely to continue to provide the intervention as long as they continued to have access to the software at no charge and were provided a professional service fee [21]. In comparison, only one pharmacist

responded that they were very likely to continue to provide the service if no professional service fee was provided [21]. Similarly, Alenezi et al. conducted a qualitative study of community pharmacists' roles, barriers, and behavioural determinants related to involvement in optimizing opioid therapy for chronic pain and found that systemic constraints, such as a lack of funding for the professional service was a major barrier, and in order for further uptake, the intervention needed to be appropriately funded [29].

3.3. Facilitators for Implementation

The literature search identified one facilitator as the pharmacist's expanded scope of practice in Canada [30]. Expanded Scope—In response to the COVID-19 pandemic, in March 2020, to facilitate continuity of care for vulnerable patients on opioids, Health Canada issued a subsection 56(1) class exemption from the Controlled Drugs and Substances Act (CDSA), which permitted pharmacists to extend and renew prescriptions, transfer prescriptions to another pharmacist, and receive verbal orders from prescribers for con- trolled substances, in addition to permitting pharmacy employees to deliver prescriptions for controlled substances to patients [30,31]. As these exemptions are subject to the laws and regulations of the province or territory where the pharmacist is entitled to practice, jurisdictions underwent regulatory amendments as required to incorporate some or all of these activities into the scope of practice of their pharmacists [32,33]. Some jurisdictions have also enabled pharmacists to adapt prescriptions for controlled substances, which was already permitted under the CDSA [30,33]. Bishop et al. conducted a qualitative study to explore the perceptions of Canadian pharmacists about the barriers and facilitators of providing opioid stewardship activities when considering this expanded scope of prac- tice [30]. Twenty pharmacists from all provinces and from urban and rural practices were interviewed and reported that the Health Canada CDSA exemptions facilitated their ability to provide opioid stewardship and positively impacted patient care by providing continuity of and timely access to care [30].

Discussion

Certain elements should be included in any pharmacist pain management programme to support greater success, according to a review of the literature for studies on pharmacist interventions that could mitigate the opioid crisis by lowering the risk of potential opioid misuse, diversion, and opioid-related harm. A total of sixteen articles were chosen for publication. The included studies are described below, with Table 1 providing an overview of pharmacist-led interventions and Table 2 listing considerations for intervention implementation. Multicomponent interventions; managing additional comorbidities; continuous education; pharmacy workflow; attitudes, beliefs, and stigma; remuneration; and extended scope are the themes that are discussed in the publications.

Things to Take Into Account Before Launching an Intervention

Multicomponent Therapies: Several studies were found in the literature review to indicate that multicomponent interventions, as opposed to solely providing patient education or basic counselling, are more effective in controlling chronic pain [15, 17, 18]. For patients identified as

misusing their prescribed opioid medication, Cochran et al. conducted a small randomised controlled study involving 32 patients. The intervention called the Brief Motivational Intervention-Medication Therapy Management (BMI-MTM) strategy combined with standard medication counselling (SMC) was compared to only SMC [17]. They discovered that BMI-MTM was associated with better satisfaction and results and was a workable abuse intervention [17]. Four evidence-based techniques make up BMI-MTM: patient navigation, brief motivational interviewing (BMI), medication treatment management (MTM), and naloxone training and referral [17]. With the intention of enhancing patient adherence to taking the opioid medicine as prescribed, pharmacists participated in the trial and delivered the MTM component in conjunction with BMI [17]. It included going over the patient's opioid prescriptions and noting any interactions; talking about usage and any behaviours related to misuse; setting goals for adherence improvement; and encouraging the patient to work toward changing their behaviour [17]. A Master's level research interventionist patient navigator led the eight telephone sessions that made up the patient navigation component. These sessions covered topics such as building a therapeutic alliance and rapport with the patient, setting goals for needed services and identifying barriers and solutions, assisting patients with enrolling in psychosocial services, behavioural health, and/or physical healthcare, talking about overdose risk and providing training or a referral to obtain a naloxone kit, and arranging for follow-up self-care following the intervention.

