

## Interest in reducing methamphetamine and opioid use among syringe services program participants in Washington State

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### ARTICLE INFO

#### Keywords:

Methamphetamine  
Opioids  
People who inject drugs  
Syringe services programs  
Substance use treatment

### ABSTRACT

**Background:** Methamphetamine use is increasing, and opioid use remains elevated in the US. Understanding interest in reducing/stopping substance use among people who inject drugs (PWID), as well as types of help wanted, can inform interventions.

**Methods:** Data from the 2019 Washington State Syringe Exchange Survey were used in logistic regression analyses to assess if demographics, substance use, and concern about anxiety or depression were associated with interest in reducing/stopping substance use among people whose main drug was methamphetamine or opioids. Types of help wanted to reduce/stop use are reported.

**Results:** Of 583 participants included, 76 % reported opioids were their main drug, of whom 82 % were interested in reducing/stopping their opioid use. 24 % reported methamphetamine as their main drug, of whom 46 % were interested in reducing/stopping their methamphetamine use. Among those whose main drug was an opioid, female gender (AOR:2.19,  $p = .023$ ) and concern about depression (AOR:3.04,  $p = .002$ ) were associated with interest in reducing/stopping opioid use. Among participants whose main drug was methamphetamine, being in jail in the past year and having an infection likely related to injection (e.g., abscess) in the past year were associated with over twice the odds of interest in reducing/stopping methamphetamine use (AOR:2.14,  $p = .056$  and 2.43,  $p = .052$ , respectively); however, these findings were not significant. Several types of help to reduce/stop use were endorsed.

**Conclusion:** There were high, though differing, levels of interest in reducing/stopping opioid or methamphetamine use and in a range of support services. PWID should be asked about interest in reducing/stopping use and provided appropriate support.

### 1. Introduction

Methamphetamine use is increasing and opioid use remains elevated in the United States (Centers for Disease Control and Prevention, 2020; The Lancet, 2018; United Nations Office on Drugs and Crime, 2013; US Department of Justice Drug Enforcement Administration, 2019). The National HIV Behavioral Surveillance (NHBS) survey among people who inject drugs (PWID) found that the proportion of respondents who had injected methamphetamine in the past year increased from 17 % in 2012 to 35 % in 2018, and the vast majority (90

%) reported past-year heroin injection both years (Centers for Disease Control and Prevention, 2012, 2018). Methamphetamine use and mortality in Washington State also have risen. Methamphetamine-involved deaths in Washington were approximately four times greater in 2018 than 2010 (Alcohol and Drug Abuse Institute, University of Washington, 2020a). Opioid-involved deaths remained high during this period. (Alcohol and Drug Abuse Institute, University of Washington, 2020b).

While there are no medications to treat methamphetamine use disorder currently approved by the US Food and Drug Administration

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<https://doi.org/10.1016/j.drugalcdep.2020.108243>

Received 17 July 2019; Received in revised form 13 August 2020; Accepted 15 August 2020

Available online 23 August 2020

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(FDA), there is ongoing research of pharmacological agents (Coffin et al., 2019; Colfax et al., 2011; Kohno et al., 2018; Lee et al., 2018; Salehi et al., 2015; White, 2000). Other approaches for treating methamphetamine use disorder include behavioral interventions, such as 12-step programs, cognitive behavioral therapy, and contingency management (Courtney and Ray, 2014; Herrmann et al., 2017; Lee and Rawson, 2008; McPherson et al., 2018). In 2020, the Substance Abuse and Mental Health Services Administration (SAMHSA) amended its multibillion dollar State Opioid Response funding opportunity announcement to allow using funds to address stimulant misuse and use disorders, indicating the interest in and importance of this topic (Substance Abuse and Mental Health Services Administration, 2020).

Opioid use disorder treatment with methadone and buprenorphine has a strong evidence base for clinical effectiveness, improved functioning, reduced mortality, and cost savings (Clark et al., 2011; Connery, 2015; Mattick et al., 2009, 2014). However, these medications are under-utilized; fewer than 25 % of people appropriate for these medications receive them (Williams et al., 2019). Despite low utilization, an analysis of 2015 Washington State syringe service program (SSP) data indicates substantial interest in reducing or stopping use and in using medications for opioid use disorder (Frost et al., 2018).

This study aims to describe SSP clients in Washington State who report methamphetamine or an opioid as their main drug and to identify if sociodemographic characteristics, substance use, or concern about anxiety or depression are associated with an interest in reducing or stopping methamphetamine or opioid use. We also explore the types of help participants would want to reduce or stop using their main drug.

