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INCOME GENERATION AND ATTITUDES TOWARD ADDICTION TREATMENT AMONG PEOPLE WHO USE ILLICIT DRUGS IN A CANADIAN SETTING

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Abstract

Introduction—Socioeconomically marginalized people who use illicit drugs (PWUD) often engage in alternative income generating activities to meet their basic needs. These activities commonly carry a number of health and social risks, which may prompt some PWUD to consider addiction treatment to reduce their drug use or drug-related expenses. We sought to determine whether engaging in certain forms of income generation was independently associated with self-reported need for addiction treatment among a cohort of PWUD in Vancouver, Canada.

Methods—Data from two prospective cohorts of PWUD in Vancouver were used in generalized estimating equations to identify factors associated with self-reported need for addiction treatment, with a focus on income generating activities.

Results—Between June 2013 and May 2014, 1285 respondents participated in the study of whom 483 (34.1%) were female and 396 (30.8%) indicated that they needed addiction treatment. In final multivariate analyses, key factors significantly and positively associated with self-reported need for addiction treatment included engaging in illegal income generating activities (adjusted odds ratio [AOR] = 1.96, 95% Confidence Interval [CI}: 1.11-3.46); sex work (AOR = 1.61, 95% CI: 1.05-2.47), homelessness (AOR = 1.65, 95% CI: 1.22-2.25); and recent engagement in counselling (AOR = 1.85, 95% CI: 1.40-2.44).

Discussion—Our results suggest that key markers of socioeconomic marginalization are strongly linked with a stated need for addiction treatment. These findings underscore the need to

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provide appropriate and accessible addiction treatment access to marginalized PWUD and to consider alternative approaches to reduce socioeconomic disadvantage.

Keywords

drug use; addiction treatment; income generation; homelessness; addiction treatment

1. Introduction

Although the interaction between substance use and labour market outcomes is complex, people who use illicit drugs (PWUD) are often socioeconomically marginalized and may engage in alternative forms of income generation to secure basic needs such as food, shelter and drugs (Richardson et al. 2013, Richardson et al. 2012, Debeck et al. 2007, Fischer et al. 2001). PWUD may have difficulty entering the formal economy for a range of reasons. These include, but are not limited to: prior criminal convictions (Pager 2003); drug testing, which is commonly a mandatory condition for job eligibility (Tunnell 2004); or the structural features of drug use scenes. For example, socioeconomic disadvantage and housing insecurity have been independently linked to job instability, and these social, structural and environmental influences may magnify challenges related to labour market participation (Long et al. 2014, Sztramko et al. 2014, Richardson et al. 2013, Braine 2013, Sherman et al. 2006). Further, drug policies that disproportionately focus on supply reduction may also impact patterns of income generation among PWUD: street-level policing aimed at disrupting drug market activity may inflate the prices of illicit drugs (Werb et al. 2008, Wood et al. 2003), which may in turn encourage or require PWUD to generate further income through illegal or prohibited activity (e.g. highly stigmatized activities).

For PWUD who acquire income through alternative income generating activities, the context of income generation may be linked to serious negative health outcomes (Long et al. 2014). Sex work and drug dealing have been identified as relatively lucrative sources of income among PWUD (DeBeck et al. 2007), yet PWUD involved in sex work are especially susceptible to harms such as heightened risk of blood-borne infections such as HIV (Arunachalam and Shah 2013, Deering et al. 2011, Shannon et al. 2007). Further, both sex work and drug dealing, alongside street based income generation, are associated with multiple forms of systemic and interpersonal violence (Richardson et al. 2015, and Domahidi 2014, Small et al. 2013, Goodyear and Cusick 2007). PWUD who participate in these and other alternative forms of income generation are also vulnerable to arrest and incarceration, both of which reduce access to harm-reduction services and other mechanisms that promote drug cessation and reduce the spread of infectious disease (Koehn 2015, Milloy et al. 2013, Debeck et al. 2009, Small et al. 2005, Wood et al. 2005).

In addition to the potential for physical harm, illegal, prohibited and other alternative forms of income generation may also place an emotional or psychological burden on PWUD (Benoit et al. 2015, Draus et al. 2010, Levy and Anderson, 2005). Recent research has demonstrated that as PWUD engage in illegal income generating activities, particularly drug dealing, they may increase their drug use as a way of coping with the stress associated with these activities (Ti et al. 2014). Sex work and drug dealing are also highly stigmatized, a

factor that may adversely affect service access and physical and mental health among people who generate income through these activities (Link and Phelan 2014, Livingston and Boyd 2010, Mak et al. 2007).

