“I Use Because I'm in Pain”: Perspectives on Harm Reduction Services and Unmet Needs Among People Who Use Fentanyl

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Abstract

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Background

Despite King County pledging over $10 million to harm reduction measures in 2021, overdose deaths in the area have steadily risen with increasing rates predominantly caused by an increase in use of illicit fentanyl, a synthetic opioid much stronger than heroin. Previous studies have shown significant access barriers to harm reduction interventions commonly administered to people who use fentanyl. Our research sought to interview people who use fentanyl in King County to assess their interactions with harm reduction interventions, including barriers to engagement and needs not currently met.

Methods

In partnership with an organization that provides homelessness and substance use services, people who used fentanyl were recruited for semi-structured interviews. Demographic information, including modalities of substance use, was attained during the interviews. Interviews were conducted until thematic saturation was reached. They were recorded, transcribed, and then individually coded for themes using a thematic inductive framework.

Results

Fifteen participants (mean age 46.6 years) completed interviews. All participants used fentanyl pills with some combination of fentanyl powder, heroin, methamphetamines, and crack cocaine. Themes were divided into two main categories: unmet needs (housing, pain management, isolation/community engagement, and case worker communication), and perspectives on harm reduction interventions (Suboxone, methadone, overdose prevention medication and fentanyl testing strips). Specific perspectives and barriers were explored in subthemes.

Discussion

Findings are reviewed in light of previous research and the current opioid treatment plan for King County. All unmet needs connected directly to participants' difficulty meeting substance use goals, suggesting that housing, pain management, and community engagement interventions may be necessary measures within harm reduction frameworks. Physical barriers with Suboxone, access issues with methadone, and administrative issues with naloxone were the largest identified harm reduction intervention barriers, all affirmed by previous research. Contrary to previous research, there were no significant use issues identified with fentanyl testing strips, though general engagement was low, suggesting that education and outreach may be key to increasing testing strip usage.

“I Use Because I'm in Pain”: Perspectives on Harm Reduction Services and Unmet Needs Among People Who Use Fentanyl

Starting with the prescription opioid crisis in the 1990s, the United States, including Washington State, and particularly King County, has been in the midst of an opioid epidemic for over two decades (Centers for Disease Control and Prevention, 2021; Jones et al., 2018). Since then, the landscape of opioid use has changed significantly, with a rise of heroin-related deaths and injuries in 2010, and surges of fentanyl-related overdoses and deaths since 2016 (Jones et al., 2018). Fentanyl describes a class of synthetic opioids that, compared to other opioids, are much stronger and cheaper to manufacture (Volkow, 2021). Lethal and nonlethal overdoses have risen each month, leading King County to declare fentanyl a public emergency in July 2022. The county pledged over $10 million towards various substance use disorder interventions for the 2021-2023 budget (Washington State Healthcare Authority, 2021b). Despite this, overdose deaths per year have almost doubled since 2020 and show no signs of declining in 2023 (King County Public Health Department, 2023). Recognizing this disparity, an April 17, 2023 executive order enacted a plan to increase adherence to treatment (through contingency management) for people who use drugs, as well as to increase overdose prevention teams (Exec. Order no. 2023-04, 2023). However, the executive order cites no local research and was seemingly put into place without input from the population it seeks to serve. With both overdoses and public funds channeled into overdose prevention at all-time highs, now is a critical moment to ask people who use fentanyl about their perspectives on–and experiences with–these potentially life-saving interventions.

Challenges with Fentanyl Interventions

Intervening on fentanyl use creates unique challenges compared to previous waves of the

opioid epidemic. As the situation is rapidly evolving, even within the scientific community there is not always clear consensus about fentanyl-related topics (Arendt, 2020; Beletsky et al., 2020). Nonetheless, there is general consensus around some specific challenges. For example, people who use fentanyl tend to use it more times in a day than other substances to avoid withdrawals, as fentanyl has a shorter half-life within the body (Kral et al., 2021). As such, people who use fentanyl tend to have less time to engage in interventions that require significant amounts of time or travel. Additionally, fentanyl has unique pharmacological properties that may make emergency overdose interventions (e.g., naloxone) and medications for opioid use disorder (MOUD) less effective (Torralva & Janowsky, 2019; Antoine et al., 2021). The most relevant is that fentanyl may be absorbed into fat cells and dissolve up to 48 hours later, potentially causing a second unexpected high and a subsequent painful withdrawal, especially if opioid medication, overdose medication, or additional fentanyl is used (Antoine et al., 2021). In addition, it is usually inhaled (i.e., smoked) and not injected, so many previously robust harm reduction measures such as syringe service programs or safe-consumption sites may be less effective (Kral et al., 2021). In fact, there is a national shortage of safer smoking supplies due to increased demand (LaForge et al., 2022). Third, the fast and ubiquitous nature of fentanyl's induction into the US drug market meant that many users and practitioners were not prepared to facilitate safer use (Shin et al., 2022). Level of education on all these topics tends to be fairly low for both providers and people who use drugs, even after almost six years of the fentanyl epidemic (Mars et al., 2018; Shin et al., 2022). Finally, fentanyl use has become a highly politicized topic, with frequent fear-mongering campaigns creating unreliable information about fentanyl (Shin et al., 2022).

