

Safer opioid supply clients' values and preferences: a systematic review and thematic synthesis of qualitative research

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ABSTRACT

Question What are the values and preferences of safer opioid supply clients?

Study selection and analysis We conducted a systematic review of qualitative studies on safer opioid supply client experiences published between January 2016 and August 2024. Searches were conducted across seven databases—MEDLINE, Embase, PsycINFO, CINAHL, EBM Reviews, Web of Science and Scopus—and supplemented with searches in Google Scholar and relevant repositories. Study quality was assessed using the Critical Appraisal Skills Programme. Data analysis was guided by Thomas and Harden's thematic synthesis approach and confidence in review findings was evaluated using Grading of Recommendations Assessment, Development and Evaluation—Confidence in the Evidence from Reviews of Qualitative research. The review was registered with PROSPERO (CRD42022384447).

Findings Our thematic synthesis included 19 peer-reviewed original research articles involving 459 study participants from British Columbia and Ontario, of whom 60.1% were men and 36.1% were women. Our findings centred on four cross-cutting analytic themes: (1) client-relevant goals and outcomes (withdrawal management, pain management, socioeconomic improvements), (2) the right medications to optimise client-relevant outcomes (multiple medication and formulation options, flexible dosage), (3) supportive, client-centred care environment (safe, welcoming and non-judgmental spaces, coordinating access to health and social support services, shared decision-making) and (4) complex adaptive systems approach to clinical policies (understanding the complexity of clients' living circumstances, flexible dose schedules, non-punitive policies). Confidence in findings ranged from moderate to high.

Conclusions Safer opioid supply's success depends on providing individualised opioid medications, fostering person-centred care and implementing adaptive clinical policies. A supportive and flexible model enhances client satisfaction, sustains programme participation and optimises client-relevant outcomes.

BACKGROUND

Canada's drug toxicity crisis has intensified over the past decade, marked by dramatic increases in mortality rates. Opioid-related toxicity deaths rose from 7.8 per 100 000 in 2016 to 21.1 per

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Safer opioid supply programmes offer low-barrier prescribed alternatives to the unregulated drug supply for individuals at high risk of overdose.
- ⇒ As qualitative research on client experiences has grown, highlighting both benefits and challenges of these programmes, policymakers and service providers have emphasised the need for evidence-based guidance to improve clinical practices and enhance programme success.

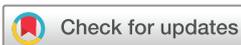
WHAT THIS STUDY ADDS

- ⇒ Our findings highlight several client-relevant outcomes to facilitate the transition to a value-based care approach in safer opioid supply and other medication-based interventions for individuals using unregulated opioids.
- ⇒ We identified key client-provider interactions and clinical policies that influence client satisfaction, sustained engagement and programme success in the long term.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Our study fills a critical evidence gap by offering key insights to improve clinical practice, enhance care quality and promote greater client satisfaction and engagement in safer opioid supply programmes, both in Canada and in other regions exploring similar interventions.

100 000 in 2023, while stimulant-related deaths increased from 7.5 per 100 000 in 2018 to 16.6 per 100 000 in 2023.¹ In response to the growing toxic drug poisonings—driven primarily by unregulated fentanyl and its analogues¹—and calls from people who use drugs to provide access to regulated alternatives,² Canada's federal department of health began funding the scale-up of a harm reduction-oriented intervention known as 'safe(r) supply' in 2020 in select jurisdictions across Canada.^{3–5} Safer supply aims to reduce overdose risk by providing people who use drugs with pharmaceutical-grade alternatives to toxic, unregulated drugs.^{4,6} These programmes primarily focus on prescribing opioids, often referred to as safer



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opioid supply (SOS). While the central focus is on opioids, a small number of programmes may also offer prescribed stimulants or benzodiazepines based on individual needs and clinical discretion.^{3,4}

SOS encompasses a broad set of prescribing practices, unified by the goal of reducing reliance on toxic unregulated drugs, rather than substance use treatment.³⁻⁵ Unlike opioid agonist therapy (OAT), which is designed to treat opioid use disorders and reduce substance use through medications, such as methadone or buprenorphine-naloxone, SOS programmes are intended to reduce overdose risk among people who continue to use drugs sourced from the unregulated markets.^{4,6,7} SOS also differs from the high-intensity treatment alternatives to OAT, known as injectable OAT (iOAT) and its lower-barrier modality, tablet injectable OAT (TiOAT), both of which aim to treat opioid use disorder through highly supervised dosing schedules and intensive clinical protocols.^{8,9} In contrast, SOS programmes do not require abstinence or strict adherence to treatment protocols, offering instead a low-barrier, harm reduction-oriented option to address gaps in the continuum of care for people who may not access or benefit from these conventional treatment programmes.^{4,6}

Although there is substantial variation between SOS programmes due to differences in provincial formularies and local implementation contexts, two broad models of SOS prescribing have emerged: (1) SOS programmes that were integrated within existing primary care clinics and community health centres, offering pharmaceutical-grade opioids alongside comprehensive primary healthcare, social support services and harm reduction programmes; and (2) prescribed SOS that emerged from risk mitigation guidance (RMG), introduced in British Columbia in March 2020 in response to the COVID-19 and overdose syndemic.^{3,4} Building on these programme models, SOS prescribing practices vary across settings in terms of dosing schedules, patient monitoring, types of opioids prescribed and integration with wraparound services.³ Immediate release (IR) hydromorphone tablets paired with long-acting opioids, such as slow-release oral morphine, are the primary prescribing approach, although some programmes offer prescribed opioid alternatives without a long-acting backbone.³ Furthermore, some programmes also offer additional opioid medication options, including oxycodone and fentanyl formulations based on individual patient needs and clinical discretion.³⁻⁵