## 2. Materials and methods

### 2.1. Data source

We used data from the University of Washington (UW) Alcohol and Drug Abuse Institute (ADAI) 2019 Washington State Syringe Exchange Survey. This is a cross-sectional, biennial survey that began in 2015 (Banta-Green et al., 2016, 2018; Frost et al., 2018). Surveying was conducted between June and August 2019. Surveys were administered verbally, in-person, and in English by SSP personnel, ADAI staff, or Washington Department of Health staff. At sites in King County (where Seattle is located) most survey responses were entered by project staff into REDCap (Harris et al., 2009), which was then transmitted securely to ADAI. At all other sites, and when internet was unreliable in King County (e.g., during mobile delivery), paper surveys were completed on paper and sent to ADAI for data entry.

Twenty-one SSPs participated in the survey across 23 counties. (Map in supplemental materials.) The survey was an attempted census, thus all SSP participants were asked to participate, and if they declined and returned to the SSP during the survey period, were asked again. While an attempt was made to survey each participant, it was occasionally not possible to do this when personnel were busy with SSP activities. In order to not overburden SSP staff, survey non-response was not collected at most sites. The Washington State and UW Institutional Review Boards determined that data collection procedures and analyses were not human subjects' research and did not require review. Participants received no financial compensation for survey completion, but were given candy.

### 2.2. Study population

This analysis was restricted to participants who reported that methamphetamine or an opioid (i.e., heroin, fentanyl, methadone, buprenorphine/Suboxone (likely obtained outside of substance use treatment, because people currently in treatment were excluded from the analyses, or other opiate medications) was their main drug, and that they were not currently receiving substance use disorder treatment. Participants who reported that their main drug was a goofball (i.e.,

heroin and methamphetamine mixed together) were excluded. Main drug was assessed by asking participants "Which of the drugs listed is your MAIN drug?"

Participants who reported "other" gender were excluded due to the small sample size. To focus our analysis on interest in reducing or stopping methamphetamine use, we further excluded participants who reported methamphetamine as their main drug but who used other stimulants in the past three months [i.e., cocaine, crack, or a speedball (cocaine and heroin mixed together)]. In order to include participants with the highest acuity, and therefore most likely to benefit from substance use disorder treatment, we also restricted the analyses to persons who reported that they used their main drug at least 5 of the last 7 days and injected it in the last 3 months.

### 2.3. Measurements

#### 2.3.1. Outcome

The outcomes of interest were responses to the question "How interested are you in reducing or stopping your [stimulant or opioid] use?" We avoided using the word "treatment" in our outcome measurements because it has many connotations and may not accurately reflect an individual's motivational level for behavior change. We created a binary variable that combined "very interested" and "somewhat interested" into "interested," which was compared to respondents who reported that they were "not interested."

#### 2.3.2. Independent variables

Sociodemographic variables in this analysis included age, gender (male or female), race/ethnicity (white or not-white), being a man who has sex with men (MSM), having health insurance, rurality, housing status (unstable/homeless or permanent), and being in jail in the past year. Age was modeled continuously. MSM was defined as reporting male gender and having sex with any male partners during the past 12 months. Race was included as a binary variable due to most of the sample identifying as only white (75 %) and small sample sizes across the non-white racial categories. Health insurance was categorized as "public/government only" (i.e., Medicaid/Apple Health, Medicare, Veterans Affairs/military, or tribal health/Indian Health Service), "any private insurance," or "other." Rurality was defined by mapping respondent zip codes to the US Department of Agriculture Rural-Urban Commuting Area Codes (RUCA) four-level categorization of "urban core," "suburban," "large town," or "small town" (Economic Research Service, 2016).

Concern about mental health was assessed by two questions "How concerned are you about depression?" and "How concerned are you about anxiety?" We used a binary measure that collapsed "very" and "somewhat" into "concerned," which was compared to "not at all concerned" for each question. Sources of medical care in the past 12 months were categorized into "any ER," "other sources of care" (e.g., doctor's office/clinic/tribal clinic, medical hospital, and jail/prison), or "none."

Substance use variables included overdose (any or none), acute adverse events related to methamphetamine use, years since initiating injecting (difference between current age and age when the participant first injected), number of injections on an average injecting day, frequency of injecting alone, and having a past-year infection that was likely related to injection (i.e., an abscess, skin infection such as cellulitis, blood clot or blood infection like sepsis, or endocarditis). Participants whose main drug was an opioid were asked how many times they had overdosed on opioids in the past year, which was defined as "when breathing slows down or stops and a person can't be woken up." Acute adverse events related to methamphetamine (sometimes called "overamping") is challenging to measure due to varying clinical presentation. We assessed the presence of specific symptoms by asking participants if they had felt like they were "having a heart attack, stroke or seizure while on meth" or "losing your mind, manic, or

psychotic while on meth” in the last three months. Frequency of injecting alone was measured by combining responses of “most of the time” and “always,” and comparing them to “some of the time” or “none.”