Common interventions and barriers

The three most common interventions specifically recommended for mitigating harm done by fentanyl are providing fentanyl testing strips, increasing access to overdose prevention medication, and MOUD (i.e opioid agonists like buprenorphine (Suboxone) or methadone) (Han et al., 2019, Bisaga, 2019). In fact, the Washington Comprehensive Opioid Response Plan recommends and provides funding for all of these interventions (Washington State Healthcare Authority, 2021a), but provides no evidence-based guidance for how to implement these interventions in a safe and clinically informed manner. For example, the plan proposes drastically increasing amounts of naloxone kits given out to reduce overdoses, but recent research showed that fentanyl requires different dosing standards than previously thought. This means people who use drugs (PWUD) are at risk of underdosing their peers during critical life-saving moments (Abdelal et al., 2022; Torralva & Janowsky, 2019; Moe et al., 2020).

MOUD can have similar problems, as recent studies have found that clients are interested in medication, but risk of withdrawal symptoms is higher with fentanyl, which can make clients not want to continue the medication (Varshneya et al., 2021; Antoine et al., 2020). To complicate matters, certain induction methods come with significantly different side effects (Adams, 2021). In addition, access to medications is often restricted to those who are mobile enough to get to a few specific clinics at certain times of day (McLean & Kavanaugh 2019). If MOUD is to be a key intervention in reducing overdose deaths, we must ensure that all people can access the medication and that it succeeds in reducing cravings without side effects that make it untenable to take long-term.

Finally, multiple recent studies have highlighted that many fentanyl users report a high desire to use fentanyl testing strips but run into barriers when attempting to use them in the community (i.e., stigma against testing, desire to use drugs immediately, no flat surface for

testing) (Reed et al., 2022; Barrolle et al., 2022). And in fact, many of these interventions are aimed at those involuntarily using or wanting to avoid using fentanyl, but about two-thirds of people who use fentanyl in Seattle reported voluntary use (Kingston et al., 2022). With some studies reporting high desire for use of testing strips, and others reporting voluntary use of fentanyl potentially incongruent with testing strip usage, the actual level of engagement in this intervention remains unclear.

Unmet Needs

The three interventions above are the most significant client-facing harm reduction interventions for fentanyl per King County's intervention plans (Washington Healthcare Authority, 2021a; Exec. Order no. 2023-04, 2023). However, previous research has not directly asked clients what their needs are and if these interventions are the best way to meet those needs. Given rising overdose deaths, it is critical not only to examine existing interventions, but also question what types of interventions should be, but are not currently, in place.

Limited previous research exists assessing the unmet needs of PWUD. The largest category of research on the subject involves assessments of unmet needs in mental health services for unhoused people. Within this research, substance use is often attributed as a major risk factor for clients having significant unmet needs (Thorndike et al., 2022; Yang et al., 2019; Han et al., 2017). Barriers to addressing these needs tend to range from access issues, to distrust of medical systems and stigma (Thorndike et al., 2022). To our knowledge, only one study exists specifically examining the unmet needs of people who use fentanyl, and it was conducted in a clinical healthcare setting (Moallef et al., 2021). The needs of people who use fentanyl may not be fully addressed, but it remains unclear what exactly those unmet needs are. Thus, it is critical to consider not only the effectiveness of current interventions, but also the possibility that

additional interventions are needed.

Research Objectives

The current research aims to better understand the unmet needs and engagement in existing harm reduction services for people who use fentanyl in King County. Specifically, this research sought to obtain perspectives from people who use fentanyl about their engagement with community resources, barriers to access for these resources and, broadly, what sorts of services they need that they are not receiving. This included their experiences with MOUD, overdose prevention medication (naloxone), and fentanyl testing supplies. If clients are unable or unwilling to engage with any of these strategies, it is critical to determine why and to find alternative solutions before we expand or remove community resources and services.

Methods

Participants and Recruitment

This study was done in partnership with a King County based homeless and substance use service agency that runs service centers and housing sites throughout the city. Participants were recruited at a drop-in service center and a low-barrier shelter. Potential participants were pre-screened by staff members to ensure that it would not disrupt program proceedings to approach them. Inclusion criteria were: 1) $\geq$18 years old, and 2) reported fentanyl use in the past two months. Clients who met these criteria were approached by the principal investigator to ask if they would like to hear more about an opportunity to participate in research. If they agreed, they then reviewed an information sheet with the investigator to ensure understanding before being asked to provide verbal consent. Interviews were conducted immediately after consent in on-site break-out rooms. Study procedures and materials were approved by the University of Washington Human Subjects Division and subsequently approved by relevant organizational

leadership. All participants who were screened and met inclusion criteria agreed to participate in an interview (*n*=15).

Materials

The semi-structured interview guide (see Appendix 1) was developed with input from staff and clients from one of the hosting organizations' substance use teams, to help tailor the guide to PWUD. Participants were asked broadly about their unmet needs at the beginning of the interview, and again at the end after some specific services had been prompted. Harm reduction behaviors explored included: 1) MOUD (Suboxone, methadone, Sublacade, Vivitrol), 2) overdose prevention measures, and 3) fentanyl testing strips. Follow-up and clarifying questions were employed as needed. During the interview we also asked about demographic information (age, race, ethnicity, and gender), as well as information on housing status, internet use, and specific drug use patterns (frequency, specific drugs used, using alone or with others).

Analyses

Interviews were audio recorded, transcribed, and uploaded into Dedoose qualitative analysis software. For participants who did not agree to have their interview recorded (*n*=2), detailed notes were transcribed and uploaded. Transcripts were then analyzed using an inductive thematic analysis framework (Braun & Clarke, 2006). Specifically, an initial codebook was generated from a sample of three transcripts, and codes were added iteratively as other key themes emerged from the interviews. Interviews were conducted until thematic saturation was reached, in line with Braun & Clarke's (2006) guidelines. Through thematic analysis, we identified the most common themes, subthemes, and quotations that best represented each theme.