Observational cohort studies have documented significant reductions in overdose¹⁰ and all-cause mortality among people receiving SOS,¹¹ as well as reductions in emergency department visits and hospitalisations.¹² Additionally, several qualitative studies have documented factors influencing programme implementation, engagement and improvements in health and social outcomes,³ alongside limitations, such as restricted medication options³ and diversion concerns.¹³ Although recent guidelines on managing opioid use disorders have endorsed person-centred care approaches and promoted patient values and preferences,⁷ a comprehensive synthesis of patients' needs, values and preferences across different SOS programmes remains lacking.

OBJECTIVE

This review synthesises qualitative research on client experiences with SOS programmes to inform evidence-based clinical practice, enhance service delivery and guide future programme implementation.

METHODS

To capture a comprehensive understanding of client values and preferences, we applied a broad definition of safer supply, consistent with Health Canada's definition, which refers to it as providing prescribed medications as a safer alternative to the toxic illegal drug supply to people who are at high risk of overdose.^{4,5} Although some safer supply programmes also provide prescribed stimulant and benzodiazepine medications,³ our review focuses on prescribed opioids—hence SOS, as safer supply primarily aims to address the fentanyl-driven drug toxicity crisis.³⁻⁵ We excluded treatment-oriented models, such as OAT, iOAT and TiOAT, consistent with previous studies³⁻⁵ that view these programmes as part of conventional treatment for opioid use disorder, aimed at supporting recovery and reducing substance use, rather than as harm reduction strategies intended to reduce the use of unregulated drugs and associated overdose risk.^{8,9,14} Additionally, we excluded non-prescriber-based models of SOS that distribute unregulated drugs with known composition, such as the unsanctioned compassion club model in British Columbia.¹⁵

We followed the Cochrane Qualitative and Implementation Methods Group guidance¹⁶ to conduct our qualitative evidence synthesis. The Sample, Phenomenon of Interest, Design, Evaluation, Research type (SPIDER) tool was used to define key elements of our review question and standardise the eligibility criteria.¹⁷⁻¹⁹ We also adhered to the updated 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)¹⁹ statement (online supplemental material 1) and Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ)²⁰ reporting guidelines (online supplemental material 2). The review protocol was developed a priori and registered with PROSPERO (CRD42022384447).

Eligibility criteria

Inclusion and exclusion criteria were defined using the components of our overarching review question in SPIDER format, consistent with the PRISMA 2020 expanded checklist.¹⁷⁻¹⁹ We included English-language primary qualitative studies published from 1 January 2016, onwards, as the first SOS programme was established in Canada in 2016.¹² Original full-text studies reporting primary qualitative data on client experiences with SOS were eligible. Mixed-methods studies were eligible if qualitative findings were reported separately. We excluded editorials, conference abstracts, protocols and review papers. See online supplemental material 3 for detailed inclusion and exclusion criteria.

Information sources and search strategy

Our search strategy was developed by a health sciences information specialist (CZ) and peer-reviewed using the Peer Review of Electronic Search Strategies checklist.²¹ We searched seven electronic databases (MEDLINE, Embase, PsycINFO, CINAHL, EBM Reviews, Web of Science and Scopus), as well as Google Scholar and the National Safer Supply Community of Practice website, which keeps track of all peer-reviewed and non-peer-reviewed publications on safer supply. See online supplemental material 4 for detailed search strategies. We also hand-searched reference lists of included studies and relevant review articles, in addition to monitoring new publications using weekly Google Scholar alerts.

Study selection and data extraction

Two independent reviewers (FN and LM) screened titles, abstracts and full-texts using Covidence. Three reviewers (FN,

LM and SM) independently extracted data using a standardised form, capturing publication details (eg, authors, publication year), study characteristics (eg, setting, study objective, study design), client demographics (eg, age, gender), SOS programme characteristics (eg, medications provided) and main findings. Disagreements were resolved through discussion and consultation with the senior coauthor.

Quality appraisal of included studies

Methodological rigour of each study was assessed independently by three coauthors (FN, LM and SMFL) using the Critical Appraisal Skills Programme (CASP).²² Studies were included in the thematic synthesis regardless of methodological quality, as existing critical appraisal tools lack the capacity to comprehensively evaluate both fundamental qualitative design elements and method-specific considerations.²³

Data synthesis

We conducted a thematic synthesis following Thomas and Harden's approach,²⁴ selected based on the RETREAT criteria (online supplemental material 5). Our analysis involved three stages.²⁴ In the initial stage, the lead author conducted line-by-line coding of all 'findings/results' sections using NVivo V.14. A second (LM) coder independently coded 20% of the included papers to ensure reliability, followed by code refinement through discussion. In the second stage, related codes were grouped into broader descriptive themes through an iterative process. Two coauthors (FN and LM) reviewed these themes across two meetings, returning to primary studies to ensure themes accurately reflected client experiences and perspectives. The final stage identified connections between descriptive themes to develop overarching analytical themes addressing our research question. These were refined through four review meetings: two between the primary coders and two additional consultations with a community advisory member and senior coauthors. Online supplemental material 6 provides a detailed overview of our thematic synthesis approach.