Participants who reported that they were interested in reducing or stopping use of their main drug were asked “What types of help would you want if they were easy to get?” with a range of medication, counseling, and other services as response options.

### 2.3.3. Statistical analysis

We first report the proportion of participants interested, not sure, or not interested in reducing or stopping the use of their main drug. We then exclude participants who said that they were “not sure,” due to the limited interpretability of this answer. Among those who were interested or not interested in reducing or stopping their use, we conducted bivariate analyses to describe and compare participant characteristics across main drug. We then conducted bivariate analyses within each main drug group by interest in reducing or stopping use of their main drug across demographic characteristics, substance use variables, and level of concern about anxiety and depression. Comparisons of categorical variables were made using the Pearson chi-square test and Fisher’s exact test for expected cell counts less than five. Continuous variables were skewed, thus we compared medians with a Wilcoxon rank sum test. A p-value of less than 0.05 was considered statistically significant.

We then conducted a multivariable logistic regression analysis for each group defined by main drug. We first attempted to perform a log-binomial model considering the prevalence of the outcome, but the models did not both converge. Independent variables included in the multivariable analyses either had a p-value of less than 0.05 in the bivariate analyses or had been selected for inclusion a priori due to prior research indicating associations with seeking help to reduce methamphetamine or opioid use in other settings; variables chosen a priori included age, race, gender, and housing status (Corsi et al., 2009; Frost et al., 2018; Korte et al., 2011; Krawczyk et al., 2017; Maxwell, 2014; Nielsen et al., 2018; Palepu et al., 2010; Roth et al., 2015). The types of help participants reported wanting to receive, among those who said they were interested in reducing or stopping their methamphetamine or opioid use, are reported as frequencies. All analyses were performed in Stata 13 (StataCorp, 2013).

## 3. Results

### 3.1. Descriptive and bivariate analyses

There were 1269 respondents to the 2019 Washington State Syringe Exchange Survey. The selection criteria for these analyses are shown in Fig. 1. There were 583 participants who met the inclusion criteria, with 140 (24 %) reporting methamphetamine and 443 (76 %) reporting an opioid as their main drug. Among main opioid users, 438 (99 %) reported heroin as their main drug. Among participants who reported male or female gender and not being in drug treatment, 77 (8%) reported that a goofball (i.e., heroin and methamphetamine mixed together) was their main drug, of whom 58 (75 %) were from King County. Participants whose main drug was a goofball are not included in the remainder of the analysis.

Slightly over half of the participants were male (55 %) and the median age was 35 years (IQR: 30–45). Most respondents were white (75 %), living in an urban setting (67 %), in unstable housing or homeless (70 %), and had health insurance (90 %). The median age of participants whose main drug was methamphetamine was significantly older than participants whose main drug was an opioid (39 vs 34 years old,  $p < .001$ ) and a higher proportion were MSM (11 % vs 5%,  $p = .044$ ). A smaller proportion of participants whose main drug was methamphetamine were concerned about anxiety (64 % vs 74 %,  $p = .023$ ) or had an infection that was likely related to injection in the past

12 months (26 % vs 48 %,  $p < .001$ ) compared to participants whose main drug was an opioid. (Table 1) Polysubstance use was common in both groups; however, a larger proportion of participants whose main drug was an opioid had used methamphetamine (83 %), compared to participants whose main drug was methamphetamine and reported using an opioid (29 %) in the past three months.

When we included participants who reported that they were “not sure” about reducing or stopping use of their main drug, almost half (46 %) were interested in reducing or stopping their methamphetamine use, 36 % were not interested, and 19 % were “not sure.” The majority (82 %) were interested in reducing their opioid use, 10 % were not interested, and 8% were “not sure.” The demographic characteristics by interest in reducing or stopping main drug use by main drug, excluding those who reported they were “not sure,” are in Table 2.