Results

Participant Characteristics

A total of 15 interviews were conducted. Demographic information is provided in Table 1 below. All participants had used fentanyl within the past month, though the sample was fairly diverse in terms of use patterns. About half of participants (*n*=7) used drugs primarily alone. Five of those seven preferred using alone, with the commonly cited reasons being lack of trust of others and trying to decrease use. All participants expressed a desire for eventual abstinence and 87% (*n*=13) expressed a desire for immediate abstinence. In fact, when asked if there was anything about their use that they wanted to be different, several participants replied that they simply wanted to quit.

> *I don't wish anything was different about my use, I just wish I didn't use at all. [47-year-old, White woman who uses fentanyl pills and crack cocaine]*

Table 1

Demographic characteristics of interview participants.

Variables		Interviewed (n=15)
Age, mean (SD)		46.6 (9.5)
Gender identity[a], n (%)		
	Transwoman or woman	5 (33.3)
	Transman or man	10 (66.6)
Ethnicity or race[b], n (%)		

	Hispanic	3 (20.0)
	American Indian or Alaska Native	3 (20.0)
	Asian	2 (13.3)
	Black or African American	4 (26.7)
	Native Hawaiian or Pacific Islander	0 (0.0)
	White	9 (60.0)
Primary Housing Status, n (%)		
	Unhoused	8 (53.3)
	Semi-permanent shelter(s)	2 (13.3)
	Housing project Scattered housing	4 (26.7) 1 (6.67)
Drug Use Within The Past Month[c], n (%)		
	Fentanyl pills (Blues)	15 (100)
	Fentanyl powder	7 (46.7)
	Heroin	5 (33.3)
	Methamphetamine Crack cocaine	9 (60.0) 3 (20.0)

a. One female and one male participant identified as transgender

b. 6/15 participants self-identified as more than one race.

c. 15/15 participants reported using more than one drug.

Themes were divided into two major categories: unmet needs and perceptions of harm reduction interventions. Themes and subthemes are displayed below in Table 2.

Table 2

Themes	**Subthemes**	**Description**
Unmet Needs		
Housing		· Expressing need for housing · Issues with current housing · How housing would affect substance use
Pain management		· Expressing needs surrounding pain management · Experiences trying to receive pain management · Intersection between pain and substance use
Community Engagement	· Lack of activities · Lack of peer support · Isolated	· Needs for more community programming like workshops, art/writing groups, therapy groups · Expressing desire for organizations to better support peer-to-peer interactions/support groups · General feelings of isolation
Case Worker Communication	· Inability to communicate · Lack of goal setting/motivation	· Practical barriers making it difficult to communicate with case workers and set/achieve goals (i.e cell phone losing service) · Case workers not setting goals or motivating clients
Harm Reduction Interventions		

Suboxone	· High effectiveness · High accessibility · Low effectiveness · Unwanted highs · Sickness	· Suboxone as an effective medication (i.e. stopping cravings). · Easy availability of Suboxone · Suboxone as an ineffective medication · Suboxone causes participant to get high in an unwanted way · Withdrawal/sickness due to Suboxone.
Methadone	· High effectiveness · Low accessibility	· Methadone as an effective medication · Difficulties with receiving Methadone or its administration.
Naloxone	· High accessibility · High effectiveness · Ease of use · Low nasal spray effectiveness · Lack of street-availability	· Ease of access of naloxone · Naloxone as a highly effective medication. · How easy naloxone is to use. · Nasal spray being not or less effective than other types of naloxone. · Naloxone being difficult to access for those who cannot go into service centers.
Fentanyl Testing Strips	· High accessibility · Low usage	· Ease of access of fentanyl testing strips. · Clients not generally using fentanyl testing strips.

Unmet Needs

Participants began and ended interviews by explaining what services or materials they were not receiving and needed additional support on. Four major common themes were identified: housing instability, pain management, isolation/community engagement, and

caseworker communication.

Housing Instability

By far the most commonly identified unmet need theme was housing instability. All participants, regardless of housing status, identified issues with their housing and the support they were receiving surrounding it. For street-dependent participants, housing was revealed to be a key element of future sobriety.

> *A lot of times, when I've tried to quit I was homeless…It's too tough to do it on the street…it's stressful in the streets and you got to deal with a lot of unnecessary bullshit. And so at the end of the day, a lot of it wreaks havoc on your mentality…So housing really is great stability for a person that's really, truly wanting to try to get off drugs. But....on the streets… it's really hard [55 year old, Black man who uses fentanyl pills, heroin, and methamphetamine].*

Other participants explained that going to treatment would be ineffective without a safe space to go back to.

> *I'm going to [rehabilitation program] for six months. This month, if I don't get my housing voucher, then I won't come out of the program. If I don't get my housing voucher, I will finish and then start using drugs again until I get my housing because that's my cycle. Do you know I've been to rehab 4x and every time I graduated, I had to go back out on the street? [62 year old, Asian man who uses fentanyl pills, fentanyl powder, heroin, methamphetamine and crack cocaine].*

People who use fentanyl within housing sites and semi-permanent shelters expressed similar concerns with a lack of stability and an inability to stay clean within those environments.