Previous research has further demonstrated that a significant proportion of PWUD who obtain income from sex work or drug dealing would opt out of these activities if they did not require money for drugs (DeBeck et al. 2011a, Debeck et al. 2007). The harms associated with these and other prohibited forms of income generation may therefore prompt some PWUD to consider reducing their drug use and drug-related expenses by enrolling in addiction treatment. To our knowledge, however, the relationship between different income generating activities and attitudes towards addiction treatment has not been assessed. The current study therefore seeks to fill this gap by examining potential associations between licit and illicit forms of income generation and self-reported need for addiction treatment among PWUD. Problem recognition has been identified as a key component of treatment readiness among PWUD (Rapp et al. 2007). Thus, identifying these associations may offer insight into the factors that contribute to treatment readiness and ultimately to treatment uptake, among socioeconomically marginalized PWUD..

2. Methods

2.1. Participants

Data are derived from the Vancouver Injection Drug Users Study (VIDUS) and AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS) studies, two open, prospective cohort studies of HIV-seronegative individuals who inject (VIDUS) and HIV-seropositive individuals who use (ACCESS) illegal drugs. Since May 1996, participants have been recruited through street outreach and self-referral. The two cohorts have been described in detail elsewhere (Wood et al. 2008, Wood et al. 2001). Briefly, a person is eligible to enrol in either study if they live in Greater Vancouver at the time of enrolment, have injected (VIDUS) or used (ACCESS) illicit drugs other than cannabis in the previous month, and provide written informed consent. At baseline and semi-annually thereafter, participants complete an interviewer-administered questionnaire that elicits demographic data as well as information about drug use, income sources, HIV risk behaviour, and drug treatment enrolment. Participants also provide blood samples for serologic testing of HIV and HCV status. Each participant receives $30 CDN per study visit. Both studies have has been approved by the University of British Columbia/Providence Health Care Research Ethics Board.

2.2. Measures

The current study includes the observations from all VIDUS and ACCESS participants who completed at least one study visit between June, 2013 and May, 2014. Our main outcome of interest, self-reported need for addiction treatment, was derived from a question asking, “Do you feel like you need treatment [for drug use]?” Participants were asked this item following questions about their previous treatment experiences. Given the current study's emphasis on income generation, we approached analyses with a specific focus on variables derived from a question asking respondents to identify all sources of income over the last six months. We

considered the following income sources: employment (defined as regular, temporary, or self- employment); government social assistance; street-based forms of income generation (including informal recycling [i.e. “binning”], window washing [i.e. “squeegeeing”], or panhandling); sex work; and illegal forms of income generation (including drug dealing, theft, robbing or stealing, and other acquisitive criminal activity). Income generation variables were treated as time-varying covariates and referred to the six-month period prior to each follow-up interview.

After reviewing the literature, we also *a priori* selected a range of sociodemographic indicators and key exposures associated with social and structural disadvantage that we hypothesized may be associated with attitudes towards addiction treatment. Our selections were based on previous literature that has examined the role that social and structural disadvantage along lines of race, class, and gender play in patterns of use and treatment outcomes.Sociodemographic variables of interest considered in analyses were: age (per year older); gender (female vs. male); ethnicity (White vs. Other); and education (yes vs. no), defined as educational attainment less than high school or an equivalent diploma (yes vs. no). Variables associated with social and structural disadvantage included recent incarceration, defined as being detained in jail or prison in the last six months (yes vs. no); and homelessness, defined as living on the street or having no fixed address for the last six months (yes vs. no). Drug use variables were considered for the last six months and included: > daily heroin, cocaine, methamphetamine or crack cocaine use (yes vs. no); any injection drug use (yes vs. no); heavy alcohol use, defined as having a minimum of four drinks a day on average (yes vs. no); and using injection drugs in public spaces, such as city streets, parks, and alleys (yes vs. no). Given the present study's focus on attitudes towards addiction treatment, we also included variables that would assess prior and current experiences with addiction treatment or addiction-related services. These variables included: recent enrolment in counselling, defined as receiving non-addictions-specific counselling with a psychotherapist, psychiatrist, or other mental health professional a minimum of one time in the last six months (yes vs. no); previous engagement with addiction treatment, defined as ever being enrolled in a methadone program, a detoxification program, a recovery house, a residential addiction treatment center, or engaging with an addictions-specific counsellor or participating in peer support programs such as Narcotics Anonymous (yes vs. no); current engagement with addiction treatment, defined as currently being enrolled in one or more of these treatment modalities (yes vs. no); and experiencing barriers to enrolling in addiction treatment, defined as attempting to access one of these forms of addiction treatment in the last six months but not being able to (yes vs. no). Outcome of interest and covariate data were collected at all baseline and follow up interviews conducted during the study period.