Among participants whose main drug was methamphetamine, a larger proportion of participants who were in jail (68 % vs 49 %,  $p = .026$ ) or reported an infection likely related to injection in the past year (72 % vs 51 %,  $p = .03$ ) were interested in stopping or reducing their methamphetamine use. In addition, a higher proportion of those concerned about anxiety (63 % vs 44 %,  $p = .027$ ) or who had an acute adverse event while using methamphetamine in the past three months reported interest in reducing their methamphetamine use (72 % vs 50 %,  $p = .023$ ). Among participants whose main drug was an opioid, a higher proportion of women (93 % vs 86 %,  $p = .018$ ) and participants who were concerned about depression or anxiety were interested in reducing or stopping their opioid use (94 % vs 80 %,  $p < .001$  and 93 % vs 79 %,  $p < .001$ , respectively).

### 3.2. Multivariable regression

Among participants whose main drug was methamphetamine, being in jail in the past year and having an infection likely related to injection in the past year were associated with more than twice the odds of reporting interest in reducing methamphetamine use (AOR: 2.14, 95 % CI: 0.98–4.65,  $p = .056$  and 2.43, 95 % CI: 0.99–5.96,  $p = .052$  respectively); however, these results were not statistically significant (Table 3). Among participants whose main drug was an opioid, female gender was associated with more than twice the odds of interest in reducing or stopping opioid use (AOR: 2.19, 95 % CI: 1.11–4.29,  $p = .023$ ) compared to male gender. Having a concern about depression was associated with three times the odds of interest in reducing opioid use (AOR: 3.04, 95 % CI: 1.48–6.22,  $p = .002$ ) (Table 4).

### 3.3. Type of help participants wanted

The types of help that participants wanted if they were “easy to get” among those who reported interest in reducing or stopping using their main drug are shown in Fig. 2. Among those whose main drug was methamphetamine and who were interested in reducing or stopping their methamphetamine use, the most common type of help wanted was “1:1 counseling/talking with someone” (49 %), followed by “medications that may help reduce stimulant use” (48 %). Among participants whose main drug was an opioid and who were interested in reducing or stopping their opioid use, the majority (71 %) reported “methadone, buprenorphine, [or] naltrexone” as their top type of help.

## 4. Discussion

In this study, approximately half of respondents who reported that methamphetamine was their main drug were interested in reducing or stopping their methamphetamine use, and the substantial majority of those reporting opioids as their main drug were interested in reducing or stopping their opioid use. PWID should be asked about their interest in reducing or stopping their substance use and provided appropriate support.