Absolutely, I can't quit in this shelter. There's just no way. I can't. [Fentanyl] is just–everywhere…And that's why, if I was in my own housing, I don't have to walk out the door if I don't want to…And I can…stay at home and I don't have to see it everywhere. [47 year old, White woman who uses fentanyl pills and crack cocaine]

Drugs are everything, everywhere here. I try, I try– to get away from them, I try to sit alone, I try to go out…to go to church. Nothing works....and there are old pipes that don't even work, mold everywhere. I might as well leave or get kicked out but it'd be even worse. [43 year old, White, Hispanic and Indigenous man who uses fentanyl pills and methamphetamine].

Pain Management

Several (*n*=10) participants mentioned that they use substances in order to manage pain, and that their pain would have to be managed in other ways in order to stop or reduce fentanyl use. One client tearfully spoke to this while wrapping open wounds on his hands.

I use because I'm in pain. That's really all I can say. I do it because of my pain. [52-year-old, White man who uses fentanyl pills and fentanyl powder].

Other participants spoke more directly to their experiences seeking pain management care.

I mean the, the fentanyl really helps with the pain, but I know that's not a good thing at all….my whole body it just hurts, hurts, hurts…I don't want to use fentanyl for the pain…so a person's going to go buy fake stuff because, because, the doctor's not helping, not touching it, and you're taking your time out to tell the doctor, "This is what I feel like. Help me, please be the…" But they're like, "No, we won't do it. You will die." That's what they say. [52-year-old, Mexican man who uses fentanyl pills and fentanyl powder]

> *The fentanyl kills the pain, really. My hospital, they took all my meds away from me and gave me just ibuprofen and some other meds over the counter, but they're not the ones that kill the pain. They said because my cancer is in remission, I don't need my prescription anymore. But they also cut my back all the way up. So it's not like I'm not in pain, so fentanyl kills the pain. [59-year-old, White man who uses fentanyl pills, fentanyl powder and methamphetamine].*

Social and Community Engagement

Clients endorsed a severe lack of social and community engagement. Sub-themes included lack of activities, lack of peer support, and isolation. First, clients identified groups and classes as a way to help mitigate substance use (*n*=5).

> *We need more classes, more classes and groups. Maybe they stopped because of COVID, I don't know. Cause it gives you something to look forward to, yeah. And most of the time now, all you have to look forward to is getting high. You know, wake up, where are you going? "To get high?" Or somebody coming to you, what are you doing? "Getting high." [52-year-old, Black woman who uses fentanyl pills and methamphetamine]*

Other participants mentioned that a lack of peer support groups makes it difficult to access any resources (*n*=4*)*.

> *I guess peer support accessibility would be huge, just helping people using in talking to and sharing resources with other people. Because otherwise people feel really isolated and lonely and no one wants to talk…So you know sponsors, peer support, people, recovery coaches…making sure you tell them like it's, it's OK to speak up, give space and*

> *reassuring them that…they're not doing anything wrong. I know it sounds weird, but no one in this community will speak up without support. [52 year-old, White and Indigenous trans woman who uses fentanyl pills, heroin and crack cocaine].*

Finally, several participants mentioned how loneliness and isolation can be a major trigger and strongly affects their mental health (*n*=7).

> *I'm alone, by myself, pretty much all day. I don't have anyone. If no one visits me, I just sit at home smoking meth and whatever else all day. I come here to get my money and then I go back home and will be alone till the next time I come here. No one comes to see me. [43-year-old, White, Hispanic, and Indigenous man who uses fentanyl pills and methamphetamine].*

Case Worker Communication

Subthemes that emerged around casework communication included inability to communicate, lack of goal setting/motivation, and one-size-fits-all approaches. Although many clients reported positive interactions with staff and expressed gratitude for the services they were receiving, some interviewees identified specific communication deficits that hindered the meeting of their other needs. Specifically, several interviewees (*n*=6) identified ways that being unable to receive key information made it difficult to work towards other goals.

> *It's just that I wish there was a better way of like I said, keeping contact…so you don't lose your appointment, right? So that's that's just…a situation a lot of homeless people deal with, you know…their phone not working, they don't have wifi. We miss a couple of calls and then we're at the bottom of a huge list [55-year-old, Black man who uses fentanyl pills, heroin and methamphetamine].*

> *Well, I got approved for a [section 8 housing voucher], it was supposed to be like $1,700 a month. But then they tell me that my voucher was good for one, for a certain area…And they didn't tell me those stipulations at first…And there were no places that were available, any of the places I was looking. So then my case manager tells me it took too long for me to find a place so they took my, so they took the voucher. [46 year old, White man who uses fentanyl pills, fentanyl powder, heroin and methamphetamine].*

Another key facet of clear communication emerging as an unmet need was participants (*n*=5) feeling like their goals were not being addressed, and that their agencies were not encouraging them to meet their goals.

> *I think maybe you could have pressed me a little harder to access your services…Yeah, like, I guess like I need housing, I need help, I need clothes, and I would…push you guys away, and they would always just say that's ok, and not mention it next time I came in. But one time someone said, "What are your goals," and when I wasn't meeting them would say, "I want you to do this because of your goals." And that was really helpful, but only happened once. [52-year-old, Mexican man who uses fentanyl pills and fentanyl powder]*

> *You all could explain more about decreasing their drug habits instead of being complacent with it. I'm feeling forced...into not decreasing it, encouraging me to use it. Like sometimes it's like you'll [case-workers] be encouraging people to use it and you tell them, you know, "It's OK to use. Here's this stuff, you go ahead." But it takes the power out of you if you want to try to use less. And sometimes that's what you need to just start*

> *using more, even if you want to quit. [52-year-old, Black woman who uses fentanyl pills and methamphetamine].*

Relatedly, four participants identified deficits surrounding providers creating a one-size-fits-all approach and not listening to the person's specific goals and needs.