Assessing confidence in the review findings

The lead author performed the GRADE-CERQual (Grading of Recommendations Assessment, Development and Evaluation—Confidence in the Evidence from Reviews of Qualitative research)²⁵ to assess the overall confidence in each review finding based on methodological limitations,²⁶ coherence,²⁷ adequacy,²⁸ and relevance.²⁹ GRADE-CERQual assessments were revised and modified, where necessary, following discussions with coauthors LM and MK.

Reflexivity

We established a diverse research team comprising qualitative methodologists, service providers, drug policy experts and community advisory members with lived experience. This diversity inevitably shaped the synthesis, and the lead author, a public health researcher with a harm reduction focus, maintained a reflexive journal and methodological decision log to document and critically reflect on how team perspectives influenced the analytical process. Regular team debriefs were held to discuss and reconcile differing interpretations, ensuring transparency and rigour.

FINDINGS

Our search yielded 3547 records, with 2041 removed as duplicates. Among 1506 unique records screened for titles and

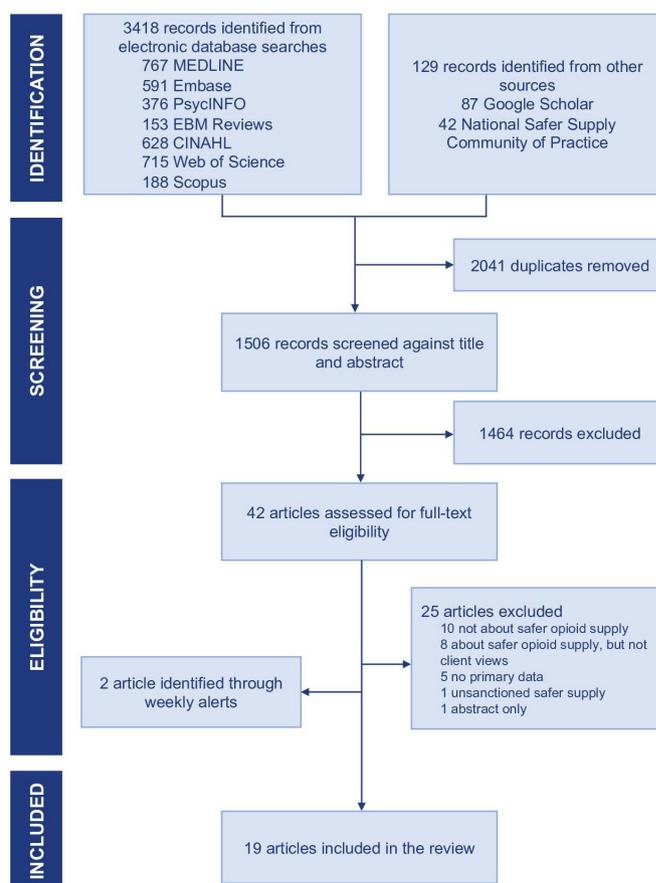


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of included studies.

abstracts, 42 were assessed for full-text eligibility, 17 of which met the inclusion criteria. See online supplemental material 7 for studies that were excluded at the full-text screening stage. Weekly alerts identified two additional articles. A total of 19 peer-reviewed papers from 13 studies published between 2020 and 2024 were included in the thematic synthesis (figure 1).

Study characteristics

Online supplemental table 1 provides a summary of the included studies. Findings were drawn from a total sample of 459 participants. Among studies that reported gender, 238 (60.1%) self-identified as men, 143 (36.1%) as women and 10 (2.5%) as other gender identities. Most of the studies were conducted in British Columbia (n = 9), with the remaining from Ontario (n = 4). All but two studies, which used mixed-methods, were based on qualitative study designs. Three of the 13 studies explored client experiences with RMG, while the remaining studies focused on models typically integrated into community healthcare settings with wraparound services. CASP results on quality appraisal are presented in online supplemental material 8.

Thematic synthesis

We inductively generated 135 codes, forming 12 descriptive themes, which were synthesised into four overarching analytic themes. Below we present themes along with representative client quotes. Online supplemental table 2 presents a summary of the review findings and the GRADE-CERQual confidence assessments. Additional details are in the CERQual evidence profile table (online supplemental material 9).

Analytic theme 1: client-relevant goals and outcomes

This analytic theme encapsulates client goals for SOS programmes and outcomes that they consider meaningful and valuable. Clients view SOS not only as a lifesaving intervention but also as a means to achieve improvements in their quality of life. Three descriptive themes described client-relevant goals and outcomes.

Withdrawal management (*high confidence*)

Withdrawal management was the most prominently discussed goal and outcome, described by clients as a crucial prerequisite for achieving stability and quality of life improvements.^{30–44} Clients consistently described effective withdrawal management as essential for staying off unregulated opioids, being in control of their drug use and reaching a level of stability where they can focus on other life priorities.