Being in jail or having an infection likely related to injection were

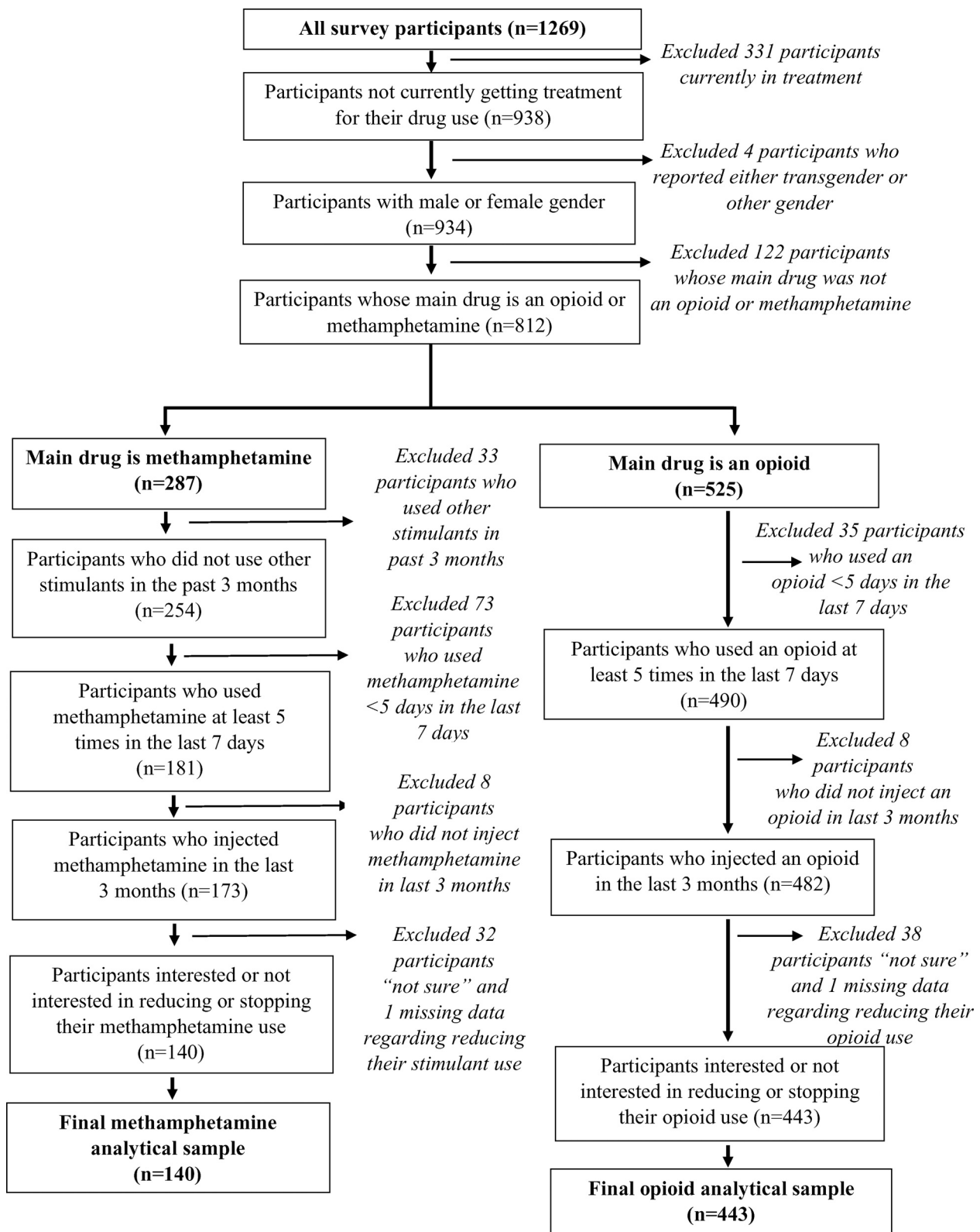


Fig. 1. Flowchart of Sample Selection.

associated with interest in reducing methamphetamine use among participants whose main drug was methamphetamine. Referrals to support PWID to reduce their methamphetamine use should be provided in the jail system and in settings that treat infections among PWID, including SSPs.

Among participants whose main drug was methamphetamine and

who were interested in reducing their use, almost half reported wanting medications that may reduce stimulant use. Ongoing research into pharmacological agents for methamphetamine use disorder should be a priority. The majority of those who reported opioids as their main drug wanted medications to help reduce or stop their opioid use. Considering the high level of interest in this modality among those actively using

**Table 1**  
Participant Characteristics by Main Drug (n = 583) (Methamphetamine or Opioids).

Characteristics <sup>†</sup>	Total (583)		Methamphetamine (140)		Opioids (443)		p value
	n	%	n	%	n	%	
<b>Age</b>							< .001
Median (IQR)	35 (30–45)		39 (33–48.5)		34 (29–43)		
<b>Gender</b>							.74
Male	322	55 %	79	56%	243	55 %	
Female	261	45%	61	44 %	200	45%	
<b>MSM</b>							.044
No	301	93 %	70	89%	231	95 %	
Yes	21	7%	9	11 %	12	5%	
<b>Race</b>							.054
White	439	75 %	114	81%	325	73%	
Non-White	144	25 %	26	19 %	118	27%	
<b>Insurance</b>							.81
Uninsured	57	10 %	13	9%	44	10 %	
Insured	524	90 %	127	91%	397	90 %	
<b>Insurance type</b>							.56
Public/Government only	495	94 %	119	94 %	376	95 %	
Any private insurance	27	5%	7	6%	20	5%	
Other	2	0%	1	1%	1	0%	
<b>Urban/Rural</b>							.67
Urban Core	388	67 %	92	66%	296	67 %	
Suburban	36	6%	9	6%	27	6%	
Large Town	127	22%	29	21%	98	22%	
Small Town/Rural	30	5%	10	7%	20	5%	
<b>Housing</b>							.64
Permanent	174	30%	44	31%	130	29 %	
Unstable/Homeless	409	70 %	96	69%	313	71 %	
<b>Jail/Prison</b>							.77
Not in jail in last year	356	61%	84	60%	272	61%	
In jail in last year	227	39%	56	40%	171	39%	
<b>Concerned about Depression</b>							.25
Not at all	214	37%	57	41%	157	36 %	
Very/Somewhat	366	63 %	82	59%	284	64 %	
<b>Concerned about Anxiety</b>							.023
Not at all	164	28%	50	36 %	114	26 %	
Very/Somewhat	418	72 %	90	64 %	328	74 %	
<b>Source of Medical Care in Last Year</b>							.38
Any ER	304	53%	73	53%	231	53%	
Other source of care	131	23%	36	26 %	95	22%	
None	143	25 %	29	21%	114	26 %	
<b>Length of Time Injecting (years)</b>							0.79
Median (IQR)	9 (4–18)		9 (2.5–19.5)		9 (4–17)		
<b>Number of Injections per Day</b>							< .001
Median (IQR)	3 (2–4)		2 (2–4)		3 (3–4)		
<b>Injects Alone</b>							.71
Never	159	27%	38	27%	121	28%	
Some of the time	246	42%	56	40%	190	43%	
Most of the time or always	175	30%	46	33%	129	29 %	
<b>Infection likely related to injection in last 12 months*</b>							< .001
No	331	57%	103	74 %	228	52%	
Yes	250	43%	36	26 %	214	48 %	