> *Just to listen to everybody's story is different and their different reasons why they're here or why they're in this situation and just to see them, you know. Like I feel invisible a lot of times… like when I broke my leg and my shoulder, I begged them to put me in respite…and they told me no, it wouldn't be fair, and they literally wheeled me out the door knowing I couldn't wheel myself cause my shoulder was broken. [47-year-old, White woman who uses fentanyl pills and crack cocaine].*

Perspectives on Harm Reduction Interventions

The other main category of themes and subthemes involved harm reduction interventions, namely medications for opioid use disorders (Suboxone, methadone), fentanyl testing strips, and overdose medications (naloxone). We also asked participants about Vivitrol and Sublocade; however, the majority of participants (*n*=13) had no experiences with either one.

Suboxone

Subthemes of Suboxone use included high effectiveness, high accessibility, low effectiveness, unwanted highs, and sickness. Only one client had never taken Suboxone. All participants with Suboxone experience reported relatively high levels of accessibility and ease of use. However, participant attitudes regarding Suboxone efficacy were fairly mixed, with only five participants reporting its high level of effectiveness.

> *I mean, [Suboxone's] been a saving grace for me. I wouldn't be alive if it wasn't for it. I would already be gone [52 year old, Mexican man who uses fentanyl pills and fentanyl powder]*.

Many participants (*n*=9) reported that Suboxone produced withdrawal-like symptoms that may keep them from trying it again.

> *No, honestly. It messes you up. You're just like, I'm done so…I'm always like "I'm not going through that again." It's the worst, most painful awful feeling in the world…I don't wish that upon anybody, man, [46 year old, White man who uses fentanyl pills, fentanyl powder, heroin, and methamphetamine]*.

Another subsample of participants (*n*=6) reported that Suboxone was ineffective at stopping cravings, and simply did not work for them.

> *Like every time I use Suboxone, I still feel I wanna use. Methadone I don't feel I wanna use. But it made me stable…if I use methadone, I don't feel like I wanna use heroin… No I don't feel nothing about Suboxone, it just doesn't work for me. [62 year old, Asian man who uses fentanyl pills, fentanyl powder, heroin, methamphetamine, crack cocaine]*.

Finally, a smaller number of participants (*n*=4) reported unwanted highs from Suboxone.

> *Suboxone gets me higher, it gets me a lot higher than fentanyl does. And once I take one strip, I'm nodding out for the next four hours…I am very dysfunctional, I wish I could still do anything on Suboxone [27-year-old, Mexican trans man who uses fentanyl pills and fentanyl powder]*.

Methadone

Subthemes of methadone use included high effectiveness and low accessibility. Most of the participants who had used methadone (*n*=9) spoke to how effective methadone was at reducing cravings, and that methadone was preferable over Suboxone (*n*=7).

> *With methadone, I'm not gonna get the withdrawal, with Suboxone I had to do blues no matter what. It fucked up my body. I'd get sick if I did blues with Suboxone, I'd get sick if I didn't take Suboxone with blues, I'd get sick, I had to do both no matter what. With methadone I don't have to do any blues, any opioid at all. [59-year-old, White man who uses fentanyl pills, fentanyl powder and methamphetamine]*

One more subtheme that emerged from methadone usage was access and administration issues. Several participants (*n*=8) reported issues that prohibited them from accessing or effectively engaging in methadone treatment. Limited clinic hours, followed by dosage issues, were the most common barriers reported.

> *...I've always said this too, all the methadone clinics are set up from like 5:00 AM till noon…the average dope fiend…does not get up at 5 in the morning…but you know still, even when I was working shifts, I worked nights most of the time. So if they were to come up with, you know, a split time or something like that…I think there would be a lot more people that would choose to get on it. [46-year-old, White man who uses fentanyl pills, fentanyl powder, heroin and methamphetamine].*

> *Methadone was frustrating for me, right, because you have to use so much of it because they lower your, they start you at a really low amount. So it didn't touch my heroin use,*

and it didn't touch my heroin addiction. So for me to get it built up to the point that it would touch my addiction, I had to show up more and more, but it was really a pain in the ass to show up more, for something that wasn't helping me. [52-year-old, White woman who uses fentanyl pills and heroin].

Overdose Prevention (naloxone)

Subthemes that were identified surrounding naloxone usage included high accessibility, high effectiveness, ease of use, low nasal spray effectiveness, and lack of street-available accessibility. All fifteen participants praised naloxone saying it was important, easy to use, and accessible for them.

It's horrible if you get it administered that's for sure. But it's great, it saves lives. It does. It really saves lives. It's simple enough to use, and you can get it basically anywhere, you just need to ask. [47-year-old, White woman who uses fentanyl pills and crack cocaine].

However, a few issues with naloxone usage arose, including a lack of accessibility for people not able or willing to visit social service agencies (*n*=6)

I thought it would be everywhere downtown, but from what I understand, a lot of people down here don't have it either, people in the streets. You can really only get it at programs so if you are barred or whatever, you, they just don't--then they don't have it and people OD and people die [52-year-old, White woman who uses fentanyl pills and heroin]

Second, some participants (*n*=5) mentioned noticing that the naloxone nasal spray is not effective at stopping fentanyl overdoses.