research was finished [17]. When a pharmacist dispenses a prescription, they provide patients medication counselling, which is referred to as the SMC component [17]. According to this study, at the 3-month assessment, 6.7 percent of BMI-MTM patients reported persistent abuse, compared to 43.8 percent of SMC patients. Additionally, the BMI-MTM patients showed higher reductions in pain and depression [17]. The high rates of screening, consent, intervention completion, and follow-up in the study, as well as the high level of patient satisfaction that has been reported, proved the feasibility and acceptability of the BMI-MTM intervention [17]. Owing to the small sample size, the study concluded that in order to potentially support widespread adoption of the intervention, future research should build on these early data within a well powered clinical trial [17]. In summary, this study provides initial evidence in favour of the idea that a multimodal strategy can improve pain management and lower the hazards associated with opioid use.

Recently, a bigger randomised controlled experiment took place in Australia [18]. The Chronic Pain MedsCheck (CPMC) intervention was a multicomponent, in-pharmacy, patient-centered programme that reviewed patients' prescription regimens and offered education and information to help them better manage their chronic pain [18]. The CPMC trial comprised two arms: Group B pharmacies provided an initial consultation and two follow-up consultations at six weeks and three months following the initial consult, and Group A pharmacies provided an initial consultation and a follow-up session three months later [18]. This multi-pronged approach comprised access to trial materials, a pharmacist-directed medication review, a continuing education component for pharmacists, and a patient education component [18]. At least one pharmacy participated in the CPMC Trial at each of the 550 pharmacies; 8239 participants finished the initial consultation, and

4374 participants finished the follow-up consultation or consultations [18]. In general, the CPMC intervention implemented by pharmacies in Groups A and B proved to be efficacious and statistically significant in enhancing pain severity, pain interference level, psychological distress, and pain self-efficacy ratings [18]. The average daily dose of morphine equivalent in both groups remained unchanged [18]. Around a fifth of the participants reported observing a noticeable change that has made a real and worthwhile difference, and the majority of participants (81.7%) thought that the pharmacist intervention had improved their overall knowledge and understanding of their chronic pain medication [18]. When compared to Group A, Group B had overall larger improvements in the majority of the participants' health outcomes after three months [18]. It's crucial to remember that the high study dropout rate could raise the possibility of bias, and the CPMC trial's authors pointed out that a longer trial time would be necessary to accurately assess the intervention's long-term impact on the average daily dose of morphine [18].

A comprehensive assessment of pharmacist-participating pain treatment methods and their effects on pain intensity was carried out by Veettil et al. [15]. They discovered that multicomponent interventions—those that include both a patient education component and a medication review or other pharmaceutical care service (such as phone interviews, dosage adjustments, recommendations for over-the-counter drugs, etc.)—have a higher chance of being successful in reducing pain intensity, particularly in patients with chronic pain [15]. The need for incorporating multiple components in any pharmacist-led intervention strategy to manage patients with chronic pain is highlighted by this review, even though it was unable to determine which components, or under what circumstances, would be most effective as part of a multicomponent pharmacist intervention [15]. Patient education alone may not be sufficient.

Handling Additional Co-morbidities: A research found that pharmacists frequently noticed untreated depression, anxiety, and sleeplessness in patients who were administered opioids [19]. In order to assess care gaps in risk and harm reduction tactics for patients who are prescribed opioids, Manzur et al. carried out a pilot study [19]. They also detailed the establishment of a pilot pain management programme in community pharmacies. Before a patient's meeting with their primary care physician, the pharmacists who participated in the pilot trial performed thorough assessments of the patient [19]. Patients saw more than a duration of one to two appointments with the pharmacist, for a total of 19 appointments recorded over the research period [19]. In order to address these co-morbidities, pharmacists frequently found untreated mood problems (68 percent). They did this by advising prescribers to start adjuvant medications for concomitant conditions (84 percent), adjust dosages (58 percent), order laboratory tests (74 percent), and recommend nonpharmacological therapies to improve pain, mood, and sleep [19].