<sup>†</sup> There were five missing values for source of care in the last year; three for concern about depression and injecting alone; two for insurance, RUCA, duration of infection, and infection likely related to injection; and one for age and concern about anxiety.

\* An infection likely related to injection was considered an abscess, skin infection (e.g., cellulitis), blood clot or blood infection (e.g., sepsis), or endocarditis.

opioids who are not currently in substance use treatment, and positive preliminary findings from low-threshold models, including SSPs, (Applewhite et al., 2020; Fox et al., 2015; Hood et al., 2019; Smith-Bernardin et al., 2018) health care providers, payers, and systems should continue to work to improve access to medications for opioid use disorder among PWID. Furthermore, several other types of help were desired by respondents; access to these resources should be increased for people who use methamphetamine or opioids.

Most participants were concerned about anxiety or depression, and for people whose main drug was an opioid, concern about depression was associated with three times the interest in reducing their opioid use. Furthermore, approximately one-third endorsed mental health medications as a type of help they would want to reduce their substance use. Depression has been shown to be positively associated with opioid

use (Revadigar and Gupta, 2020; Saha et al., 2016; Sullivan, 2018), and anti-depressants have been studied as adjuvant therapy for opioid use disorder, with mixed results (Greenway et al., 2009; Pani et al., 2010). Anxiety is common among people who use methamphetamine (Darke et al., 2008; Zweben et al., 2004) and is a common symptom of acute withdrawal (McGregor et al., 2005; Zorick et al., 2010). In addition to services for reducing substance use, providers should ensure that people who use methamphetamine or, opioids have access to appropriate mental health care and medications for mental health disorders.

This study has several limitations. First, our study sample included PWID using SSP services in Washington State, and we cannot generalize these findings to other populations of PWID or non-injecting populations of people who use opioids and methamphetamine. Second, frequency of injecting methamphetamine or opioid use may be associated

**Table 2**  
Participant Characteristics and Substance Use Behaviors by Interest in Reducing or Stopping Methamphetamine or Opioid Use, Grouped by Main Drug (Methamphetamine or Opioid) (n = 583).