I think it's one like withdrawal management. For me, that's why I take it [the patch]. It's helping me to stop...I don't get high if that's what you're wondering. No, I don't get that euphoric feeling and I don't really want that. I used to always, crave that and somehow, it's put me in a place where I don't want to crave it. I want to live. I do. I don't want to survive. I want to live. Maybe get married, you know. Have a life. And coming from where I come from that's a big change in me. Right. That's huge for me. And I'm proud of myself.⁴³

Pain management (*moderate confidence*)

Another common goal expressed by SOS clients was managing untreated chronic pain using SOS as an alternative to highly toxic unregulated opioids.^{30 31 33–40 42–45} Clients described pain management benefits as improving their daily functional capacity and allowing them to engage in daily activities they found to be meaningful:

It's changed my life. Less in pain all the time, I can get out and do things, do shopping. My back's sore all the time. And it is a big help.⁴⁴

Socioeconomic improvements (*moderate confidence*)

Clients expressed a desire to break free from the cycle of seeking unregulated drugs and its associated harms. Before participating in SOS programmes, most described lives dominated by the procurement of drugs from unregulated markets, with associated socioeconomic, criminal and health consequences. Clients reported several valuable outcomes that they explained contributed to improvements in their socioeconomic situation,^{30 32–40 42–44 46} as one client reflected:

I've seen how my life drastically changed. And I have a job, I have an apartment, I have bills I pay for, I have a car. I have real-life responsibilities that I never had before. And all this is because the program I'm in.⁴⁴

Analytic theme 2: the right medications to optimise client-relevant outcomes

SOS clients consistently identified a gap between their individual medication needs and what the programmes offered. According to clients, the three key components of effective SOS medication included the 'right drug,' the 'right dosage' and the 'right formulation' to sufficiently reduce reliance on unregulated opioids and the associated risk of overdose. Three descriptive themes capturing the key components of effective medications contributed to this finding.

Need for multiple opioid medication options (*high confidence*)

Some clients reported that IR hydromorphone tablets were insufficient as an alternative to fentanyl,^{32 33 38 40 42 45} which resulted in continued reliance on unregulated drugs and left them at an ongoing risk of overdose:

I get 24 hydromorphone or Dilaudid a day. I use them all. They're quite frankly not nearly strong enough to satisfy like a full-on fentanyl addiction.³⁸

These clients expressed the need for additional opioid medications to adequately meet individual needs and preferences,^{30 31 33 35 38 40 42 45 47} as stated by one client:

I would prefer something that has more of a kick to it than Dilaudids for the cravings and stuff like that, like a fentanyl without the side risks.³⁵

Right dosage (*high confidence*)

Reaching and maintaining an optimal dosage was crucial for addressing clients' needs and preventing their use of unregulated opioids. For those receiving IR hydromorphone tablets as a safer alternative, achieving an adequate dose that met their individual needs was key,^{30–33 36 38 40 42} as illustrated below:

It was hard at the beginning but then I realized that the more of the Dilaudid that I did, the less fentanyl I had to do. So it took a while to get up to the dose I'm at now. And I remember coming in here sick and puking, dying sick, every other day when I first started, and then going up and going up and going up (in my safer opioid supply dosing) and finally, hey, I hit a dose and it's "Okay, I feel comfortable with this dose. I'm at the point where I am not using fentanyl as much, I'm good." And now it's been a while and it's been the same dose and I feel great.³¹

Mode of consumption (*high confidence*)

The availability of prescribed alternatives in formulations that aligned with clients' preferred mode of consumption was identified as a key factor in achieving optimal therapeutic effects.^{30–32 36–38 40 43 45 47} For example, while clients using fentanyl patches were satisfied with their potency, some reported challenges such as skin irritation and patch adhesion problems.⁴³ Additionally, some clients expressed frustration regarding the lack of smokeable hydromorphone options, noting that the tablets did not suit their needs and preferences, as discussed by one client: 'They can't snort it, they can't smoke it. So it's just, it's useless'.⁴⁰

Analytic theme 3: supportive and client-centred care environment

This analytic theme emphasised the importance of cultivating a care environment that centred clients' needs and preferences, fostering mutual trust and meaningful engagement of clients in their care planning. Three descriptive themes contributed to this finding.

Safe, welcoming and non-judgmental spaces (*high confidence*)

Clients characterised SOS programme environments as welcoming and non-judgmental, contrasting them with their previous experiences of feeling judged and mistrusted in OAT programmes. Clients valued the compassionate, respectful and caring approach of SOS staff, noting that this fostered mutual trust and a sense of safety,^{30 33–36 40 44 45 47 48} as illustrated below:

I feel safe, for sure. People are very understanding. They don't make me wait. They're not judgmental at all. And they actually see

me as a person...they interact with me, they ask personal [questions]...they care to know about my life.³⁵

Coordinating access to health and social support services (*moderate confidence*)

SOS clients reported a history of systemic exclusion from the healthcare system and had various unmet healthcare needs.^{34 35 37 39 40 44} Those participating in integrated SOS models valued the access to a multidisciplinary team of care providers delivering a number of primary healthcare services alongside the prescription of opioid medications,^{30 33 35 37 40 41 44 45} as discussed by one client:

And that [primary healthcare] on its own was, like, one of the good things that help, like, make everything so much better and easier, is to have the help you need. The positiveness. And I'm not just going to tackle one problem. It's being able to tackle all the problems that basically feed into the one problem.³⁵

Staff in these programmes also coordinated access to additional healthcare and social support services.^{35 37 40 44} Clients valued the assistance provided by staff in navigating the often complex processes required to access specialised healthcare and social support services. These efforts bridged gaps in access to critical care, connecting clients to services that they had previously been unable to attain:

I got my eyes done, my dental's being done. I have a problem with my breathing, right, I have a perianal abscess, right, problems from head to toe. Yet they work with me.⁴⁴

Shared decision-making (*moderate confidence*)

Clients expressed a strong preference for being actively involved in decisions about their SOS dosing and dispensation schedules to ensure the best possible outcomes tailored to their individual needs and preferences.^{30 31 33 40 44 45} Although programmes typically incorporated client input to guide various aspects of their SOS care planning, this practice was not always consistent. It was sometimes viewed as highly medicalised, as illustrated by one client:

It's rough getting dosages sorted out, because, you know, as much as I know what works for me, [the program] has a set approach, and unfortunately, it's suits and ties and corporate offices that decide what these figures are. And a lot of the time, it's not realistic.³⁰

Analytic theme 4: complex adaptive systems approach to clinical policies

The need for adaptable dosing and dispensation policies emerged as crucial for achieving client-relevant outcomes and facilitating low-barrier access and long-term engagement. This was particularly relevant given the multiple intersecting structural vulnerabilities faced by clients and the challenges posed by the unpredictable nature of unregulated drug markets. This finding was reinforced by three descriptive themes highlighting clients' needs and preferences regarding clinical policies.

Understanding the complexity of clients' living circumstances (*moderate confidence*)

Clients framed their SOS experiences within the context of their personal circumstances, describing how structural vulnerabilities (eg, homelessness, stigma) and geographic barriers (eg, rurality) shaped their access and engagement.^{32 35–38 40 43 44 47} The high potency of fentanyl and the presence of variable adulterants

in the unregulated drug market further complicated substance use behaviours and programme outcomes. Clients underscored the necessity of clinical policies that take into consideration the complexity of their living conditions and evolving needs.^{30 32 34 36 37 40 42 43} For instance, one client described developing a growing tolerance to IR hydromorphone tablets due to exposure to fentanyl of varying potency in the unregulated supply:

They just don't do anything for me anymore. One pill used to be the equivalent of about a 10-paper [1 g]. But now, for a 10-paper of fentanyl, you probably need like a hundred pills. So it's just they won't touch me, right?³⁰

Flexible dose schedules (*high confidence*)

Clients expressed the need for flexible dosing schedules so that programme access and engagement did not interfere with other life responsibilities, including employment.^{30 33 35 36 40 43 45 47} While some SOS clients appreciated daily dispensed schedules as they provided opportunities to connect with healthcare services and enjoy a sense of community,^{33 35 40} for those with jobs, daily visits combined with limited operating hours posed significant barriers to access and engagement.^{30 33 35 40 45} These clients emphasised the need for weekly, biweekly or longer supplies of medication,^{35 40 45} to prevent their care from interfering with work and other competing priorities:

It takes me about 40 minutes to come into town. That is an issue with me with the program, actually. I can't get carries and it costs me \$20 a day to come into town every day to get my prescription filled. Make the carry more of an option for people who are in like, doing well on the program like me, like I haven't used, been doing fentanyl for what, like in months, right? That's the whole purpose.³⁵

Non-punitive policies for missed doses (*moderate confidence*)

Clients appreciated the non-punitive policies around missed doses in SOS programmes, comparing them to the more rigid practices followed in OAT.^{30 36 43} Clients who missed a few of their scheduled doses or those who took a temporary break from their programme were allowed to return without the penalties often faced in OAT, such as losing access or a titration restart, allowing them to consistently maintain an optimal and stable dose,^{35 36 43} as one SOS client noted, 'They don't cut me off when I miss a few days and set me another dose. That's pretty good'.⁴³ Clients emphasised the importance of retaining these non-punitive practices to avoid barriers to access and facilitate sustained programme engagement.

DISCUSSION

This is the first systematic review of qualitative evidence on SOS clients' values and preferences. We identified four cross-cutting themes crucial for enhancing care quality and programme success. Clients described withdrawal management, pain relief and socio-economic improvements as key goals and outcomes. Access to appropriate opioid medications, including preferred dosages and formulations, was essential for reducing reliance on the unregulated drug market and associated harms. A supportive, client-centred care environment was central to client satisfaction and sustained programme engagement.

Our findings revealed ongoing use of unregulated opioids among a subset of clients, raising questions about the suitability of IR hydromorphone tablets as a prescribed alternative for some clients. While IR hydromorphone tablets are currently the predominant medication

in SOS programmes, they may fall short of addressing the needs of clients with high opioid tolerance, especially those frequently exposed to highly potent fentanyl and its derivatives obtained from the unregulated market.^{49 50} In this context, continued use of unregulated opioids is an indicator of unmet need for prescribed alternatives that could better match clients' tolerance and medication needs. Moreover, mode of consumption, particularly the availability of smokeable prescribed opioid formulations, emerged as a key factor in client satisfaction. This is aligned with emerging evidence indicating that smoking and inhalation have become the predominant modes of consumption in the context of the fentanyl-dominated overdose epidemic.^{51 52} Research suggests that mode of consumption has important implications for overdose risk, infectious disease transmission and engagement with treatment.^{53 54} As such, client satisfaction and meaningful reductions in overdose risk require not only the right opioid medications, but also safe facilitation of delivery methods that adequately address consumption practices associated with contemporary drug use patterns.