2.3. Statistical Analyses

In initial statistical analyses, we assessed the baseline characteristics of the study sample stratified by self-reported need for addiction treatment using Pearson's $\chi 2$ test for categorical variables and the Mann-Whitney test for continuous variables. Second, we used generalized estimating equations (GEE) with logit link function for binary outcomes and an exchangeable working correlation structure to examine bivariate associations between of our

outcome of interest, self-reported need for addiction treatment, and our covariates of interest. Our data set includes repeated measures for the same individual and GEE analyses are able to address unit correlation across observations provided by the same individual Analyses used all available observations during the study period. Third, we used a two-stage model building approach to construct an exploratory multivariable GEE model, considering only those variables that were significant at $p < 0.10$ in bivariate analyses for inclusion at the second stage. All variables that met this threshold were considered in the development of a single, final model. As detailed in previous analyses (Richardson et al. 2015), we used the quasilikelihood under independence model criterion (QIC) with backward model selection procedure to determine the most appropriate multivariate model as indicated by the lowest QIC value (Pan 2001). That is, only those variables that contributed to the best fitted model were included in the final analysis All statistical analyses were performed using SAS software version 9.4 (SAS, Cary, NC). All p-values were two sided.

3. Results

Observations for the current analyses were derived from 1285 individuals enrolled in VIDUS or ACCESS between June, 2013 and May, 2014, who contributed to a combined total of 2209 observations. Some of these participants were enrolled prior to our study date, while others completed their baseline interview in June, 2013. Of the 1285 participants eligible for analyses, the median age at baseline was 48 (interquartile range: 41-54) years, 438 (34.1%) participants were female, and 727 (56.6%) self-reported Caucasian ancestry. We observed 396 (30.8%) unique participants who, for 487 (22.0%) of the 2209 observations responded affirmatively to the question “do you feel like you need treatment?”During the study period, 401 (31.2%) participants reported obtaining income from regular employment, 1212 (94.3%) from social assistance, 360 (28.0%) from street-based income generating activities, with 117 (9.1%) from sex work and 70 (5.4%) from drug dealing or other illegal forms of income generation. Totals add up to more than 100% because individuals commonly engage in more than one type of income generation and were able to contribute more than one at each observation (e.g., social assistance supplemented with street-based income generating activities).

Sample baseline characteristics stratified by self-reported need for addiction treatment are presented in Table 1. Participants were more likely to self-report a need for addiction treatment at baseline if they engaged in street-based income generation, sex work or illegal income generating activity. Respondents were also more likely to say they needed addiction treatment if they were younger, female, or had less than a high school education. Participants were less likely to report a need for addiction treatment if they self-reported Caucasian ancestry. Additionally, individuals who reported incarceration, homelessness, daily or greater heroin, cocaine, methamphetamine, or crack cocaine use, as well as any injection or public drug use in the six months prior to baseline were more likely to indicate a need for addiction treatment. Of the drug use variables, heavy alcohol use was the only variable that was not positively associated with self-reported need for addiction treatment at baseline. Finally, participants were more likely to report a need for addiction treatment if they had recently enrolled in any counseling services, reported current or prior addiction treatment, or if they were unable to access addiction treatment in the six months prior to baseline.

In multivariate analyses (Table 2), among the income generating activities examined, illegal income generating activities (Adjusted odds ratio [AOR] = 1.96, 95% CI: 1.11-3.46) and sex work (AOR = 1.61, 95% CI: 1.05-2.47) remained independently and positively associated with self-reported need for addiction treatment. Further, homelessness (AOR = 1.65, 95% CI: 1.22-2.25), daily or greater use of heroin (AOR = 1.64, 95% CI: 1.21-2.22), injection drug use (AOR = 1.82, 95% CI: 1.40-2.36) and heavy alcohol use (AOR = 1.42, 95% CI: 1.06-1.89) were independently and positively associated with our primary outcome of interest. Additionally, receiving counselling in the last six months (AOR = 1.85, 95% CI: 1.40-2.44), previous engagement with treatment (AOR = 1.82, 95% CI: 1.05-3.18) and wanting to access treatment but being unable to (AOR = 3.76, 95% CI: 2.29-6.17) were independently and positively associated with self-reported need for addiction treatment. Conversely, self-reported Caucasian ancestry (AOR =0.66, 95% CI: 0.52-0.85) was independently and negatively associated with the outcome of interest.