> *The nasal one is pretty easy to use, but I'm not even gonna lie, the nasal one just doesn't work as well as the injection stuff did. And everybody I know, particularly with fentanyl overdoses, people are using three or four nasal before they are getting a response from anybody. And I go, it's a hard wait, 2-3 minutes is a long time to wait when someone is not breathing. [52-year-old, White woman who uses fentanyl pills and heroin]*

Finally, one participant noted that during a recent overdose, his housing site did not have naloxone or the training to properly use it.

> *But like the building I live in–we had somebody OD Saturday…And the management, they had no Narcan, totally inappropriate. I had to run upstairs and get my 4-5 boxes and bring it down and give it to them so they could save the guy…What I saw, the managers in the building are not trained in how to do that. They are not trained in saving lives…they were completely useless. [59-year-old, White man who uses fentanyl pills, fentanyl powder and methamphetamine]*

Fentanyl Testing Strips

Common subthemes that were identified surrounding perceptions of fentanyl testing strips included high accessibility and low usage. Participants felt generally positive about testing strips and most interviewees (*n*=12) said testing strips were easy to find, easy to use, and important to have available.

> *I think they're great actually. Really easy to find and use. I think that more people should use them, especially with the fenty powder and the crack because they look so similar. I've had those same friends die from overdoses because they don't look so different. [47 year-old, White woman who uses fentanyl pills and crack cocaine].*

Despite generally positive attitudes, actual usage of the strips was reported as low. Only one participant endorsed consistently using strips, and only two others endorsed using them more than once. Reasons for low usage varied, but were most commonly related to only buying drugs from a trusted supplier.

> *Yeah, I think I tested once since I almost OD'd. But I just buy it from the same person over and over so I don't have any problems anymore. [52-year-old Black woman who uses fentanyl pills and methamphetamine]*

Two participants noted that they were confused by testing strips and did not think they had used them correctly.

> *I don't think I'm very good at them, or maybe it was never explained to me. I just don't know how to read it like it's got these little two marks on it. It's probably common sense, but it doesn't make sense to me. [47-year-old Korean and Mexican man who uses fentanyl pills and fentanyl powder].*

Discussion

Despite expansion of programs for people that use drugs, opioid overdoses in King County have continued to rise, with 2022 representing the highest number of overdoses ever recorded. It is clear that in order to help prevent further loss of life and further diminishing quality of life, we must better understand the population being served, and how actual engagement with harm reduction measures occurs with them. The current study helped to illuminate unmet needs and levels of engagement with three key harm reduction strategies. Our findings suggest large deficits between the services needed and the services received for people

who use fentanyl in King County especially for housing, pain management services, social engagement, and case-worker communication. Beyond unmet needs, participants identified some clear barriers to engagement in harm reduction services, particularly with regards to Suboxone, methadone and naloxone.

Unmet Needs

Although previous research has explored unmet mental health needs for people without housing (Thorndike et al., 2022; Fleury et al., 2021), these interviews allowed for people who use fentanyl to broadly identify their unmet needs, rather than asking about specific needs. Previous research generally targeted mental specific health needs for people without housing, which does not as easily allow novel needs to be revealed. In this study, each need was identified as directly impacting participants' ability to achieve their substance use-related goals. Of note, participants could have identified interventions for substance-use disorder (such as needing to receive MOUD) as an unmet need, but generally did not. This suggests that the identified needs should be considered as, and integrated into, substance use intervention programs wherever possible.

In addition, each identified unmet need provides unique perspectives into challenges that people who use fentanyl face when attempting to seek treatment. The most recent overdose prevention strategies in King County may be missing these needs, as the strategies were backed by national research, rather than local input from the populations served. The current plan does not mention any interventions into housing, pain management, community engagement or isolation (Exec. order 2023-04, 2023). Both housing (short-term housing vouchers) and community engagement (in the form of case managers and outreach workers), received funding

in 2021 (Washington State Healthcare Authority, 2021b), however these strategies are fairly limited, and do not provide specific recommendations relevant to people who use fentanyl. Despite being near the end of the funding period, participants still reported receiving no–or insufficient–care in those areas, implying that the implementation of these strategies may be insufficient for people who use fentanyl. Specific implementation strategy adjustments are discussed below.

All participants unanimously recognized the absence of stable housing as a critical factor hindering their recovery process. Prior research has suggested that experiencing homelessness is a risk factor for current and future substance use and consequently identified housing as a critical social determinant of health (Rolfe, 2020; Johnson & Fendrich 2007). Adding to this research, participants in this study clearly identified that continued unstable housing was the largest anticipated barrier to using substances less, especially for those attempting to maintain abstinence. Furthermore, housing programs were not identified as a viable option, and for those within housing programs, independent housing was still identified as a key substance use-related goal. Instead of focusing on short-term housing such as the current behavioral health budget, long-term or scattered housing (i.e private apartments funded by housing organizations)–which allows clients to have more autonomy and self-reliance–may help increase stability and assist in achieving long-term substance use goals. Clients in these interviews felt confident that they could successfully move from the street into long-term housing, and that some of the short-term housing programs were adding to unwanted substance use. In addition, more autonomy may help clients be less isolated, as the strict rules in housing programs was identified as a reason participants were not able to socialize, and thus felt confined to their rooms leading to undesirable substance-use outcomes.

