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A mixed-methods systematized review on the efficacy of OAT in mitigating adverse outcomes amongst adults in Canada experiencing opioid dependence from 1964-2022

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Abstract

This systematized review was guided by the PICOT question: For persons experiencing opioid dependence in Canada from 1964-2022, is the administration of OAT associated with a reduced risk of adverse outcomes? Results demonstrated improved self-reported well-being and reduced opioid use, overdose, mortality, hospitalizations, incarceration, and economic costs. Retention was identified as a limiting factor for OAT efficacy and numerous variables impacting retention were also identified. This is an abridged version of the full systematized review, which is available upon request.

Introduction

Over 70% of drug-related deaths worldwide can be attributed to opioid use, with 30% being directly attributed to overdose [1]. This is a growing global problem, with an estimated 62 million people using opioids in 2019 across socioeconomic backgrounds [1,2]. Canada is the second leading consumer of opioids worldwide, with 3.7 million people reporting opioid use in 2018, 9.6% of which reported problematic use, and approximately 20,000 apparent opioid toxicity deaths reported from 2018-2021 [2,3,4]. Given the rise of opioid dependency and associated costs, it is relevant to implement evidence-based treatment. The Canadian government aims to mitigate the opioid crisis by funding treatments such as Opioid Agonist Therapy (OAT) [2,5]. This includes methadone maintenance treatment (MMT), introduced in 1964, and buprenorphine-naloxone (BN), introduced in 2007 [6,7]. People enrolled in OAT receive daily doses supervised in a clinic, physician's office, or pharmacy and, upon stabilization, may receive take-home doses [6]. This review acknowledges the role of the client in OAT and explores how client experiences impact outcomes. OAT success was assessed based on qualitative indicators, namely client satisfaction and self-reported well-being, as well as quantitative indicators, namely retention, overdose, mortality, hospitalizations, criminal behavior resulting in incarceration, and economic costs. This review was informed by the goal of harm reduction, to decrease adverse health, social, and economic consequences of drug use without necessitating a decrease in such drug use at the practical, conceptual, policy, and program level [8].

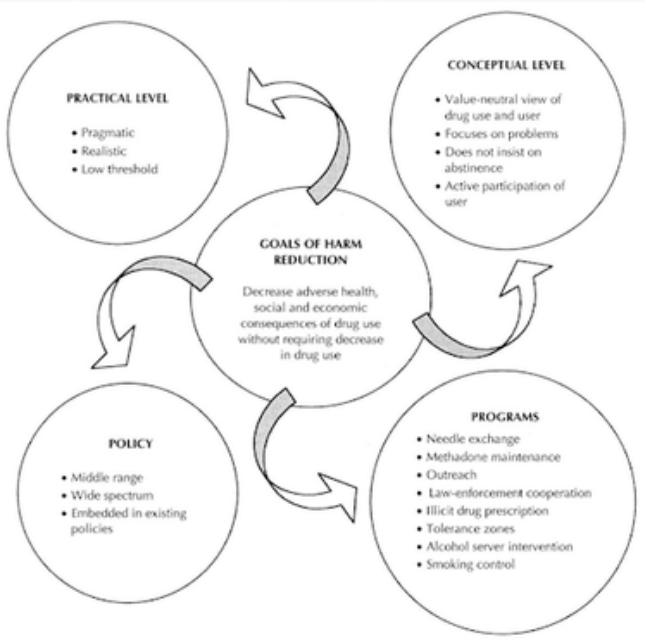

Figure 1: Harm reduction model [8].

Methodology

This review was informed by the PRISMA 2020 statement [9]. One reviewer identified primary qualitative, quantitative, and mixed-methods studies via a systematized search of MEDLINE and Embase from 1964-2022, including ahead of print, in-process, and non-indexed citations, with the predetermined keywords: (Canada or Canadian) AND (opioid agonist therapy, or OAT, or methadone, or buprenorphine, or Suboxone, or Methadose) AND (adult) AND (outcome, or perception, or satisfaction, or follow up, or social, or economic, or health, or criminal, or retention, or incarceration, or quality of life, or mortality, or efficacy, or hospitalization, or overdose). Eligible studies included primary literature conducted across Canada involving adults (≥18) of all socioeconomic backgrounds with a history of MMT or BN excluding concurrent treatment, comparisons to other treatments, and injectable OAT. All articles underwent S1 and S2 screening from MMAT version 2018 [10]. Studies were grouped by outcome measures according to Pope et al's [11] guidance on the conduct of narrative synthesis in mixed-methods systematic reviews. In this abridged version, these groupings are presented together for succinctness.

Results

14 studies were included in this review. 1 study [12] was conducted in rural Western Canada, 3 studies [13-15] were conducted in Ontario, 9 studies [16-24] were conducted in British Columbia, and 1 study [25] was conducted in Canada without regional specifications. 12 studies [12-14,17-25] involved methadone and 2 studies [15,16] investigated methadone and BN. OAT was associated with improved self-reported well-being [14] and reductions in overdose risk [15,16], all-cause mortality [19,22], prescription opioid use [16], hospitalizations up to 10 years [15,23], violent and non-violent crime up to 10 years [21], recidivism [25], and costs of criminality [18].