Clients consistently valued the non-judgmental, supportive environment provided by programme staff, where shared decision-making emerged as a crucial element of client-centredness. This approach has also been shown to enhance patient satisfaction and promote retention in treatment programmes for people with opioid use disorder.^{55 56} Our findings also underscored the importance of situating SOS programmes within a complex adaptive system.⁵⁷ These programmes operate within complex environments, shaped by clients' experiences of structural vulnerabilities, geographic barriers and the volatility of unregulated drug markets. Adopting a systems lens necessitates flexible, non-punitive and low-barrier clinical practices capable of responding to clients' evolving needs. Opioid use disorder is increasingly recognised as a complex and chronic condition,⁵⁸ which means people may continue to be exposed to highly potent fentanyl and its derivatives in the unregulated drug markets.^{49 50} This suggests a need for a comprehensive and long-term continuum of care for people with opioid use disorder. For SOS to be a successful intervention within this continuum, policy and clinical innovation need to move beyond IR hydromorphone tablets. This may include expanding access to higher-potency medications available in different formulations, to adequately meet diverse and evolving client needs. Furthermore, our findings highlight the importance of reimagining the continuum of care for people with opioid use disorder through a person-centred care approach. This would support diverse client goals and facilitate transition between different types of programmes, including treatment and harm reduction, to ensure sustained engagement with care that aligns with clients' evolving needs and priorities.

By documenting client values and preferences in SOS programmes, our review highlights the need for further research to operationalise person-centred care indicators and client-relevant outcomes in order to enhance service delivery and beneficial client outcomes. We acknowledge several limitations to our study, primarily stemming from the characteristics of the included studies. First, most of the samples were recruited from large urban areas in British Columbia and Ontario, which restricts the applicability of findings to other provinces, rural and remote areas, in particular. Second, most study participants were white men, with other ethnicities under-represented in the primary studies. Third, we examined two models of SOS, RMG and integrated SOS programmes, with the majority of studies focusing on the latter. Nonetheless, the themes identified in studies of RMG programmes were consistent with those from integrated SOS models. Furthermore, we used a broad definition of SOS, encompassing programmes with varying clinical practices in terms of opioid medications prescribed, dispensation schedules and degree of integration with primary healthcare. As such, our findings reflect

what clients generally want in SOS programmes, rather than experiences tied to any specific model or prescribing practice. Fourth, most studies were conducted during the COVID-19 pandemic and the resulting changes in access to health services and unregulated drug markets may have influenced client values and preferences.^{4 59} Lastly, our analysis approach focused solely on coding the results/findings section of included papers, potentially overlooking valuable information and author interpretations present in other sections that could have enriched our analysis.

CONCLUSIONS

Overall, this review underscored the importance of centring client values and preferences in SOS programmes to meaningfully support their goals and health outcomes. This includes providing medications that align with both the potency of drugs sourced from the unregulated drug market, as well as clients' preferred methods of consumption. Future research on developing and measuring client-relevant outcomes and experiences is warranted to enhance programme success and optimise client satisfaction and engagement with SOS.

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Contributors DW and MK obtained funding and provided supervision. DW, MK, GK, MB, KU, and BP conceptualised the study and provided critical review for important intellectual content. FN and MK designed the study. FN, LM and SMFL extracted data and performed critical appraisal. FN, LM, MB and MK contributed to data analysis and interpretation. FN led all aspects of the review and wrote the original draft. MK is responsible for the overall content as guarantor.