Our findings surrounding pain similarly suggest that pain management may be a key need to address when treating opioid use disorder. This finding is in line with previous studies that found that those living in chronic pain tended to use non-prescription opioids at a higher rate and suggested that pain management be integrated into opioid use disorder treatment plans (Hartz et al., 2022). Our findings provide insight into patients' perspectives on their pain. For example, multiple participants stated they would not be using substances if providers did not refuse pain management services with them. In addition, this research adds that illicit fentanyl use is being used to manage pain, with some participants noting that fentanyl in particular was useful for their pain. To our knowledge, pain management is not an explicit focus for substance use interventions in King County, and has not received focus or funding in any published county plan.

Another social need contributing to unwanted substance use was a lack of social engagement. Participants explained that given experiences of general isolation and a lack of community engagement, they desired opportunities to connect through workshops and classes. It should not be understated how devastating isolation can be, especially in the wake of the COVID-19 pandemic, which increased perceived isolation and loneliness (Holt-Lunstead & Steptoe, 2022). This finding is in line with previous research indicating that severe mental and physical health issues can be correlated with isolation, and that people who use drugs are at especially high risk for elevated levels of isolation (National Academies of Sciences, 2020; Ingram et al., 2020). Our study adds to these findings by providing a direct connection between isolation and unwanted substance use. Increased community programming could be one way of decreasing isolation with the added benefit of giving people who use fentanyl more reasons to engage in other programs (such as treatment) at the same organization, and perhaps facilitating interventions for other needs. Although King County funding is certainly going towards

community-based substance use treatment (Exec order. 2023-04, 2023), this funding seems to focus on more individualized services, which will not necessarily meet the needs of those using due to social isolation. Outreach services tend to focus on those living on the street, but our findings suggest those living in housing projects may be at high risk for isolation related obstacles.

Similarly, communication with case workers was connected to each unmet need as poor communication made meeting other needs even more difficult. This finding, in conjunction with a recent study showing that patient coordination may be a significant barrier in MOUD treatment (Young et al., 2023), suggests that communication barriers may affect patients throughout different aspects of care. Interestingly, within King County harm reduction organizations, there are already several measures in place (such as places where clients can receive mail and outreach teams) to reduce these barriers, as well as a national cell phone program (Federal Communication Commission, 2023). The fact that communication is still a large barrier–especially for people who live on the street–underscores the difficulty of communication and highlights how additional research may be needed in order to workshop creative solutions.

Aside from some limited research into pain management (St. Marie & Broglio, 2020), very little previous research has attempted to integrate solutions for any of these needs into substance use care. Future research into each of these unmet needs could explore more creative options for integrating programs and creating wrap-around treatment plans. Not only would this help directly address the goals and needs of people who use fentanyl, but it may reduce communication issues by reducing the number of separate entities participants need to communicate with, at least by allowing a central hub of communication. Different modalities of interventions will likely need to be considered, as this population was far from monolithic, and

some identified issues tended to be co-occurring (i.e. issues with housing sites and feelings of isolation). Some solutions, such as revitalizing client engagement groups, can likely be implemented in individual community care centers, while unmet needs like housing will require broad-scale interventions at policy and community practice levels.

Perceptions on Harm Reduction Interventions

This research also examined engagement and barriers with three key harm reduction strategies: MOUD (Suboxone and methadone), overdose prevention medication (naloxone) and fentanyl testing strips. Response to each strategy was mixed both in terms of engagement and perceived effectiveness. In general, actual usage of MOUD and naloxone was fairly high, while usage of fentanyl testing strips was lower. Similar to our findings surrounding unmet needs, these interviews suggest that recent substance use interventions such as the increased overdose prevention teams, may be missing key information that would allow for more effective interventions. For example, the recent executive order states, “The City will work to expand access to buprenorphine [Suboxone] and methadone in high overdose areas,” (Exec. order 2023-04, 2023), but this study’s participants reported high access to Suboxone and required ways to help mitigate the physical hardships caused by the medication. And while methadone access expansion could meet the needs expressed by this study’s participants, specific considerations like time of day should be made.

More specifically, our findings suggest that additional education around medication options may be helpful, as most participants had not heard of two of the four main medication options (Sublocade and Vivitrol). In addition, previous research has suggested that some clients who experience issues with Suboxone, as much of this population did, needed additional education regarding safe Suboxone use (Young et al., 2023). Other work has suggested that

clients may not want to engage in MOUD due to withdrawal issues and access issues (Antoine et al., 2020; Varshneya et al., 2020; McLean & Kavanaugh 2019). Our findings align with both of these issues and, in fact, participants generally associated physical withdrawal issues with Suboxone and access issues with methadone. Adding to a national research-oriented push to examine methadone expansion (Joudrey et al., 2020), this study showed key benefits to expansion and showed an overall preference in this population which cannot be met without increased methadone access.

Overall, participants expressed positive feelings towards naloxone, with many participants expressing directly that they had saved lives with naloxone. Previous research has shown that targeting naloxone distribution through harm reduction centers may be an effective way to distribute the medication and prevent overdoses (Spector et al., 2022). Interestingly, one finding in our study was that distribution of naloxone at harm reduction centers may not be accessible for everyone, as not everyone can or is comfortable accessing these centers. Further research should examine more open solutions for naloxone distribution, especially in places where overdoses continue to rise. It is possible that the recent legalization of over-the-counter naloxone in King County may resolve some of these issues, but it is also possible that clients who are not comfortable in harm reduction centers, may not be comfortable entering pharmacies either.