Without retention, all-cause mortality and overdose rates increased [15,22] and there was no significant decrease in fatal-overdose or prescription opioid use [16]. There was also no significant recidivism risk difference between those who terminated OAT and those who never initiated OAT [25]. Factors limiting retention itself included dispensing site attributes, such as site accessibility and the layout of over-the-counter needles which may serve as triggers, poor relationships with healthcare staff, coercion, negative perceptions, perceived dose insufficiency, missed doses, insufficient finances, decreased practitioner compliance to dosing guidelines, stigma, and daily OAT dosing requirements as well as the related risk of discontinuation following missed doses [12,13,17,20,24]. Conversely, factors promoting retention included informed consent, education, healthcare service efficiency, ongoing client-provider relationships, and discretion [12,17]. Furthermore, initiating OAT within institutions promoted retention following release [25]. Pharmacological aspects of OAT associated

with retention included dose titration in initial weeks, higher doses, take-home doses, variable dosing strategies, and attempted tapers [20]. Comparisons were also identified between BN and MMT, such as differing incidences of discontinuation, overdose, hospitalizations, and healthcare interactions, however such results were not consistent [15].

While the harm reduction model calls for non-judgmental and non-coercive intervention provision, the findings of this review demonstrate high rates of coercion, particularly during crisis events such as hospitalizations and incarceration, and stigma [12,13,17,26]. From an economic standpoint, persons on MMT who used opioids illicitly in the preceding six months did not show significantly reduced criminal costs compared to persons in relapse [18]. Only periods of MMT without illicit drug use demonstrated significant avoided costs of criminality [18], which does not align with the goal of harm reduction, to reduce adverse economic outcomes without requiring a decrease in drug use [8].

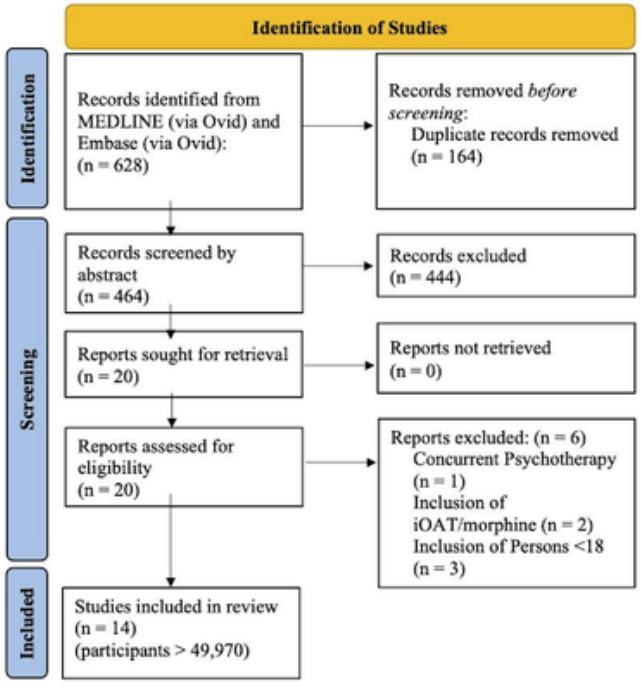

Figure 2: Flowchart of study identification informed by Prisma 2020 statement guidelines on flow diagrams [9].

Conclusion

Aligning with harm reduction goals, this review suggests consultation with persons experiencing opioid dependence in the development of dispensing spaces, education initiatives, and aspects of OAT delivery to ensure a client-centered approach [8,26].

Firstly, this review proposes the curation of standardized dispensing sites to promote retention. Pharmacy modifications may involve the rearrangement of over-the-counter merchandise, such as needles which may act as triggers, and the usage of multi-purpose counseling rooms to promote discretion and client-provider dialogue. Sanitary needle access aligns with harm reduction goals; however, such needles should not be directly visible as one receives OAT and OAT-related services.

To foster relationships with healthcare staff, this review suggests the creation and provision of mandatory training to reduce stigma and guide OAT initiation events. Relatedly, educational resources should be available for clients to ensure they have a thorough understanding of OAT and can thereby provide informed consent. Notably, retention was also limited by accessibility, with automatic OAT discontinuation after 3 missed doses [12,13]. To increase accessibility, the expansion of OAT dispensing sites is recommended, particularly in rural regions with limited healthcare practitioners and pharmacies [27]. It is also recommended that OAT dispensing spaces offer multiple OAT-related services to avoid costs associated with travel to multiple locations for different, mandatory OAT services. It could also prove beneficial to implement government-funded OAT coverage. In addition to benefiting client health, this may

reduce costs of criminality to costs comparable with opioid abstinence [18]. Since decreased compliance to dosing guidelines was mirrored by a decline in retention, there is a need for stricter prescription regulations [20]. Further research is suggested due to the disproportionate distribution of identified studies across Canadian regions as well as the low number of studies identified that involved BN. Further research is also suggested to determine dosing strategies that promote retention. Overall, this review suggests OAT to be effective in mitigating adverse outcomes amongst persons experiencing opioid dependence in Canada, however that such efficacy is limited by retention. Relatedly, this review identifies factors that impact retention and extends related suggestions.

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