Characteristics †	Methamphetamine				p value	Opioids				p value
	Interested (79)		Not Interested (61)			Interested (395)		Not Interested (48)		
	n	(%)	n	(%)		n	(%)	n	(%)	
<b>Age *</b>					.43					.88
Median (IQR)	39 (31–48)		39 (34–49)			34 (29–43)		34.5 (27–43)		
<b>Gender</b>					.89					.018
Male	45	57%	34	43%		209	86 %	34	14%	
Female	34	56%	27	44 %		186	93 %	14	7%	
<b>MSM *</b>					.99					.23
No	40	57%	30	43%		200	87 %	31	13%	
Yes	5	56%	4	44 %		9	75 %	3	25 %	
<b>Race</b>					.89					.79
White	64	56%	50	44 %		289	89%	36	11 %	
Non-White	15	58%	11	42%		106	90 %	12	10 %	
<b>Insurance</b>					.70					.26
Uninsured	8	62%	5	38%		37	84%	7	16%	
Insured	71	56%	56	44 %		356	90 %	41	10 %	
<b>Insurance type</b>					.83					.11
Public/Government only	67	56%	52	44 %		340	90 %	36	10 %	
Any private insurance	3	43%	4	57%		15	75 %	5	25 %	
Other	1	100 %	0	0%		1	100 %	0	0%	
<b>Urban/Rural</b>					.66					.11
Urban Core	53	58%	39	42%		264	89%	32	11 %	
Suburban	5	56%	4	44 %		27	100 %	0	0%	
Large Town	14	48 %	15	52%		86	88%	12	12%	
Small Town/Rural	7	70 %	3	30%		16	80 %	4	20 %	
<b>Housing</b>					.50					.98
Permanent	23	52%	21	48 %		116	89%	14	11 %	
Unstable/Homeless	56	58%	40	42%		279	89%	34	11 %	
<b>Concerned about Depression</b>					.083					< .001
Not at all	27	47%	30	53%		126	80 %	31	20 %	
Very/Somewhat	51	62%	31	38%		267	94 %	17	6%	
<b>Concerned about Anxiety *</b>					.027					< .001
Not at all	22	44 %	28	56%		90	79 %	24	21%	
Very/Somewhat	57	63 %	33	37%		304	93 %	24	7%	
<b>Jail/Prison</b>					.026					.43
Not in jail in last year	41	49 %	43	51 %		240	88%	32	12%	
In jail in last year	38	68 %	18	32%		155	91%	16	9%	
<b>Source of Medical Care in Last Year</b>					.26					.70
Any ER	46	63 %	27	37%		204	88%	27	12%	
Other source of care	18	50 %	18	50 %		84	88%	11	12%	
None	14	48 %	15	52%		104	91%	10	9%	
<b>Length of Time Injecting (years)</b>					.14					.42
Median (IQR)	8 (2–17)		12 (3–20)			9 (4–17)		8 (5–21)		
<b>Number of Injections per Day *</b>					.41					.57
Median (IQR)	2 (2–4)		2 (2–3)			3 (3–4)		3 (2.5–4.5)		
<b>Injects Alone</b>					.41					.09
Never	18	47%	20	53%		114	94 %	7	6%	
Some of the time	34	61%	22	39%		164	86 %	26	14%	
Most of the time or always	27	59%	19	41%		114	88%	15	12%	
<b>Overamp/Overdose</b>					.023					.37
No overamp in past 3 months/overdose in past year	51	50 %	50	50 %		303	90 %	34	10 %	
Overamp in past 3 months/overdose in past year	28	72 %	11	28%		92	87 %	14	13%	
<b>Infection likely related to injection in last 12 months*</b>					.03					.59
No	53	51 %	50	49 %		205	90 %	23	10 %	
Yes	26	72 %	10	28%		189	88%	25	12%	

† There were five missing values for source of care in the last year; three for concern about depression and injecting alone; two for insurance, RUCA, duration of infection, and infection likely related to injection; and one for age and concern about anxiety.

\*These characteristics were significant ( $p < .05$ ) comparing participants whose main drug was methamphetamine to participants whose main drug was an opioid.

with interest in reducing or stopping use. While the survey asked about frequency of injecting *any* drug in the last week, we could not isolate the frequency of injecting specific drugs. Third, the survey included questions about stigmatized and illegal behaviors and there may have been social desirability bias. Fourth, our outcome combined interest in reducing and stopping substance use. People may have different levels of interest in reducing versus stopping use, and we were unable to assess for these differences. Fifth, our survey asked participants regarding their concern about anxiety or depression, and participants reporting

concern may not have diagnoses of anxiety or depressive disorders. Finally, while we excluded 33 participants whose main drug was methamphetamine and who had used other stimulants in the past 3 months, it is possible that respondents were reporting interest in reducing other stimulant use (e.g., cocaine). However, recent use of other stimulants was not common; among those who reported using other stimulants in the past three months, most had not used them in the past week (87 % for cocaine, 80 % for speedball, and 67 % for crack cocaine).

**Table 3**  
Results of Multivariable Logistic Regression Analysis of Participant Characteristics Associated with Interest in Reducing or Stopping Methamphetamine Use among Syringe Services Program Participants Whose Main Drug was Methamphetamine (n = 139) †.

Characteristics	AOR	95 % CI	p-value
Increase in 10 years of age	1.00	0.70–1.43	.99
Female gender	0.85	0.96–1.04	.68
Nonwhite race	1.31	0.51–3.41	.58
Unstable housing/homeless	0.96	0.43–2.16	.93
Jail in past year	2.14	0.98–4.65	.056
Concern about anxiety	1.98	0.90–4.36	.089
Infection likely related to injection in the past year	2.43	0.99–5.96	.052
Overamped in past year	1.88	0.79–4.45	.15

† There was one missing value for infection likely related to injection in the past year.

**Table 4**  
Results of Multivariable Logistic Regression Analysis of Participant Characteristics Associated with Interest in Reducing or Stopping Opioid Use among Syringe Services Program Participants Whose Main Drug was an Opioid (n = 439) †.

Characteristics	AOR	95 % CI	p-value
Increase in 10 years of age	1.00	0.73–1.36	.98
Female gender	2.19	1.11–4.29	.023
Nonwhite race	1.09	0.53–2.24	.81
Unstable housing/homeless	0.82	0.41–1.63	.57
Concern about depression	3.04	1.48–6.22	.002
Concern about anxiety	1.89	0.93–3.83	.078

† There were two missing values for concern about depression, one missing value for age, and one missing value for concern about anxiety.