Continuous Education: Research indicates that pharmacists' proficiency and self-assurance in administering pain and opioid management therapies will be enhanced by providing them with continuing education [20–23]. According to Thakur et al., pharmacists' levels of self-efficacy and confidence in their ability to manage pain and opioid prescriptions pose major obstacles to their proactive engagement and providing of their knowledge to patients who have opioid prescriptions

[20]. In addition, Thakur et al. discovered that while pharmacists acknowledge their responsibility as opioid stewards, they cite a lack of confidence, time constraints, and training as obstacles. As a result, they argue that organised training and resources are necessary to help pharmacists become more self-assured and willing to participate in pain management interventions [20]. Pharmacists' engagement in services like prescribing naloxone, counselling patients about the risks associated with opioids, utilising prescription drug monitoring programmes, offering opioid deprescribing, educating patients about opioid storage and disposal, and offering resources for addiction treatment can be impacted by low confidence [20]. In a similar vein, Nielson et al. discovered that pharmacists are less likely to use screening tools and other interventions if they lack confidence in their ability to recognise uncontrolled pain in patients using opioids [21]. They discovered that the number of times pharmacists screened patients using the author's screening instrument for opioid outcome monitoring decreased by 31% for every ten more years of experience in the field [21]. Nielson et al. investigated whether the training and assistance given to pharmacists to administer Routine Opioid Outcome Monitoring (ROOM) enhanced pharmacists' clinical knowledge and confidence in opioid safety as part of an Australian pilot project to test the software's implementation [22]. A one-hour (live or prerecorded) webinar about delivering the ROOM intervention was part of the training for pharmacists. It covered information on how to screen for opioid use disorder, depression, risky alcohol use, and opioid side effects, as well as pertinent counselling points to use in the event of a positive screen [22]. The three-item pain scale is used to measure pain outcomes by assessing pain intensity and interference. Knowledge assessment questions were used throughout the webinar to gauge pharmacists' engagement with the instruction and make sure they could put it into practise afterward [22]. After the webinar, the pharmacist could request more resources for professional development if they wanted to pursue self-directed learning [22]. This underscores the significance of including continuing education for pharmacists in the implementation of a pain management programme. The study found that after training and ROOM implementation, pharmacists' confidence in identifying and responding to most opioid-related problems, such as unmanaged pain, depression, and opioid dependence, significantly increased compared to the baseline.

Obstacles to Implementation

The research has identified a number of obstacles that community pharmacists face in their efforts to regularly offer certain pain and opioid management strategies. Pharmacy Workflow: The introduction of innovative interventions may be hampered by worries about pharmacy workflow or time availability [20,23,24]. In a mixed-methods study, Frenzel et al. applied the theory of planned behaviour to identify factors that lead to the poor adoption of opioid risk screening [23]. Thirty-five percent of the seventeen pharmacists who responded to the survey said that the pharmacy's workflow does not permit them to spend more time screening patients for opioid risk [23]. In a similar vein, Fleming et al. carried out a qualitative investigation to ascertain pharmacists' opinions regarding their readiness to interact with patients (i.e., offer interventional counselling)

who exhibit signs of substance abuse [24]. Thirty-one community pharmacists took part, and the time commitment for counselling was the most common obstacle to participation.

This can negatively affect regular pharmacy operations and other dispensing duties [24].