Participants also noted that the nasal spray may be less effective than injection. This is consistent with previous studies that found issues in the efficacy of naloxone for fentanyl use, with the caveat that no previous research has directly compared injection and nasal doses for fentanyl overdoses (Torralva & Janowsky, 2019; Moe et al., 2020). One particularly relevant recent review of over 125 incidents of naloxone use found that a stronger dose of nasal spray is

more effective, and multiple doses were often needed for people who use fentanyl (Abdelal et al., 2022). Further research could examine dosage and modality of dose accessibility, to make sure that higher doses and injection doses are also readily available. Outreach and education teams should also consider this finding, to ensure that naloxone training warns against possible underdosing of naloxone after fentanyl use. Finally, one client mentioned that staff did not have naloxone or training at his housing site. Although this study centered clients, future research should consider surveying staff as well to ensure that they have the necessary access to and training for naloxone.

Participants generally felt that they had no access issues with fentanyl testing strips, and were glad they were available. However, despite generally positive attitudes actual usage was fairly low. Issues such as lack of flat surfaces or stigma, and broader positives like more engagement in harm reduction services have both been explored in previous research (Reed et al., 2022; Barrolle et al., 2020; Goldman et al., 2019), but were not supported by these interviews. It is possible that low usage is specific to people who use fentanyl in King County, or that there is a difference between participants knowing the testing strips were available if they were to ask for them versus being handed them. The current study's findings indicate that participants do not perceive the use of fentanyl testing strips as necessary for various reasons, such as having confidence in their supplier. This implies that for increasing engagement, focusing on education or outreach may be critical, contrary to the recent Seattle executive order which focuses only on fentanyl testing strip legality and access (Exec. order 2023-04, 2023). Further useability research may help determine if there are needs surrounding testing strip training, however only two participants identified this as a potential need.

Strengths, Limitations, and Future Directions

To our knowledge, this is among the first studies to ask people who use fentanyl about their unmet needs, allowing free answers. Consequently, we were able to identify housing, pain management, and isolation as needs specific to substance use treatment. These needs, along with communication barriers, may need to be addressed before effective recovery can occur. In addition, this study strengthened and unified previous findings about MOUD, particularly the barriers associated with Suboxone's physical side effects, and the administrative limitations of methadone. Finally, to our knowledge, this is the first study to find that people who use fentanyl have low engagement with fentanyl testing strips, and that barriers to fentanyl test strips may be preference or education-based, rather than practical barrier-based.

Findings should be interpreted in light of this study's limitations. First, our sample size was relatively small, and we were unable to specifically target any populations beyond people using fentanyl. Although thematic saturation was reached in this study, previous research in King County has indicated a need to include women and people under 25 who use drugs (Wilson, 2018). Our participant diversity was also limited by recruiting in the same neighborhood from two different service centers run by the same agency. A validated unmet needs framework such as the Unmet Needs Score (Health Resource and Service Administration, 2021), and a more agency-diverse sample could uncover other barriers to substance use treatment. Finally, our study focused on harm reduction measures aimed at opioid use, but a significant portion of our population used methamphetamine and/or crack cocaine (both potentially laced with fentanyl) in conjunction with fentanyl. Future research is needed to identify harm reduction strategies, including medications and overdose prevention strategies for people who use stimulants.

Conclusion

This study sought to explore the unmet needs and engagement in harm reduction techniques for people who use fentanyl in King County, WA. The current fentanyl use interventions focus on increasing access to MOUD, naloxone and fentanyl testing strips, but do little to address barriers causing people who use fentanyl to not engage in those services, or the unmet needs negatively impacting their ability to use substances safely. There are significant unmet needs involving housing, pain management, and social isolation that contribute directly to people continuing to use fentanyl in unwanted ways. Engagement with MOUD and naloxone was generally high, but each presented specific barriers that limited the effectiveness of the interventions. Fentanyl testing strip engagement was low, though no significant barriers were identified. As fentanyl related overdoses continue to climb, research-based backed development of programs to meet the reported needs of people who use fentanyl is critical for individuals, communities, and society at large.

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Appendix 1: Interview Guide

PRIMARY GOAL: Identify barriers to engagement in harm reduction measures with particular focus on fentanyl testing strips, Narcan access/overdose prevention education, and medication for opioid use disorder.
SECONDARY GOAL: Identify additional measures/unmet needs that may need to be addressed

This is an iterative guide rather than a set script. This means that questions may change or be followed up on.

Demographics Questions
What is your age?
How do you describe your race and ethnicity?
What is your gender?
What is your housing status?
Do you have internet access?

1. Think of all the services or things you are receiving, and all the services or things you need. What sorts of things or services do you need now that you are not receiving? If any?

2. What drugs are you using right now?
    2a. How do you use it? (with others? route of administration?
    2b. Or any way you want to use differently? (route of administration different?)
    2c. Any drugs you want to use instead?

3. Do you want to change your use right now?
    3a. (If yes) Have you tried anything to use less?
        i. How did it go?
    3b. (If no) Why not?

4-6. What do you think of [service] (ways to test what drugs you are taking, training and medication like Narcan that help stop overdoses, medication for opioid use disorder like Suboxone, methadone, Sublocade, Vivitrol).
a. How have you used this service before?
    i. What might make you more likely to use it?

ii. What might keep you from using it?

b. If you haven't used it, do you think you might in the future?

i. What might make you more likely to use it?

ii. What might keep you from using it?

7. What else do you wish providers knew about using substances?

8. Are there any other services you are not receiving that you want?