4. Discussion

The present study examined factors associated with self-reported need for addiction treatment among a cohort of injection and non-injection drug users in Vancouver, Canada, with a specific focus on different types of income generation. Forms of income generation that were significantly and positively associated with the outcome of interest included illegal income generating activities, such as drug dealing or theft, as well as sex work. Daily or greater heroin use, injection drug use, and heavy alcohol use were also predictors of self-reported need for treatment, as was homelessness. Additionally, respondents who had previously engaged with treatment and those who had received counselling in the last six months were more likely to say they needed treatment than those who had not. Our results suggest that engaging in high-risk income generating activities and housing instability, both of which are strongly indicative of socioeconomic marginalization and have been associated with high-intensity drug use (Richardson et al 2010, Rosenthal et al. 2008), may be linked to perceived need for addiction treatment and treatment readiness.

Our analyses contribute to a growing literature identifying dynamics between high-intensity illicit drug use, illegal income generating activities such as drug dealing, and health considerations (Long et al. 2014, Richardson et al. 2010, Bennett et al. 2008). Ethnographic research conducted in Vancouver has also identified that for some PWUD, drug dealing may begin as a for-profit venture and then become a necessary way to sustain personal drug consumption as drug dependency intensifies (Small et al. 2013). When considered alongside previous research that has linked illegal forms of income generation to arrest, incarceration, violence and other health harms (Richardson et al. 2015, Small et al. 2013, Kerr et al. 2008), our results are particularly salient for strategies to reduce involvement in high-risk income generation and high-risk drug use. More specifically, our results highlight the necessity of providing low-barrier treatment options to socioeconomically marginalized PWUD who undertake these activities and for whom traditional approaches to treatment may not be appropriate.

In addition to illegal income generating activities, engaging in sex work was identified as an independent predictor of self-reported need for addiction treatment. While not currently

illegal in Canada, the legal statutes surrounding sex work activity makes this a prohibited and commonly marginalizing activity. Like formally illegal income generating activities, sex work has been associated with high intensity illicit drug use (Long et al. 2014, Deering et al. 2011) and sex work involvement has been previously linked to treatment readiness (Uhlmann et al. 2015). Because the income earned from sex work commonly exceeds that which is earned through other low-threshold employment opportunities (Long et al. 2014, DeBeck et al. 2011a), our findings should be considered alongside a larger body of research that underscores the importance of offering meaningful alternatives to sex work for those individuals who want to reduce their reliance on this form of income generation (Deering et al. 2011, Marks et al. 2006). Because problem recognition has been identified as an indicator of treatment readiness (Rapp et al. 2007), our results point to opportunities for tailored interventions that support socioeconomically marginalized PWUD who engage in both illegal forms of income generation and sex work to transition into appropriate forms of addiction treatment. Although employment was not associated with our outcome of interest, previous research in the current study context has noted an inconsistent relationship between specific types of treatment enrolment and transitioning into employment (Richardson et al., 2012). This does not negate the potentially important impacts of labour market involvement for PWUD, and is an important area for ongoing research

Consistent with prior research that has identified residential instability as a barrier to accessing addiction treatment (Brubaker et al. 2012), the present study identified an independent and positive relationship between homelessness and self-reported need for addiction treatment. Socioeconomically vulnerable PWUD often struggle to maintain social integration (De Vet et al. 2013) and, as such, may not be effectively supported to seek treatment without the aid of targeted interventions. Our results suggest that the complex health care needs of socioeconomically marginalized PWUD may not be adequately met in this context and that further development of innovative and flexible substance abuse programming that is tailored to meet the needs of unstably housed PWUD is required, potentially through integrated service provision models that incorporate both housing and addiction treatment support.

Our study also found that heavy high-intensity heroin use, injection drug use, and heavy alcohol use were significantly and positively associated with self-reported need for addiction treatment. These findings are consistent with previous research that links markers of high-intensity substance use and addiction treatment readiness (Alley et al. 2014, Zule et al. 2003, Nwakaze et al. 2002). Daily heroin use has also been identified as a predictor of willingness to participate in pharmacologic addiction treatment trials (Uhlmann et al. 2015). Our results may indicate that active users' are dissatisfied with the health, social and economic consequences associated with high-intensity substance use (Degenhardt et al. 2012), although our study did not measure this possibility directly.