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REFERENCES

- Government of Canada. Opioid- and stimulant-related harms in Canada. Government of Canada. Available: <https://health-infobase.canada.ca/substance-related-harms/opioids-stimulants> [Accessed 3 Apr 2024].
- Canadian Association of People who Use Drugs. Safe supply: concept document. Canadian association of people who use drugs. Available: <https://vancouver.ca/files/cov/capud-safe-supply-concept-document.pdf>
- Ledlie S, Garg R, Cheng C, et al. Prescribed safer opioid supply: A scoping review of the evidence. *Int J Drug Policy* 2024;125:104339.
- Glegg S, McCrae K, Kolla G, et al. 'COVID just kind of opened a can of whoop-ass': The rapid growth of safer supply prescribing during the pandemic documented through an environmental scan of addiction and harm reduction services in Canada. *Int J Drug Policy* 2022;106:103742.
- Karamouzian M, Rafat B, Kolla G, et al. Challenges of implementing safer supply programs in Canada during the COVID-19 pandemic: A qualitative analysis. *Int J Drug Policy* 2023;120:104157.
- Ivsins A, Boyd J, Beletsky L, et al. Tackling the overdose crisis: The role of safe supply. *Int J Drug Policy* 2020;80:102769.
- Bruneau J, Ahamad K, Goyer M-É, et al. Management of opioid use disorders: a national clinical practice guideline. *CMAJ* 2018;190:E247–57.
- Eydt E, Glegg S, Sutherland C, et al. Service delivery models for injectable opioid agonist treatment in Canada: 2 sequential environmental scans. *CMAJ Open* 2021;9:E115–24.
- Fairbairn N, Ross J, Trew M, et al. Injectable opioid agonist treatment for opioid use disorder: a national clinical guideline. *CMAJ* 2019;191:E1049–56.
- Nafeh F, Mbichila T, Bouck Z, et al. A Preliminary Assessment of Short-Term Social and Substance Use-Related Outcomes Among Clients of Integrated Safer Opioid Supply Pilot Programs in Toronto, Canada. *Int J Ment Health Addiction* 2023;2023:1–11.
- Slaunwhite A, Min JE, Palis H, et al. Effect of Risk Mitigation Guidance opioid and stimulant dispensations on mortality and acute care visits during dual public health emergencies: retrospective cohort study. *BMJ* 2024;384:e076336.
- Gomes T, Kolla G, McCormack D, et al. Clinical outcomes and health care costs among people entering a safer opioid supply program in Ontario. *CMAJ* 2022;194:E1233–42.
- Martignetti L, Knight R, Nafeh F, et al. Motivations for and perspectives of medication diversion among clients of a safer opioid supply program in Toronto, Canada. *Int J Drug Policy* 2025;135:104665.
- Yakovenko I, Mukaneza Y, Germé K, et al. Management of opioid use disorder: 2024 update to the national clinical practice guideline. *CMAJ* 2024;196:E1280–90.
- Kalicum J, Nyx E, Kennedy MC, et al. The impact of an unsanctioned compassion club on non-fatal overdose. *Int J Drug Policy* 2024;131:104330.
- Noyes J, Booth A, Cargo M, et al. Cochrane Qualitative and Implementation Methods Group guidance series-paper 1: introduction. *J Clin Epidemiol* 2018;97:35–8.
- Cooke A, Smith D, Booth A. Beyond PICO: the SPIDER tool for qualitative evidence synthesis. *Qual Health Res* 2012;22:1435–43.
- Amir-Behghadami M. SPIDER as a framework to formulate eligibility criteria in qualitative systematic reviews. *BMJ Support Palliat Care* 2021;14:e312–3.
- Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71.
- Tong A, Flemming K, McInnes E, et al. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol* 2012;12:181.
- McGowan J, Sampson M, Salzwedel DM, et al. PRESS Peer Review of Electronic Search Strategies: 2015 Guideline Statement. *J Clin Epidemiol* 2016;75:40–6.
- Long HA, French DP, Brooks JM. Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences* 2020;1:31–42.
- Williams V, Boylan A-M, Nunan D. Critical appraisal of qualitative research: necessity, partialities and the issue of bias. *BMJ Evid Based Med* 2020;25:9–11.
- Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol* 2008;8:45.
- Lewin S, Booth A, Glenton C. Applying GRADE-CERQual to qualitative evidence synthesis findings: introduction to the series. *Implementation Sci* 2018;13:2.
- Munthe-Kaas H, Bohren MA, Glenton C, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings-paper 3: how to assess methodological limitations. *Implement Sci* 2018;13:9.
- Colvin CJ, Garside R, Wainwright M, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings—paper 4: how to assess coherence. *Implementation Sci* 2018;13:33–41.
- Glenton C, Carlsen B, Lewin S, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings-paper 5: how to assess adequacy of data. *Implement Sci* 2018;13:14.
- Noyes J, Booth A, Lewin S, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings-paper 6: how to assess relevance of the data. *Implement Sci* 2018;13:4.
- Bardwell G, Ivsins A, Mansoor M, et al. Safer opioid supply via a biometric dispensing machine: a qualitative study of barriers, facilitators and associated outcomes. *CMAJ* 2023;195:E668–76.
- Gagnon M, Rudzinski K, Guta A, et al. Impact of safer supply programs on injection practices: client and provider experiences in Ontario, Canada. *Harm Reduct J* 2023;20:81.
- Giang K, Charlesworth R, Thulien M, et al. Risk mitigation guidance and safer supply prescribing among young people who use drugs in the context of COVID-19 and overdose emergencies. *Int J Drug Policy* 2023;115:104023.