Beliefs, Attitudes, and Stigma: The stigma and attitudes that pharmacists have regarding opioids can hinder the adoption of opioid stewardship programmes [24, 25]. For instance, pharmacists stated in the Fleming et al. study that they occasionally do not employ opioid risk screening because they think patients do not recognise the need of obtaining a thorough medical history to inform treatment decisions [24]. Additionally, stigma occurs from the viewpoints of both pharmacists and patients, according to Cid et alscoping .'s assessment of community pharmacy-based naloxone programmes and particular programme treatments [25]. For instance, patients may be reluctant to speak with pharmacists about matters like the necessity of a naloxone kit because they fear being judged [25]. While pharmacists do not intentionally contact patients to offer overdose prevention information, they are less at ease developing therapeutic connections with patients who misuse opioids [25]. Using a social distance scale (SDS), Werremeyer et al. investigated pharmacists' preference for social distance from patients who misuse opioids and have OUD [26]. The mean SDS score of the 187 pharmacists who responded to the study was 16.32 (range 9–23), with higher scores indicating a desire for more social distance [26]. With an SDS score of more than 15, over 59% of pharmacists showed a general lack of readiness to engage with and stigmatise patients who misuse opioids or have OUD [26]. Research has indicated that integrating ongoing education and tools for pharmacists to reduce stigma and facilitate efficient communication can help to mitigate these obstacles [27, 28]. Another study by Werremeyer et al. examined social distance scores and unfavourable views by a survey pre- and post-program (immediate and after 12 months) and employed a training programme for pharmacists to lessen stigma towards those who misuse opioids [27]. After completing this training programme, participants' social distance scores were considerably lower than their baseline scores (14.75 vs. 16.57, $p = 0.000$). Additionally, the 12-month mean SDS score (15.32 vs. 16.57, $p = 0.017$) was considerably lower than the baseline SDS score [27]. It was also shown that there were notable shifts in negative sentiments from baseline to post-survey and from baseline to a year later [27]. In a similar vein, Eukel et al. examined how a training programme on opioid usage and overdose prevention affected pharmacists' perspectives, discovering that it increased knowledge and stigma [28]. Following the training programme, statistically significant shifts in perceptions were observed in the following areas: the idea that a patient cannot control opioid addiction; the influence of family history on prescription drug abuse; the need of screening and counselling for patients at risk of prescription opioid abuse; and the significance of adopting a patient's perspective [27].

Pay: Research on extra clinical services offered by pharmacists frequently finds that if they are compensated for their work, pharmacists are inclined to keep doing so [21]. Pharmacists in the Nielson et al. trial received AUD compensation.

AUD $40 for finishing the training webinar, AUD $20 for each ROOM intervention with a patient, and AUD $20 for completing the baseline and follow-up surveys for the research project [21]. If they were given free access to the software and paid a professional service fee, slightly less than half of the participating pharmacists (44%) said they were highly likely to keep doing the intervention [21]. In contrast, just one pharmacist expressed confidence in their ability to carry out the service in the absence of a professional service fee [21]. Similarly, systemic barriers, such as a lack of funding for the professional service, were found to be a major obstacle to community pharmacists' involvement in optimising opioid therapy for chronic pain by Alenezi et al. in a qualitative study. The intervention needed to be adequately funded in order for further uptake [29].

Those who facilitate implementation

The broader area of practise for pharmacists in Canada was found to be one facilitator by the literature search [30]. Expanded Scope: Health Canada issued a subsection 56(1) class exemption from the Controlled Drugs and Substances Act (CDSA) in response to the COVID-19 pandemic in March 2020. This exemption allowed pharmacists to extend and renew prescriptions, transfer prescriptions to another pharmacist, and receive verbal orders from prescribers for controlled substances. It also allowed pharmacy employees to deliver prescriptions for controlled substances to patients, thereby facilitating continuity of care for vulnerable patients on opioids [30, 31]. Jurisdictions have made the necessary regulatory changes to include some or all of these activities within the scope of practise of their pharmacists, as these exemptions are subject to the rules and regulations of the province or territory where the pharmacist is authorised to operate [32, 33]. In many jurisdictions, pharmacists are also allowed to modify prescriptions for prohibited substances, as this practise was already allowed under the CDSA [30, 33]. In light of this enlarged scope of practise, Bishop et al. carried out a qualitative study to investigate Canadian pharmacists' perspectives regarding the obstacles and enablers of delivering opioid stewardship activities [30]. In an interview, twenty pharmacists representing both urban and rural practises across all provinces stated that the Health Canada CDSA exemptions improved their capacity to offer opioid stewardship and had a good effect on patient care by ensuring timely and continuous access to care [30].

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