In final analyses, participants who had received counselling in the last six months were more likely to say they needed addiction treatment than those who had not. PWUD who engage in more intensive drug use may be more likely to have prior involvement in addiction treatment and therefore more likely to say they need treatment. Research in Vancouver has also established that contact with counsellors who work within harm reduction facilities such as a

medically supervised safe injection facility (SIF) may promote the utilization of addiction treatment services (DeBeck et al. 2011b) independent of drug use intensity (DeBeck et al. 2011b) While the efficacy of different forms of addiction treatment varies across treatment modalities and populations (Bauer et al. 2015, Strang et al. 2015, Pani et al. 2011), given the substantial financial burden and other community costs that result from untreated illicit drug use, the provision of accessible counselling in a range of low-threshold settings for socioeconomically marginalized PWUD could be an effective way to promote treatment engagement and the linkage of this population to addiction-related services. Such approaches may reduce drug-related health and social harms, particularly given emerging research on innovative treatments for new addiction treatment modalities that hold significant promise (Bogenschutz and Johnson 2016).

There are several limitations to the current study. First, VIDUS and ACCESS are derived from non-random samples and as such, findings may not be generalizable to other populations of PWUD. Second, our findings were based on self-reported data and may thus be impacted by recall or response bias. This may have resulted in under-reporting of involvement with alternative income generating activities or over-reporting on the need for addiction treatment. However it is notable that VIDUS and ACCESS staff have longstanding relationships with study participants and that we have no reason to believe that systematic over- or under-reporting would occur. Third, the present study only included observations from VIDUS and ACCESS who were under active follow up between June, 2013 and May, 2014 and, as such, the study may have suffered from a lack of statistical power. It may therefore be informative to revisit the present analyses in future to verify the current study's findings. Finally, we combined multiple treatment modalities into one endpoint, a decision that may have affected our findings if study participants had different perceptions of what was implied by questionnaire items referring generally to addiction treatment rather than specific addiction treatment modalities.

In summary, among our sample, engaging in sex work and illegal income generating activities were independently and positively associated with self-reported need for addiction treatment. This study thereby contributes to a growing understanding of how different types of income generation may be related to different stages of substance use disorders and the natural history of drug use. Collectively, our results further suggest that key markers of socioeconomic marginalization are strongly linked with a stated need for addiction treatment and barriers to accessing addiction treatment. This is particularly pertinent in Vancouver, where medical professionals who are adequately trained to perform addiction-based medicine are in short supply (McEachern et al. 2016). These findings thus underscore the urgent need for the provision of appropriate interventions for socioeconomically marginalized PWUD who often face considerable barriers to enrolment and retention in addiction treatment and who nevertheless may be motivated to reduce their substance use.

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Highlights

- People who use drugs (PWUD) commonly engage in alternative income generation
- Such activities carry risks. We do not know if they prompt PWUD to reduce drug use
- Sex work and drug dealing were associated with a need for addiction treatment
- Homelessness was also associated with self-reported need for addiction treatment
- Findings suggest a need to address socioeconomic and treatment needs among PWUD

TABLE 1

Baseline Characteristics of people who use illicit drugs in Vancouver, Canada, stratified by self-reported need for addiction treatment, 2013-2014 (n=1285)