Future research should assess interest in reducing or stopping methamphetamine and opioid use in other populations who are impacted by these substances, including people not using SSPs and individuals who smoke and snort methamphetamine or opioids and do not inject them. In addition, interest in reducing use among people who use both methamphetamine and heroin concurrently, including combined as a goofball, should be evaluated. Goofball use is increasing in Washington State, and there are unique challenges providing treatment for opioid use disorder among individuals who also use methamphetamine (Tsui et al., 2020). In our sample, only 8% reported a goofball as their main drug and we did not ask about interest in reducing goofball use, limiting our ability to describe interest among this group. Finally, considering the range of types of help desired for substance use reduction in this sample, access to these services for PWID should be ensured. SSPs may

be an optimal location to increase this access, and future work should identify the best ways to incorporate SSPs in providing PWID with support to reduce their methamphetamine or opioid use.

**5. Conclusions**

We found a high level of interest in reducing or stopping opioid use, and a moderate level of interest in reducing or stopping methamphetamine use, among PWID who are engaged in SSP services across Washington State and whose main drug is an opioid or methamphetamine, respectively. Providers who engage with PWID should ask about their interest in reducing or stopping substance use and provide appropriate referrals and resources. SSPs may be ideal locations to engage PWID who are actively using substances and interested in reducing their substance use. Among PWID who use methamphetamine, referrals or service provision in jails and clinics that treat injection-related infections may be promising. Concerns about anxiety or depression are very common and associated with interest in reducing substance use. Providers should ensure that people who use methamphetamine or opioids have access to appropriate mental health care and medications for mental health disorders.

**Contributors**

CBG, SK, AN, SNG, and VM did survey instrument development. SK, AN, and SGN supported data collection at SEPs. VM and CBG conceived of this study and VM did the data analysis and led the writing of the manuscript with input from all authors. All authors read and approved the final manuscript.

**Role of funding source**

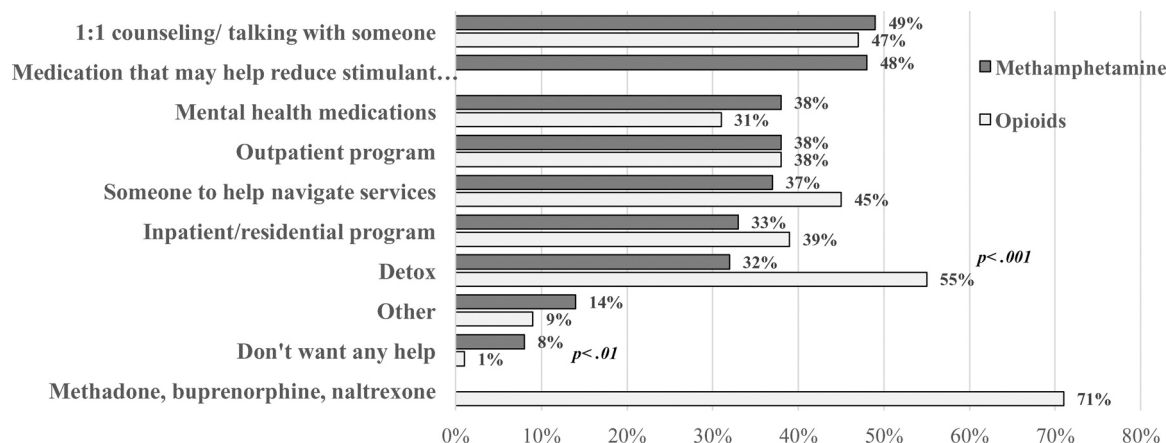
The funding sources for this study are The Washington State Health Care Authority, Division of Behavioral Health and Recovery and NIH R34 DA 045620-01. Neither funding source was involved in study design; the collection, analysis, and interpretation of the data; writing the report; or the decision to submit the article for publication.

**Declaration of Competing Interest**

None.

**Acknowledgments**

We thank the participating SEPs and their staff. We are grateful for the time and participation of the survey participants. We also thank the



**Fig. 2.** Among Participants who were Interested in Reducing or Stopping their Methamphetamine or Opioid Use, the Percent who Wanted Different Types of Help by Reported Main Drug (Methamphetamine or an Opioid) (n = 474).

Washington State Department of Social and Health Services, Division of Behavioral Health and Recovery and NIH R34 DA 045620-01 for supporting this study.

## Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.drugalcdep.2020.108243>.

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