- Haines M, O'Byrne P. Safer opioid supply: qualitative program evaluation. *Harm Reduct J* 2023;20:53.
- Haines M, O'Byrne P. Context of Substance Use: Harm Reduction and Safer Supply. *J Drug Issues* 2025;55:365–78.
- Henderson N, Marris J, Woodend K. 'And this is the life jacket, the lifeline they've been wanting': Participant perspectives on navigating challenges and successes of prescribed safer supply. *PLoS One* 2024;19:e0299801.
- Ivsins A, Boyd J, Mayer S, et al. Barriers and facilitators to a novel low-barrier hydromorphone distribution program in Vancouver, Canada: a qualitative study. *Drug Alcohol Depend* 2020;216:108202.
- Ivsins A, Boyd J, Mayer S, et al. 'It's Helped Me a Lot, Just Like to Stay Alive': a Qualitative Analysis of Outcomes of a Novel Hydromorphone Tablet Distribution Program in Vancouver, Canada. *J Urban Health* 2021;98:59–69.
- Ivsins A, Mansoor M, Bowles J, et al. Reasons for Enrolling in Safer Supply Programs: A Longitudinal Qualitative Study on Participant Goals and Related Outcomes in the MySafe Program. *J Stud Alcohol Drugs* 2024;85:845–55.
- Ivsins A, Bowles JM, Mansoor M, et al. Repurposing prescribed hydromorphone: Alternative uses of safer supply and tablet-injectable opioid agonist treatment to meet unaddressed health needs. *Int J Drug Policy* 2024;133:104601.
- Kolla G, Pauly B, Cameron F, et al. 'If it wasn't for them, I don't think I would be here': experiences of the first year of a safer supply program during the dual public health emergencies of COVID-19 and the drug toxicity crisis. *Harm Reduct J* 2024;21:111.
- Kolla G, Tarannum CN, Fajber K, et al. Substance use care innovations during COVID-19: barriers and facilitators to the provision of safer supply at a Toronto COVID-19 isolation and recovery site. *Harm Reduct J* 2024;21:17.
- McNeil R, Fleming T, Mayer S, et al. Implementation of Safe Supply Alternatives During Intersecting COVID-19 and Overdose Health Emergencies in British Columbia, Canada, 2021. *Am J Public Health* 2022;112:S151–8.
- Norton A, Ivsins A, Holliday E, et al. A qualitative evaluation of a fentanyl patch safer supply program in Vancouver, Canada. *International Journal of Drug Policy* 2024;131:104547.
- Schmidt RA, Kaminski N, Kryszyajtys DT, et al. 'I don't chase drugs as much anymore, and I'm not dead': Client reported outcomes associated with safer opioid supply programs in Ontario, Canada. *Drug Alcohol Rev* 2023;42:1825–37.
- Pauly B, McCall J, Cameron F, et al. A concept mapping study of service user design of safer supply as an alternative to the illicit drug market. *International Journal of Drug Policy* 2022;110:103849.
- Ivsins A, MacKinnon L, Bowles JM, et al. Overdose Prevention and Housing: a Qualitative Study Examining Drug Use, Overdose Risk, and Access to Safer Supply in Permanent Supportive Housing in Vancouver, Canada. *J Urban Health* 2022;99:855–64.
- Urbanoski KA, van Roode T, Selfridge M, et al. Access and barriers to safer supply prescribing during a toxic drug emergency: a mixed methods study of implementation in British Columbia, Canada. *Subst Abuse Treat Prev Policy* 2024;19:44.
- Bardwell G, Ivsins A, Wallace JR, et al. 'The machine doesn't judge': Counternarratives on surveillance among people accessing a safer opioid supply via biometric machines. *Soc Sci Med* 2024;345:116683.
- Krotulski AJ, Papsun D, Walton SE, et al. New synthetic opioid protonitazene increasing in prevalence as 'nitazenes' gain traction across the United States and Canada. Center for Forensic Science Research and Education; 2021.
- Chatterton CN, Handy RP. Fentanyl concentrations in ligated femoral blood in the presence and absence of NPS benzodiazepine drugs. A review of over 1250 benzodiazepine / fentanyl toxicity cases in Alberta, Canada. *Forensic Sci Int* 2023;350:111777.
- MacDonald M, Cheng C, Wang T, et al. Trends in varying modes of drug use in opioid toxicity deaths in Ontario from 2017 to 2021. *Int J Drug Policy* 2025;141:104197.
- Bardwell G. More Than a Pipe Dream? The Need to Adapt Safer Opioid Supply Programs for People Who Smoke Drugs. *J Stud Alcohol Drugs* 2022;83:309–11.
- Megerian CE, Bair L, Smith J, et al. Health risks associated with smoking versus injecting fentanyl among people who use drugs in California. *Drug Alcohol Depend* 2024;255:111053.
- Potter JS, Marino EN, Hillhouse MP, et al. Buprenorphine/naloxone and methadone maintenance treatment outcomes for opioid analgesic, heroin, and combined users:



- findings from starting treatment with agonist replacement therapies (START). *J Stud Alcohol Drugs* 2013;74:605–13.
- 55 Beaumont S, Magel T, MacDonald S, *et al*. Shared decision-making and client-reported dose satisfaction in a longitudinal cohort receiving injectable opioid agonist treatment (iOAT). *Subst Abuse Treat Prev Policy* 2024;19:1.
- 56 Power N, Archambault L, Perreault M. New Challenges and Opportunities for Opioid Agonist Treatment Access and Retention: A Scoping Review. *J Drug Issues* 2024.
- 57 Jalali MS, Botticelli M, Hwang RC, *et al*. The opioid crisis: a contextual, social-ecological framework. *Health Res Policy Syst* 2020;18:87.
- 58 Strang J, Volkow ND, Degenhardt L, *et al*. Opioid use disorder. *Nat Rev Dis Primers* 2020;6:3.
- 59 Russell C, Ali F, Nafeh F, *et al*. Identifying the impacts of the COVID-19 pandemic on service access for people who use drugs (PWUD): A national qualitative study. *J Subst Abuse Treat* 2021;129:108374.