Characteristic	Total (%) (*n* = 1285)	Self-reported need for addiction treatment		*p* - value
		Yes (%) (*n* = 310)	No (%) (*n* = 975)	
Income Generation				
Regular Employment*	322 (25.1)	69(22.3)	253(25.9)	0.191
Social Assistance*	1181(91.9)	278(89.7)	903(92.6)	0.099
Street-Based Activities*†	274(21.3)	85(27.4)	189(19.4)	0.003
Sex Work*	96(7.5)	38(12.3)	58(5.9)	<0.001
Illegal Activities*‡	54(4.2)	25(8.1)	29(3.0)	<0.001
Sociodemographic Characteristics				
Age (median, IQR)	48(41-54)	46(38-53)	49(42-54)	0.001
Female Gender	483(34.1)	121(39.0)	317(32.5)	0.035
Caucasian Ancestry	727(56.6)	154(49.7)	573(58.8)	0.005
< High School Education	633(49.3)	171(55.2)	462(47.4)	0.032
Social-Structural Exposures				
Incarceration*	73(5.7)	28(9.0)	45(4.6)	0.003
Homelessness*	201(15.6)	72(23.2)	129(13.2)	<0.001
Drug Use				
≥ Daily Heroin Use*	183(14.2)	69(22.3)	114(11.7)	<0.001
≥ Daily Cocaine Use*	94(7.3)	33(10.6)	61(6.3)	0.010
≥ Daily Methamphetamine Use*	101(7.9)	34(11.0)	67(6.9)	0.020
≥ Daily Crack Cocaine Use*	203(15.8)	66(21.3)	137(14.1)	0.002
Heavy Alcohol Use*	211 (16.4)	60(19.4)	151 (15.5)	0.109
Any Injection Drug Use*	789(61.4)	237(76.5)	552(56.6)	<0.001
Any Public Drug Use*	279(21.7)	111(35.8)	168(17.2)	<0.001
Service Access				
Counselling Enrolment*	238(18.5)	76(24.5)	162(16.6)	0.002
Prior Treatment Enrolment	1171(91.1)	296(95.5)	875(89.7)	0.002
Current Treatment Enrolment*	621(48.3)	163(52.6)	458(47.0)	0.010
Unable to Access Treatment*	56(4.4)	32(10.3)	24(2.5)	<0.001

*Denotes activities in the last 6 months

†Includes informal recycling, window washing, and binning

‡Includes drug dealing, theft, robbing or stealing, and other acquisitive criminal activity

Table 2

Bivariate and multivariate analyses of factors associated with positive self-reported need for addiction treatment among 1285 people who use illicit drugs in Vancouver, Canada, 2013-2014

	Unadjusted		Adjusted	
Characteristic	**Odds Ratio (95% CI)**	***p* - value**	**Odds Ratio (95% CI)**	***p* - value**
Income Generation				
Regular Employment*	0.74 (0.57 –0.96)	0.023		
Social Assistance*	0.84 (0.57 – 1.26);	0.410		
Street Based Activities*†	1.30 (1.03 – 1.64);	0.030		
Sex Work*	2.17 (1.50 – 3.13);	<0.001	1.61 (1.05 – 2.47)	0.030
Illegal Activities*‡	2.69 (1.63 – 4.42);	<0.001	1.96 (1.11 – 3.46)	0.021
Sociodemographic				
Age (per additional year)	0.97 (0.96 – 0.98);	<0.001		
Female Gender	1.31 (1.04 – 1.66)	0.022		
Caucasian ancestry	0.68 (0.55 – 0.86)	<0.001	0.66 (0.52 – 0.85)	<0.001
< High School Education	1.16 (0.92 – 1.45)	0.205		
Social-Structural Exposures				
Incarceration*	2.30 (1.52 – 3.49)	<0.001		
Homelessness*	2.20 (1.68 – 2.88)	<0.001	1.65 (1.22 – 2.25)	0.001
Drug Use				
Daily Heroin Use*	2.23 (1.71 – 2.90)	<0.001	1.64 (1.21 – 2.22)	0.002
Daily Cocaine Use*	1.73 (1.18 – 2.53)	0.005		
Daily Methamphetamine Use*	1.68 (1.19 – 2.37)	0.003		
Daily Crack Cocaine Use*	1.59 (1.22 – 2.08)	<0.001	1.32 (0.97 – 1.80)	0.081
Heavy Alcohol Use*	1.31 (1.01 – 1.70)	0.040	1.42 (1.06 – 1.89)	0.018
Any Injection Drug Use*	2.39 (1.88 – 3.03)	<0.001	1.82 (1.40 – 2.36)	<0.001
Any Public Drug Use*	2.24 (1.89 – 3.09)	<0.001		
Service Access				
Counselling Enrolment*	1.78 (1.39 – 2.30)	<0.001	1.85 (1.40 – 2.44)	<0.001
Prior Treatment Enrolment	2.41 (1.44 – 4.04)	<0.001	1.82 (1.05 – 3.18)	0.034
Current Treatment Enrolment*	1.27 (1.02 – 1.58)	0.029	1.24 (0.98 – 1.58)	0.079
Unable to Access Treatment*	4.66 (2.97 – 7.31)	<0.001	3.76 (2.29 – 6.17)	<0.001

CI, confidence interval; GEE, generalized estimating equations

*Denotes activities within the last 6 months

†Includes informal recycling, window washing, and binning

‡Includes drug dealing, theft, robbing and stealing, and other acquisitive criminal activity